Department of Computer Sciences and Technologies

Improving Students Practical Learning for Higher Competitiveness in the Labor Market in Macedonia

Students Career Portal SCP

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Abstract

From software engineering perspective, building a software project must precede the determination of needs and acceptability of that system in order to minimalize the risk and build successful system. On this case, there is determination of need for a system that will serve as bridge between companies on one side and students on other side, in order students to find their practical work. There also has been given a strong research aspect of role of student's practical work in order to improve theoretical learning learned on classrooms. Furthermore, these research aspects have been analyzed through different models on EU countries, with statistical determination of this aspect.

This software project is named Student's Career Portal, and on pre-building phase there has been on depth research about would that kind of system be accepted from students and companies by analyzing their answers through surveys. After that, from software engineering perspective system goes onto conceptualizing and modeling phase to determine all necessary system components. On the phase of conceptualizing and modeling there has been provided and UML approach of system development through all types of UML diagrams. And at last the system goes on real world development where each system component has been analyzed, designed, programmed and incorporated onto SCP software system.

Абстракт

Од перспектива на софтверски инжењеринг, во процесот на изградба на софтверски проект мора да предходи идентификација на потребите и прифатливоста на таков систем, за да се минимизира ризикот, и да се изгради успешен систем. Во овој случај, постои определување на потреба за систем кој ќе служи како мост меѓу компаниите од една страна и студентите од друга страна, со цел студентите поефикасно да најдат практична работа во областа на која студираат. Исто така, е даден силен акцент на изтражувачкиот аспект на студентската практична настава, со цел да се подобри теоретската настава која се изучува во училниците и факултетите. Освен тоа, овие изтражувачки аспекти се анализирани преку различни модели во ЕУ земји членки, чиј аспект е и статистички поткрепен.

Овој софтверски проект е именуван Студенски Портал на Кариера, и во фаза на пред-изградба на истиот, е направена детално изтражување на тоа дали ваков тип на софтверски систем ќе биде прифатен од студентитет и компаниите, преку анализа на одговорите од соодветните анкети. После ова фаза, од перспектива на софтверски инжењеринг, системот продолжува во фаза на концептуализација и моделирање за да се утврдат сите потребни компоненти кои треба системот да ги нуди. Во фаза на концептулизација и моделирање, е даден УМЛ пристап на развојот на системот преку сите видови на УМЛ диаграми. И на крај, системот продолжува во развој како реална апликација, каде што секоја компонента поединечно е анализирана, дизајнирана, програмирана и интегрираниа како дел од системот наречен Студенски Портал на Кариера.

Abstrakti

Nga këndvështrimi i inzhinjerimit softëerik, ndëertimit të një projekti softëerik patjeter duhet që ti paraprijë përcaktimi i nevojës dhe pranueshmërisë së atij sistemi, në mënyrë që të minimalizohet reziku dhe të ndëertohem një sistem i suksesshëm. Në këtë rast, është përcaktimi i nevojës së ndërtimit të një sistemi i cili do të shërbej si urrë ndërmjet kompanive nga njëera ana, dhe studentëve nga ana tjetër, në mënyrë që studentët të gjejnë punë praktike ne fushën e tyre të studimeve. Poashtu i është dhënë nji theks i fuqishëm rolit të punës praktike të studentëve në mënyrë që të përmisohet mësimi praktikë që ligjërohet nëpër klasa dhe fakultete. Për më tepër, këto aspekte kërkikmore janë analizuar nëpërmjet modeleve të ndryshme te shteteve anëtare të BE-së, të përkrahura edhe me aspekte statistikore.

Ky projekt softëerikë është i emërtuar Portali Studentor i Karierës, dhe ne fazën para ndërtimit të tij është bërë analizë e hollësishme se a do të pranohet një sistem i këtillë prej studentëve dhe kompanieve, nëpërmjet anketave përkatëse. Pas kësaj, nga pikëpamje e inzhinjerimit softëerik, sistemi kalon në fazë të konceptualizimit dhe modelimit, për të përcaktuar të gjitha komponentat e nevojshme që sistemi duhet ti ofroj. Në fazën e konceptualizimit dhe modelimit është dhënë një qasje nëpërmjet gjuhës modeluese UML për dizejnim të sistemit nëpërmjet të gjitha diagramve që përmbahen nga gjuha modeluese UML. Dhe përfundimisht, sistemi kalon në fazë të zhvilimit si aplikacion real, ku cdonjëra fazë është analizuar, dizejnuar, programuar, dhe ikuadruar si pjesë e sistemit.

I.   Introduction

Universities are the engine of knowledge where the students should get enough theoretical and practical knowledge, so after the graduation they could easily be incorporated into the labor market. Their incorporation to labor market has overall general benefits, not just for students as newly graduated to better find their job, but also for companies to find the adequate staff which will entirely satisfy the job need requirements. Having that structural system configured properly can also be defined as an engine for overall economy boost for the country, and of course decreasing the unemployment rate.

On context of this problematic, here will be given several analyses, performed in Macedonia, and analytical reviews about EU countries how they deal with this problematics, and what numbers say about that. How we can incorporate their good practices in Macedonian labor market to create better relation between labor market and Universities by providing concrete practical work for students on their field of Studies.

The context of analyzing these problematics aims to provide the need or not, to a software solution which will serve as a bridge between Universities and Companies, and direct benefit will have the Students which more easily can find an adequate practical work on the field on which they study. The deliverable of all previously analyzes which in depth will be elaborated in the further context, will give the green or red light for a crucial need of such software application to be developed. The actual analyzes are performed on three dimensions which includes analyzing the student opinion, analyzing the labor market opinion and analyzing the EU countries in comparative with us, on context of this problematic in order to incorporate their successful approaches how they deal with this problematic, and will the software platform will be crucially helpful in this context.

On context of all this research will be our situation on Republic of Macedonia among Universities, Students on one side, and Labor market on other side. How the current situation can be improved, and how IT can help on this way in order to improve students practical learning to be more competitive on labor market. Because all we are witnesses that many times, almost in all public declarations the Macedonian Economic Chamber has declared that there is serious gap between what Universities produce and what actually labor market needs. Furthermore, according to those plenty public declarations of Macedonian Economic Chamber, even the graduated professionals from Universities are not suitable to be incorporated on labor market due to the lack of the practical work.

The main focus of this research is how IT by providing a software solution can help to fill that gap, but first there are made analysis about does that software solution will really fill the gap, is there a need for that software solution and will it really be accepted to serve as a bridge between Students on University and Companies in Republic of Macedonia in order to find adequate practical work on the field on which they study.

Taking those analyses on context of determining is there a need of software platform to fill the gap between Students on university and Companies to prepare adequate staff, is also a software engineering approach to minimalize the risk of software development failure according to market analysis needs. The analysis determines the importance or not, of such software application, and as a deliverable of those analysis will be given green light to develop such software platform which will help to improve the students practical learning on the field on which they study.

In the beginning of this research, there will be analyzed the EU member states official reports about how many students are included on their labor market for practical work on the field on which they study. And how their practical work help to be more easily incorporated into labor market, and how this system of student's practical work, commonly referred as internships helps to have very low unemployment rate and efficient integration of Universities and labor market. On focus of analysis are EU official reports and also individual EU member state's reports from Universities, government, and non-government institutions, in order to have a clear picture of how crucial is this problematic, for examining further analysis in context of developing software platform to help incorporating those successful approaches.

II.   Research Field

On the first steps of this research it will be provided a comparative analysis between student's practical work in EU countries and their impact in Labor market, and the current situation on Republic of Macedonia on this field. It will statistically be analyzed how student's practical work on the field which they study help the students to build more successful career. And as a deliverable of those analysis it will conceptualize a helpful tool in order to find a path of how those good approaches to be implemented on SEE University.

On this point, as a deliverable of all research will be to provide an IT software solution called Students Career Portal (on later text commonly referred as SCP), which will serve as a bridge between companies and students on University. Furthermore, by using this software solutions Students will have an Opportunity to accomplish the law requirement for obligatory practical work on the field on which they study, according to Macedonian Law for students' practical work published on official newspaper no. 120/10.

Furthermore, also companies will gain from this system, because they will have good opportunity to find appropriate personal required for their open vacancies, because we often have listen that graduated student's skills are not compatible to what the labor market actually needs. This system may be good opportunity to solve these differences and build highly professional staff for the companies, and what's most important benefit for students is that system may be good opportunity to improve theoretical lessons on universities with practical work on companies.

According to Annette Cerulli-Harms, from University of London (Research Report November, 2017) which claims "*The reasons for conducting an internship during a study course can differ greatly between individuals and may thus entail different effects on subsequent education and employment outcomes. Internships during studies could be mandatory, or voluntary. Students may seek them out of self-interest for orientation or education, or because it was recommended to them by parents or peers. Internship experiences following graduation on the other hand serve as a means of transitioning to the labor market. Graduation can be seen as a natural time zero*."

III.   Goals of Research

Goals of this research are to provide depth analysis of student's practical work on labor market in different countries in Western Europe, among different EU Universities. What statistics tells us about that impact and learning outcomes, and what we can learn from their successful system. Because in order to be successful we must follow the successful ones. And how those good practices can be implemented here by using the power of information technology and software development.

After depth analysis, the result of that may be conceptualizing the need of a software implementation that will support those mentioned goals, which may lead to follow good practices of EU Universities about student practical work. This includes, building a Students Career Portal web solution which will help students to find appropriate practical work in their field of studies. Furthermore, in this software platform, Companies by their vacancy characteristics which they post, this will be a good suggestion for Universities about on what subjects to focus on during studies, and will serve as acknowledgment to Universities about what labor market actually needs to fulfill their job requirements needs with highly qualified and highly prepared working personnel.

By conceptualizing the need of the Students Career Portal software system, students will have much more opportunities, because just by creating their profile onto the Students Career Portal, and login they can search and choose among the desired practical work which fulfills their needs on the field on which they study. So, this system gives to students the best opportunities to upgrade their theoretical learning on Universities with practical skills on the Companies, and to achieve professional skills which may help them later to easily be incorporated in labor market as highly professional personal.

IV.   Hypothesis

The main hypotheses of this research are:

1.   Internships increase the students' practical skills on the field which they study.

2.   Internships in companies can enhance students' interest towards learning.

3.   Internships better fill the needs for having more adequate staff for their company needs.

Brief explanation of three main hypotheses:

Internship is accepted by students in order to increase their practical skills on the field on which they study. This analysis will be performed by using a questionaries' survey by using official university

email. Because of law requirement for student's practical work, there is strongly possibility on positive results of the survey based on fact that students will have excellent opportunity to find and accomplish practical internship in order to graduate. Furthermore, this system is for main good of students' professional enhancement side.

Second hypothesis, Internships in companies can enhance students' interest towards learning, will be analyzed in cooperation with SEEU Career center by providing adequate survey on alumni and analyzing the numbers of students that may accept to gain a job on the field of studies, and their view about these problematics.

Third hypothesis, internship is accepted by companies to fill their needs for adequate staff for their company needs, claims that the companies itself will have interest to hire students for their practical work in order to build highly professional staff for their company needs. This hypothesis will be verified through survey on more than 15-20 companies' in north-west region of Republic of Macedonia about their capabilities to hire students for practical work. Their opinion will represent a building block in order to conceptualize the need of SCP software solution.

V.   Defining the internships and their importance to improve students' practical learning

The term internship, or on some other states among Europe is called also traineeship, is conceptualized as a practical work (and that often may be part of a study program) including an educational or training factor which is contract based with defined time-box. They are generally short to medium in terms of duration (from a few weeks up to six months, and in specific cases lasting one year). In this research the terms internships and traineeships are used interchangeably as despite the differences that are regulated by law on some EU countries (internships often are shorter compared to traineeships and more often relate to positions in professional fields of Studies), they share the similarity that they are good to be tied to recognized study programs, meaning that the practical work can be part of a program that follows to a current study. More precisely, there are different types of practical learning or internships can be distinguished, such are briefly described below:

- Internships which are part of a University program or are part of any professional training (for example computer sciences, business administration, law, etc.). Internships that belong onto this type have a general focus on learning purposes and are often observed and certified by education institutions such are Universities or High-Schools. Even though the main focus is to prepare Students for the labor market, these type of internships also focuses more on enhancing the learning outcomes of Students than surely helps them to build stronger knowledge base on the field of their studies. These categories of internships are very common in University-based VET (Vocational Education and Training) syllabus and are increasingly used in Higher Education study programs among all Universities in European Union.

- Internships which are related with active labor market regulative. The main focus of such type of internships is to help Students into employment and as a characteristic of this approach, these type of internships focuses less on education. However, this does leave out the learning factor,

but the main focus is more on providing rapid employment through achieving professional experience and skills. These type of internships are on many cases observed and supported by Governments through Public Employment Services, who are also on charge for monitoring the quality, value and results of this type of internships. On face of the economic and financial crisis among many States across the EU, this type of internship has gain huge popularity across many Countries. Thereby, these internships commonly are supported by GDP of states, also on this case is involved the European Social Fund to help founding them in cooperation with Governments according to precisely defined plan programs.

- Internships which are provided in the open market. This type of internships mixes a large forms of types of internships that currently are provided onto the labor market. Commonly these type of internships are correlated for positions in different professional areas - a law graduate/student may find a practical work at a law firm over the winter break, or a middle-school student may find a consultative office for professional orientation which are common on many EU Universities. A science student or already graduated may find a practical work in a development area and so on. According to active labor market policies internships, these type of internships are generally not correlated to a specific recognized study programs, in terms that Universities doesn't have any acknowledgement about these type of practical works. However, there can be an undefined border between a Student that works on internship and someone that is working on testing period after having been employed on regular basis. The regulations and structure for this type of internship are generally established by employers and Students themselves on contract based, without any interference by Public Employment Service or education providers such are Universities. These type of internships are generally used by graduated Students after completing their studies, which intend to gain the necessary work experience fall into this category, beginning from unpaid work vacations from which newly graduated Students benefit work experience on the field of studies, so later they can have better opportunities on labor market.

However, this kind of categorizations are made on German labor market, and their accordance with Universities, graduated students, labor market and collective rules. But, in further research they will be analyzed as commonly internships that intend to improve students practical learning and there so to accommodate the transition from University to suitable work place achieving it by highly professionalism. Among many of the European Union member states, the popularity of internships as part of Active labor market regulation has been increasing because of the proofs presented for the positive impact results of internships that are officially reported by Universities. The crucial interpretative argument for positive impacts that are identified is the plainly settlement on the entire content, regulations and structure of these types of internships, which are often strongly under observation of Universities itself me, or by public employment services and even Companies. Furthermore, they are observed by third party institutions such are Student Service or organizations for human rights, which have right to strain out internships that are of lower quality in terms of low payable that infringes the law, or abusive and not correct condition for Students.

But even on some EU member states the practical work (internships) are not regulated by law and there is a huge number of Universities, and research centers which report that Internships are much better protected if a law framework or regulative exists on which will be based the contracted practical work or internships. However, sections of what are defined as internships in many states are not regulated and entirely lie on individual agreement between the Companies and the Students. These methods are very vulnerable, because can be paid very low and does not provide the practical work the same rights and benefits that are guaranteed to regular employees. The learning results component of the internships,

which is part of a study program on University and active labor market regulations, is much better secured if they are based on specific law framework and highly defined criteria, compared to the open-market internships which drawbacks were already elaborated.

The concept of effective practical work (internships) to improve students' practical knowledge

The main purpose behind the effective practical work of Students across internships in order to improve students practical learning has come into the preceding analyzes at certain arguments. It may be beneficial to explain what is the understating of the term effectiveness. Figure 1, demonstrates four phases in the development and application of a practical work. Effectiveness commonly points to the link marked 2: Does the student learn what Universities designated them to learn? However, in order to be effective in this point, the assignment needs first to be effective at level 1, which claims, that the students' needs to do (or to be in ability to do) the things the assignment designer (Professor) aims them to do.

A general drawback of practical work in the teaching classrooms is that it has become recipe following, which means that the students often not analyzing about why they are doing what they are doing, but they are just following the given solution performed by Professor. But, that solution may be totally different what a real workplace on labor market may require. So, those assignments can be totally different with certain assignments on the workplace. The supplement of detailed recipes is an expression of the professors (or assignment designer's) concern with effectiveness at level 1. Whereas this is a required condition for improvement at level 2, that may be not enough one.
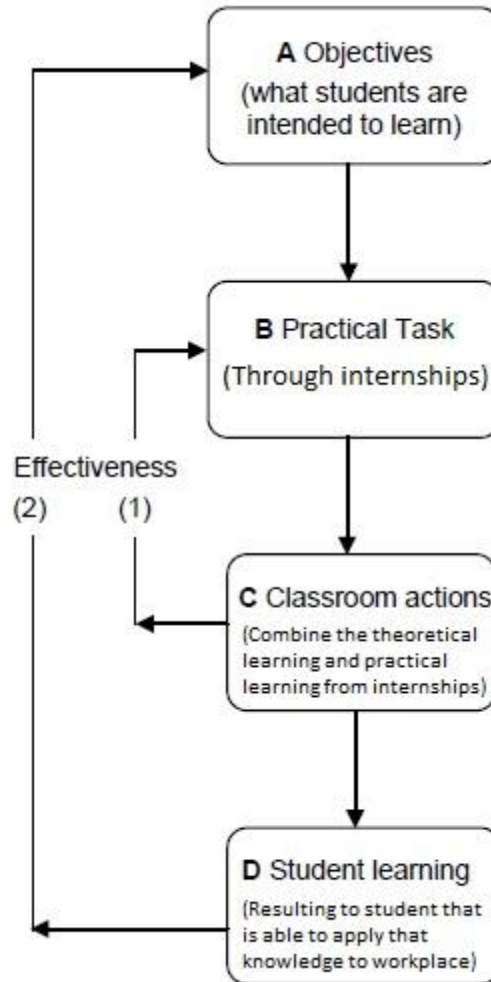
Figure 1 The process of improving student's practical learning through internships.

As the assignment design associate from the learning goals, a primary characteristic of effective practical learning is that the learning objectives must be clear which are represented as mark A on the Fig.1. Then, the theoretical lessons learned from Professor, may be improved further through practical work in case the student has practical work (internship on the field on which Student is studying) which is marked as B point. Then classroom assignments are indicator of student's skills about the impact of the theoretical lessons learned from lectures, which may be improved through a practical skills learned in company. This part marked as C is very important, because through classroom assignments the professor may measure and examine the correctness and essence of students' practical learning. And of course, on this point the Professor will have an acknowledgment on which topic the student is not good prepared and on which topic is strong enough with practical knowledge, so further the Professor to focus on improving the topics where student is not doing so well through classroom activities and assignments. Because neither the chef on company that provides internship cannot take the role of professor, neither the professor cannot take the role of chef, there so the diagram above provides a B section and C section for both roles respectively. And on the end, as an aggregate result of section B and section C there is

student on section D with proficiency to express those theoretical knowledge and practical skills onto use on every day practical work, which may be everyday tasks on the workplace.

VI.   Research Methodology

Concerning the structured research methodology, it will have focus on many parts of analysis phase during developing this research, but the main analysis can be explored into three parts.

1. Initially it will be provided depth analysis between EU Universities (on focus with German universities), processed statistically, how Student practical jobs or commonly internships, help they to be more competitive after they graduate from University.
2. Second analysis focus will be what tools are offered in Universities of Macedonia, examining SEEU and other Universities in order to increase the students' practical work.
3. Third, and most important will be providing a Software platform which will serve as a bridge between Students, Companies that are able to hire students for practical work, and Universities.

The research methodology in detail can be explained in the diagram on Figure 2, below:
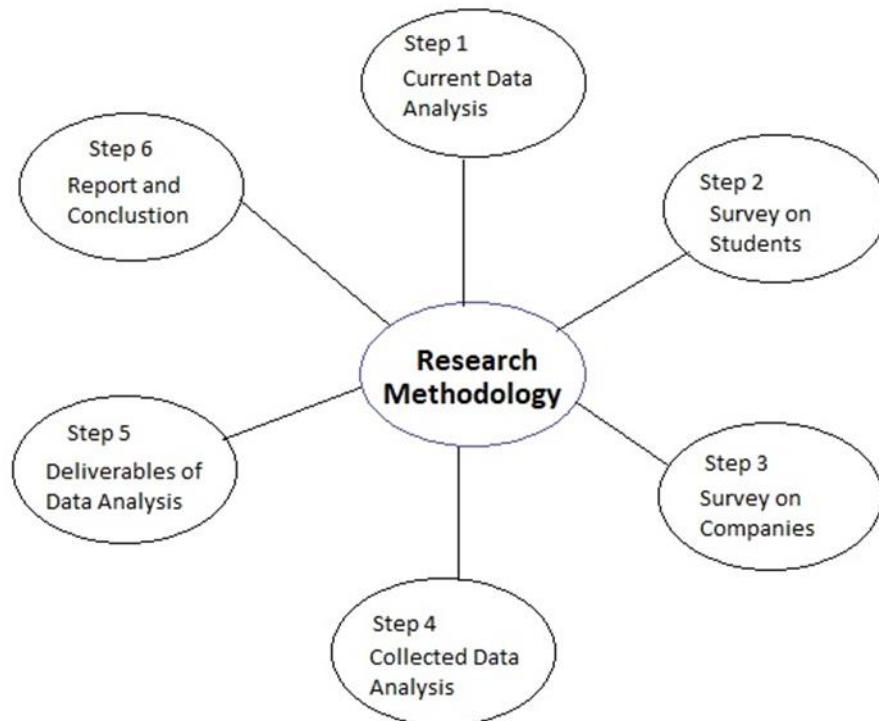
Figure 2 Research Methodology diagram used for this project.

The synthesis of this research concerns the problem analysis of the chosen field and why is the need of Software platform to fill the gap of this problem is crucial, will be composed by researches on two dimensions:

1. Analyzing the Data from official EU member states, and reports from their Universities which has to do with Students jobs and their impact on labor market. This will include:

   ▪ Analyzing Data from EU reports about Education and Development

   ▪ Analyzing other Research papers about Students practical work on the field they study.

2. Analyzing Data from SEEU Career Center about the student percentage that gain a student practical work on the field on which they study.

3. Performing survey on 30-45 companies, public institutions and local governments in Republic of Macedonia about their capabilities to hire Student for their practical work on the field of Studies

Conceptualizing the problem analysis

The idea is to build a software project that will serve as a bridge between students that wish to find a practical work, and companies on other side which want to build more professional staff for their future needs. We already know according to statements of Macedonian Economic Chamber that companies on Macedonia today face with non-adequate staff for their company needs, and this is addressed due to lack of practical work during studies. There so in this section I will provide an analysis about some EU countries and their ratio of student's practical work, and of course the derived impact to the overall company.

The conceptual analysis of this research will be focused on real world problem of our condition about student's practical work issue, giving explanations about different approaches on theory model, and does they may fit or may not fit, based on relation between real world problems on this issue, and as a result of this relations will derive to appropriate conclusion according to each hypothesis as a main postulate for building such software solution. Each section which is represented on the Research Methodology diagram on Fig.2, will start from Real world problems that we face currently on Macedonia in order students to get practical work on the field on which they study, and companies to get appropriate personnel for their company needs. So, each research methodology phase as described above will face four block determination, starting from conceptualizing real world problems and giving explanation about them according to data that are collected and analyzed, which will lead to conclusion block, and this process of conceptualizing each phase of research methodology is showed on Fig. 3 below.
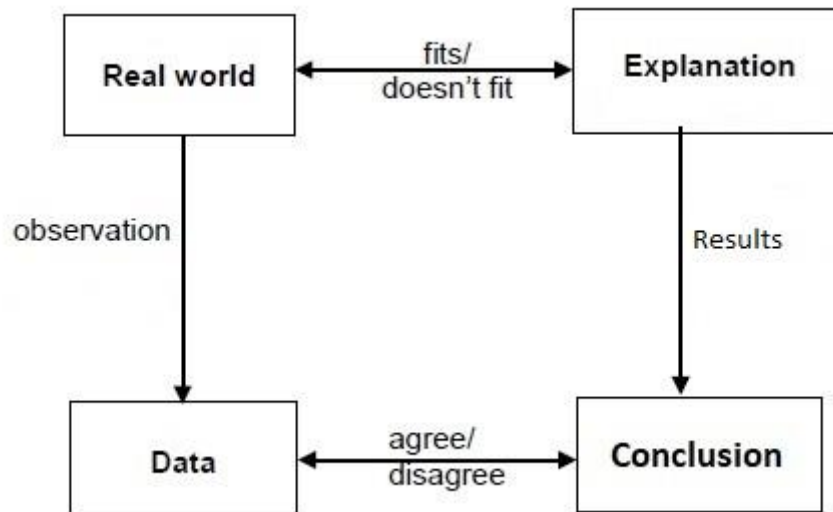
Figure 3 The model for Researching methodology.

Real World problem of the section will be observed with questions from real life that touches this issue on both edges of the bridge that aims to serve between students and companies. These real-world questions will face to determine the value of given hypotheses for building a software project to fill the gap between students and companies in order to complete their needs. Real world problem questions like "Do you think there is a gap between theoretical learning on Universities and practical work on Companies?" are determined through both way surveys that intend to clarify their real world problems that faces two edges of the aforementioned bridge, which Students Career Portal intend to accomplish. Furthermore, according to the researching model that has been described above, there will parallel given explanation for each real world question and all responses from students and companies which represent the two edges of system will be accumulated on data section, and according to observation of those Data there will determine whether there is a real need to build a software platform Students Career Portal or not.

Students from one side, and Companies on other side are two edges of the software platform that will serve as bridge between them in order to simplify and help students to improve their practical learning. The importance of building such software system is in detail described below through different dimensions of this huge issue on Republic of Macedonia. Most of described analysis for the importance of internships on improving students practical learning, are provided through statistical analysis, with on comparative view with different countries and their different approaches how they have deal with this very important problematic of nowadays for overall economic development.

The project idea, starting from analyzing real world problems is crucial on further development of this research, because that creates postulates of successful software solution and gives real opportunities to given issues. This is crucially important, and the statement according to Thompson and Zeuli, on research paper 347-8, of University of London, is:

"At key points in the discussion, the teacher may present current scientific accounts of the phenomenon under study, but such presentations should come as answers to questions or solutions to problems that

students are actively puzzling over – thinking about – not as answers to questions they have never asked, about phenomena they have never wondered about."

The fundamental suppose, as Thompson and Zeuli elaborated on to this point, is that students will gradually build not only their own individual meaning of scientific ideas, but will also learn how to perform for themselves some variants of the thinking processes that are necessary on workplace. Actually, for some Professors, the main goal is that students to evolve not only implicit knowledge-by-demonstrations that enables them to accomplish a specific research 'scientifically', but also explicit, declarative argumentation of the logic of scientific that stand behind that research and the development of scientific pronunciation of the knowledge. This can be totally supported through practical work on the field that the students are studying.

Studying a specific program on the University is not the discovery or building of ideas that are new and unfamiliar to others. Somehow, it is doing what others already know, and from this standpoint that's proven theoretical knowledge. The difference, from an exploring prospect, is same like that among solving a puzzle and getting the solution explained to you by someone else who already knows it. The first requires including tracking several lines of logic and argumentation, while the second is effortless and with a given result. However, there is still exploring work to be performed in order to overcome it, and that is to be able to explain it properly to someone else, or to apply that solution onto new situations on real world scenarios. That is a difference between theoretical learning on Universities and the requirements on the workplace that students indent to achieve further after their graduation.

A correlation of this aspect is that practical assignments to increase students' practical knowledge should be seen, and considered, like communication proceeding and entails excellent opportunity for further professional development which later may reflect with overall improvement on labor market and overall economy.
Furthermore, from software development perspective, analyzing the need and requirement of aforementioned two edges of the bridge that will fill the gap between students to achieve practical work knowledge and skills, and companies to achieve highly professional staff for their needs, represents an suitable analyze for minimalizing the software project development risks and determining correct features and functionalities what the system should provide in order to fill the aforementioned gap, and be successful software system.

Practical work learning or internships are the primary factor for successful passing between newly graduated students to highly professionals onto the workplaces in the companies. Practical work learning is a great method for Students to develop and increase their professional potential. The Practical work-based element contributes primarily for developing a professional knowledge and can increase the self-confidence of those Students, which could otherwise see themselves not enough professionally prepared for that passing to labor market. Practical learning on the workplace through internships enables those in employment to develop their potential while maintaining their practical skills on the field of Studies. Furthermore, a nicely accomplished practical work, may alongside also to strongly facilitate the social coherence in our societies and overall economic development.
On context of this approach, a huge number of Students (also newly graduates), also go for an internship in more applied fields such as computer/software engineering, and business administration, which certainly are fields which economies on development such is Macedonian mostly needs. There so, from this standpoint, the software platform that will serve as a bridge between companies and students is conceptualized by the fig.4 below:
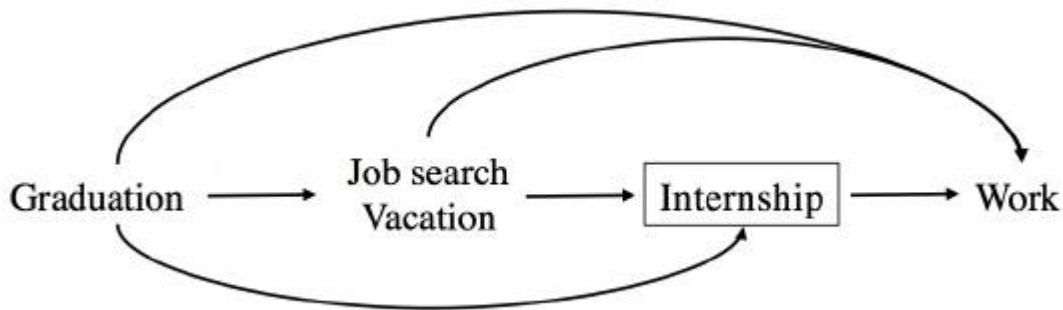
Figure 4 Conceptualizing the System Students Career Portal.

For the moreover exploration of this quite important problematics on Republic of Macedonia, it is worth analyzing the various ways which may lead newly graduates into direct hire jobs shown in Figure 4. This approach will also help to determine the career consequences if Students had never done an internship. The Students could go directly to full time employment after graduation or quest for a while before finding an appropriate hiring on the field of studies.

VII.   Internships on EU member states and Macedonia

To have better overview about the need of such software system, lets analyze through importance of internships on EU countries, where Macedonia aims to become member state. And then through data collected from survey will determine the role and need of a SCP software system which will serve as bridge between Macedonian Universities and Companies on Macedonian labor market.

In Riga in 2015, the Member States of EU approved to promote practical work-based learning in all its forms, with highly consideration to internships, by involving onto these project the social partners, enterprises, government institutions, and of course the economic chambers and VET (Vocational Education and Training) providers, also by founding innovations and practical work. Internships and volunteering take a very important function in the improvement of theoretical knowledge, and skills development of Students. They provide an alternative to more University-based ways of skills appropriation. Every practical work-based learning model which are precisely defined as (apprenticeship, internship and volunteering), has a quite different goals and scope, thereby different patterns of practical work models and their popularity is briefly listed below.

- The whole number of apprentices in an Academic year is estimated to stand among 2 and 4 million in the EU member states. However, in eight out of ten states where data is available there is a falling tendency in the number of apprentices, a tendency that has been notable for more than a decade. So, while apprenticeships have many advantages and positive outcomes as a powerful tool of transitioning Students into employment and represents a very good solution to the issue of newly graduated unemployment or to the better matching of skills supply to demand. Correlated to participation patterns, arguments indicate that where apprenticeships are considered a regular educational route (for example in Germany, Austria), in contrast with states in which apprenticeships are applied as a second option or used for purposes of career development which gets certification (for example in Great Britain and Netherlands).
- The whole number of internships in an Academic year in the EU member states is estimated to stand among 4 and 6 million. This calculation, however, is potentially to exclude the internships that are performed by student base initiatives with exclusion to educational institution. Internships serve all kind of young Student population, beginning from those in lower Vocational Education and Training to those in Higher Education.
- The whole number of young Students that volunteers (15-30 years of age) in an Academic year in the EU member states is calculated to be somewhere 1.5 million. However, this number has remained enough consistent over the past recent years. As regards to the participation patterns, the evidence indicated that volunteers are commonly higher University education, wealthier people, living in less substantiate areas, living in rural areas, and in employment status. However, this does not exclude that Volunteering is also used by people on social benefits.

The tendency, commonly related to apprenticeships and the internships, must be observed within a thorough and comprehensive perspective corelated to the HDI (Human Development Index) of the States, and also the other demographic developments factors and enrolment degrees onto the Initial Vocational Education and Training in overall.

Moreover, in terms of abilities and skills gained, also the employment result, the practical work-based learning in the model of apprenticeships, internships/traineeships and volunteering Skills Development and Employment: assures a stepping key point to better and more suitable passing from the world of education to the world of labor market where only highly professionals that are enable to put the learned theoretical knowledge onto the practical use can achieve faster and better perspectives. It is the conjunction of studying and taking practical work on companies, that is intended to offer huge specific benefits on internships with relation to the advantage they hold in the labor market and increasing students practical learning on field of Studies.

Apprenticeships route to formal specific qualifications and apprentices provide job/profession-specific learning results which includes both theoretical and practical knowledge, adding also sidelong skills which are practicable across various of professions. On correlation point with the University-based track, apprentices achieve a better value of the world of labor market and the area in which they are employed. It is usually for Students that take apprenticeships to remain with that company that trained them. An approximately calculation, based on the available data according to Eurostat base and Eurobarometer data, is that the fulfillment rate of apprenticeships is between 50 per cent and 85 per cent on EU. Wherefore, there is a considerable risk of dropout, but many companies offer good opportunities for those who complete their apprenticeship. It is evaluated that, on average, among 60 and 70 per cent of the apprentice's assure employment immediately upon finishing of their apprenticeship on companies.

Internships do not corelate to a specific University qualification but can be part of a wider spectrum of qualification such is the field of studies (which may have thousands of subfields), and companies often provide commonly recognized certificates after finishing of the internship.

Internships ensures the necessary practical work-experience for Students which enhances their CV when applying for open vacancies on labor market. The learning factor is commonly less highlited and structured in contrast with apprenticeships, this means that there is not always a strict learning plan defined. Regarding to importance onto the labor market, 7 out of 10 former Students that has followed internships claimed that their internship experience was very helpful in finding a regular job. On this context, according to Eurobarometer, 90 per cent of asked Students agreed that during the internship, on the workplace they learned things that are helpful for professionally development on the field on which they study. However, the labor market entry percentage strongly differs depending among different countries, their unemployment rate, but also depends on the type of internship.

Volunteering does not corelate to any type of University or High-School qualification. However, the volunteering or the professional skills achieved can be documented in a generally recognized certificate among all EU member states. Moreover, volunteering corelate to personal development, it can lead to the achieving of professional skills that are highly required onto the labor market. Official analysis of the employment reports related with volunteering has acheived relatively very small research examination and therefore there are few amounts of data about how volunteering recourse the integration labor market.

What is elaborated to as internships in many countries among Europe they are not regulated with law framework, and often are performed as individual contract agreement between the Company and the Student, these highlights the concern which were mentioned onto the open-market internships. However, currently on Republic of Macedonia there is initiative through proposal law which currently on (25.01.2019) is on first reading on Macedonian Parliament which intend to regulate the status of internships as work-based approach which will make transition from University to desired work place more suitable and with stronger practical knowledge. According to Commission of Labor and Social Politics of Macedonian Parliament, the new law intends to give the students an opportunity to gain practical skills on the field on which they study, and companies to gain more adequate staff for their work needs. Furthermore, the new law which is discussed on Macedonian Parliament for internships and work-based learning, provides that companies must pay 42% to 74% of Macedonian monthly net pay according to Macedonian Statistical Center, to Students that doing internship to any company more than 3 months' period.

However currently here on Macedonia, but also on other EU members states these three models can be very low paid, or unpaid with the practical work not carrying the same rights, benefits, and obligations that regards to the regular employees. The learning element in the internships, which is part of an education program on University, is much better acquired compared with open market internships. Main challenges, correlated generally with the open-market internships, which are most tangible for abuse, have these issues:

- not frequently internships are based on fully clear law regulative regarding recognition;
- not enough amount of learning takes place, frequently mismatches the learning goals;
- often may lead to absence of competences of trainers or other types of workplace personnel;
- absence of criteria during the hiring practices; and
- the entire duration of internships is often longer than half year, but give's no guarantees for certification of even full-time employment.

Different countries provide different status for internships. Just some of EU member states such are: Belgium, Hungary, Poland, Portugal, Cyprus, Czech Republic, Romania and Spain have a defined legal framework conditions for internships. However, the privileges but also the obligations depend on the

contract-based agreement between the organization and the Student. Furthermore, in some other EU member states, such is Austria, Germany, if you follow practical work, you are count as regular employee, which means that to the Students applies the same laws and regulative as paid employees, regarding of labor rights guaranteed by law, workplace conditions and as well the safety regulations. There is also commonly the opportunity to do practical work (internships) for financial benefits, which provides a good option for Students to develop their knowledge and practical skills while not having any financial troubles. On these two aforementioned countries, the learning process that is included onto the internships is usually strongly defined, with strictly defined work-plan and learning results, which are provided in the workplace with specified assignments, which frequently involve a learning-plan schedule observed as the internships plan.

 On context of statistics, according to Eurostat data, that correlate with workers with University degree, in Europe has increased very fast since the measurements on the the 2000s. Though in 2001 on average only 17% of the entire population aged 25-65 had finished University education, in the EU27, measured in 2011 this percentage increased to almost 24%. But, across the same time frame, the distributed of employees which not having acheived at least High-school education (under the university degree) level has felt from 38% to 30%. This can be interpreted that whereas on 2001 62% of employees had at least achieved higher than secondary education, in 2011 70% of those had upper secondary or even University degree of education completed.

 Aforementioned rapid growth of participation of people on EU member states in University education also can be interpreted that there is an increased number of students living in the EU27, a demographic increase of student population from 16.5 million in 2001 to over 20 million in 2011.
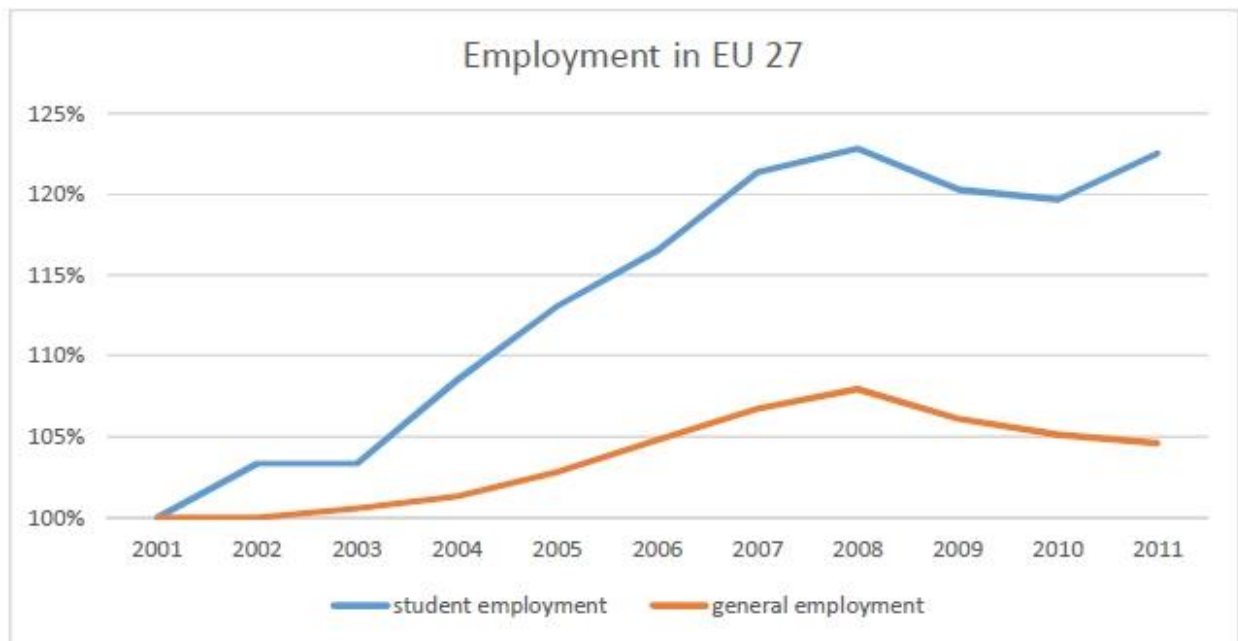
Figure 5 Relative growth of employment among students and in general population.

Source: EU Eurostat.

To conceptualize the importance of internships on European countries, there is provided an overview on the table below where are statistics for Students unemployment according to official statistics provided by national Universities of each country and accumulated on this table. The regulations and conditions of a practical work (internship) contract-based are highly dependent on the employment status of the internship, which are quite different substantially across different EU member states and across different models of internships within Member States. It's important to note that, when internships are regulated through employment-based contracts, general labor regulations aim to apply which certainly includes restrictions on working hours, holidays, social benefits, experience etc.).

However, practical work of students by the internships are frequently considered for the employees as an excellent method to fil work places with students which are improving their practical learning through practical work, instead of hiring non-adequate staff with lack of skills and competencies, that will need expensive trainings further in order to complete job assignments on the workplace. By this context in most cases, companies are considering students like the primary purpose of the internship, from which students beneficial is learning and achieving practical work experience on the field on which they study.

Country	Youth unemployment	Statistics made on	Previously status	Measurement
Greece	39.10	Nov/18	38.5	%
Spain	32.70	Dec/18	34.1	%
Italy	31.90	Dec/18	31.8	%
Serbia	25.30	Sep/18	27.5	%
Turkey	23.60	Nov/18	22.3	%
Albania	23.20	Sep/18	22.6	%
Croatia	22.70	Dec/18	22.7	%
France	21.10	Dec/18	21.8	%
Cyprus	19.30	Sep/18	19.3	%
Portugal	17.60	Dec/18	19.4	%
Sweden	17.40	Jan/19	16.4	%
Finland	17.20	Dec/18	17.7	%
Euro Area	16.60	Dec/18	16.9	%
Romania	16.20	Sep/18	16.2	%
Belgium	15.40	Dec/18	15.4	%
European Union	14.90	Dec/18	15.2	%
Slovakia	13.80	Dec/18	13.9	%
Bulgaria	12.80	Dec/18	14.2	%
Ireland	12.40	Jan/19	12.2	%
Malta	12.30	Dec/18	11.9	%
Estonia	12.20	Nov/18	16.7	%
Luxembourg	11.90	Dec/18	12.4	%
United Kingdom	11.50	Oct/18	11.4	%

Latvia	10.80	Dec/18	10.5	%
Lithuania	10.50	Dec/18	10.6	%
Poland	10.50	Dec/18	12.3	%
Norway	10.30	Nov/18	10.4	%
Hungary	10.20	Nov/18	10.1	%
Slovenia	9.70	Dec/18	9.7	%
Austria	8.90	Dec/18	8.8	%
Denmark	8.70	Dec/18	8.4	%
Iceland	8.40	Oct/18	4	%
Netherlands	6.60	Dec/18	6.9	%
Germany	6.00	Dec/18	6.1	%
Moldova	6.00	Sep/18	7.8	%
Czech Republic	5.80	Dec/18	5	%
Switzerland	2.40	Jan/19	2.4	%

Figure 6. Youth Unemployment Rate on Europe.

Source: https://tradingeconomics.com/ by official Report of 2018/2019

Furthermore, except the fact that through internships students manage to improve their practical learning and gain work experience. Statistics has determined another huge beneficial for students by approving internships on the field on which they study. This has to deal with fact that many students that has been hired onto particular company for following practical work, after graduation, the company has hired them on regular basis, because is interest of Companies also to have professional personal for their workplace environment. This statement is based on the following statistics:

- In Germany involving their excellent dual-system 66 per cent of Students internships who accomplished on 2013 were hired on by their employers.
- In France according to official report of 2013, almost 67 per cent of Students that followed internships were in employment at least with seven months contract as regular employees after finishing their internship on same companies.
- In Luxembourg according to official reports from 2014, approximately 81 per cent of Students that followed internships were hired within three years' as regular employees after finishing their internships.
- In England, according to statistic of 2014, the average of Students that get hired from the same company that accomplished them an internship was even higher at 73 per cent.
- In the Netherlands, according to reports of 2014, almost 95 per cent of Students internships were in paid employment 1 year and half after they are finishing their internships as full-time employees on company.
- In Italy, according to their research reports from 2015, approximately 55.4 per cent of Students after completing the internships were employed in the same company and with the regulated contract for another 12 months.

*this data has been collected from Eurostat 2013-2015 different reports.

From all statistics listed on the table above an important accent will be notated to Germany, according to fact that is 83 million inhabitants state, and it has only 6.1% unemployment among students. This successful approach, which has been represented on figure 7 below, according to German Institute for Labor is called dual system of internships, which has been composed in accordance by three institutions, German Institute for Labor, Ministry of Labor, and Ministry of Education and Research of Germany. But how this system works?

Assuming that every student has got a vision about their future professional direction and assuming that the student has passed successfully the necessary application process, then the Student usually enters the internships. The student then finds himself in the role of a regular employee, which means that he has to sign a contract with the company, receive wage at the end of the month, and paying obligatory taxes. Of course, the student is at the Company three times a week and the schedules are made to not interfere with lectures on University. At the Company the student learns all the necessary professional skills needed not just for that professional area, but specifically for that workplace on Company. The student is faced with real conditions of work, which means that the product he works for is needed in the production process and will be shipped to the customer. At the University, the Student is faced with the theoretical lessons which often is conjunction of overall profession related subjects such are mathematics, programming, social studies, web development, hardware fixing etc. for IT faculty for example.
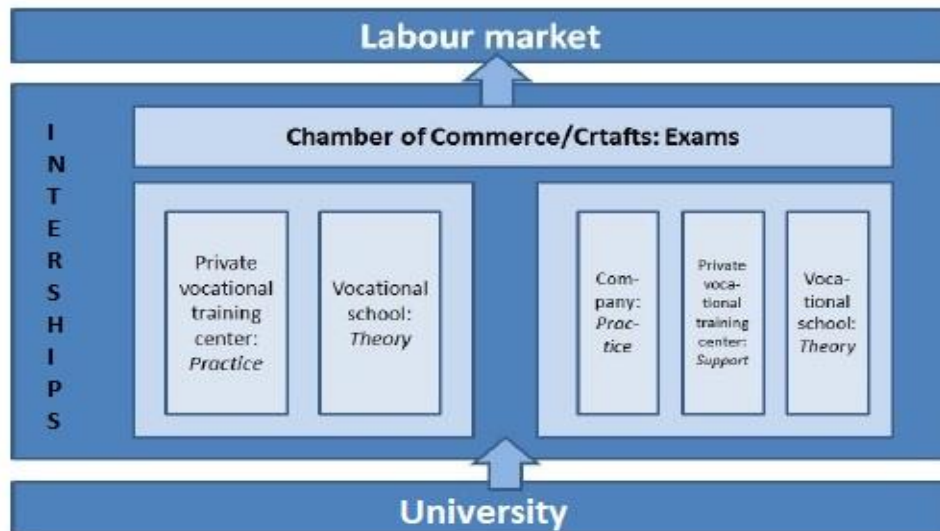
Figure 7 The German dual system of work practice (internships).

Source of picture: wikipedia.org

The overall learning results are strictly observed both by the company and the educational institution, on this case the University. But the overall learning success is guaranteed by the Chambers of Commerce and of Crafts which are the external partners which provide the final exams for that internship, which exams the Student must pass in order to continue further in studies. In some cases, these exams do not contain plain paper with question, but for technical profession may require concrete project, which later is evaluated and reported to both Student and University. But in many cases these exams are combination of theoretical and as well as practical parts. Without passing the exams and without the

adequate certificate of internship the student will not be allowed to work in his chosen profession. But once the student has passed successfully, the student is counted as highly-skilled professional which has strong background to enter onto the labor market, be very productive and get better payment compared to unskilled workers.

The purpose of building a software project called Students Career Portal, aims exactly following these approaches, and making a much easier for students to find a practical work (internship) only by few clicks on the software platform.

Furthermore, the second factor of the excellent German system of transforming students to professional and highly skilled personnel for labor market is also so-called project-based learning. This is an approach that of course is highly important, and briefly will be described further. On context of this, we all know that learning often happens to be performed when some Student is not prepared to it or don´t expect it. This issue should be made onto consideration when dealing with disadvantaged Students whose skills and professional skills stand to be much more highlighted onto in practical work rather than theoretical learning which may look entirely abstract for that student. Because of this issue, this type of Students is often characterized with learning failure in University and very negative learning experiences in terms of their exams and grades. Furthermore, because of this issue, they continually elevate some learning barriers which stand on their way for future professional enhancement which may lead them to disappointing even though their practical skills on the same profession may be outstanding.

For an example, we might observe at a young Student who left out of formal high-school or passed with not so good results and who now enters himself in professional training course. If the math professor asks that Student for a percentage calculation, most likely that student will reject that assignment because he has formed the feeling that he failed to study percentage in the past, therefore he will not be able to learn it now. However, on the other hand, a trainer in the wood-working company teaches the same Student in minimizing the waste of wood-material when cutting out the correct shape of the loudspeakers which he could take home after completion, the same young Student can be able to make the exact percentage calculation without even thinking that he has already calculated the Professor assignment by that. This is an important issue which highlights the importance of practical work as powerful learning block to build appropriate knowledge that will be applied on real world situations, which otherwise can very hard be overcome in order to integrate such types on students onto labor market of nowadays.

There are different other states that have copied and modified the above-mentioned German system of improving students practical learning through internships. A fresh example of this, which may serve as a model for Macedonian higher education system, is the Slovenian model of integrating students practical work to the labor market. And by this approach producing highly professional graduated students which easily are incorporated on every sector of labor market. In Slovenia overall passing process University to workplace, is often referred as Hybrid Model where theoretical part of the educational process in hands of University, and the practical is in area is responsibility of Companies and other social partners. The education process for a various profession is performed onto two different ways:

1. The University organizes theoretical and practical training as a universal regulation on whole University. Then if whole practical training or the part of practical training is will be performed at the employer, the University and the employer sign an agreement where are highlighted their common rights, benefits and obligations together with the rights, benefits and obligations of the student during practical work on that Company.
2. However, in this type of hybrid dual system the University organizes theoretical and basic part of practical education while the most part of that practical education is performed at the employer. Student and the employer sign a contract which must be approved by the Chamber of Commerce of Slovenia. After the approval of that contract the students achieves a status of internship which

further will ensure to the student a reward during the practical work at the employer and some other bonuses employees normally get by the employer and which are guaranteed by law. The number and variety of internships which are published annually by the call for enrolment or in a special publication of Chambers is in accordance with both Universities and Companies.

   The main difference in aforementioned programs is that on Slovenian model the Universities maintain learning focused entirely on theoretical aspect and less practical, while in the dual system like on Germany, such was elaborated, the practical knowledge is totally left on hand of companies and exams from chamber, which form the base of developing professional skills and knowledge, learning about the working environment, and all those aspect contributes to the professional socialization and boosted productivity as highly professional staff which very easily is accommodated onto the labor market. Internships in hybrid system are often about four months in University, and three there at the employer. But for different profession and University degrees this is regulated differently.

Furthermore, the other differences in University organization on hybrid system and the dual system of education, on dual system students that follow required internship on practical work provider, must successfully pass the final exam to get a degree of the University program (for example, a teacher, programmer, dentist). On Slovenia, the students until finishing the practical work, they have open doors onto employment to upgrade their education on almost all sectors, where on those sectors which require two-year program of practical work as necessary (for example in medicine) restriction may apply. The Slovenian model of internships has been presented on the figure 8 below.

However, the dual training approach has been developed for a large number of professions such as: web programming, different engineering professions, teaching assistant, stomatology, hotelier, tourism accounting clerk, law office helper and almost on every University degree that is offered to Students. And for all of those degrees exist appropriate agreements with Companies with private sector.
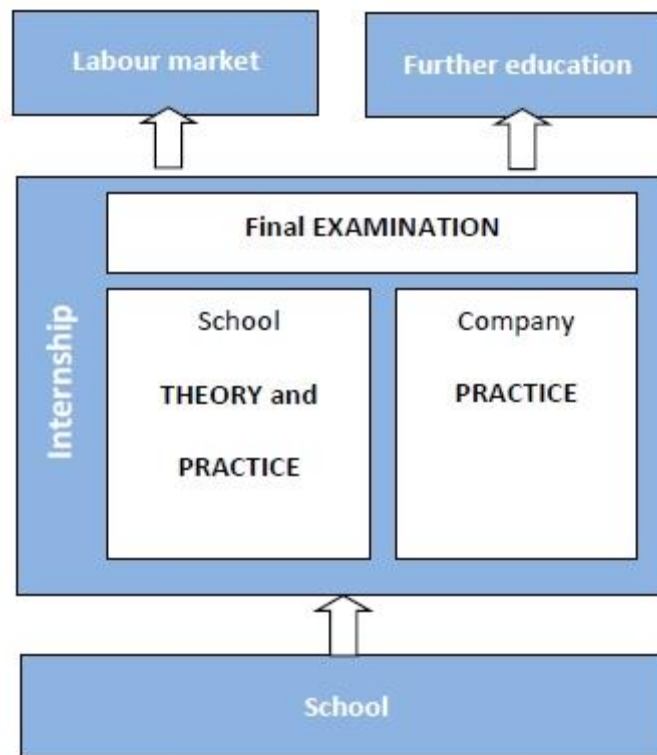

Figure 8. Work practice (internships) system on Slovenia.

Also, on Slovenia, the learning result is strictly observed by both: the company and the University Career Center. On this case, the theoretical part of the final exam is observed by the University and the practical part by the Chamber of commerce which observes and certifies the gained skills, knowledge and competences for different areas of that profession. Same as on Germany, without succeeding to pass both exams (from University, and Chamber) the student will not be allowed to work in his chosen profession as full-time worker. After the Student succeeds to pass those exams he is considered as highly skilled professional on his profession and the doors for labor market are open. This represents an excellent approach which improves theoretic lessons from University with practical knowledge.

The Slovenian system is more suitable approach to be incorporated onto the Macedonian higher education system, in order to improve students practical learning through internships in companies. Although this area is very interesting for further researches, it's beyond the scope of this research. This research intent to determine the factors which may be useful for building a software platform that will serve as a bridge on transitioning students from university to companies and improving their practical learning through real world task that they will face on everyday career after graduation from University. This approach is also very useful for Companies, and overall the software solution for this problem intend to be first concrete step on solving these issues which is common problem on Macedonian labor market.

Different individual EU member states are quite different on regulations of how differ greatly undergraduate students divide their time between study work and free time. But everywhere among EU members states the internships provide and good dimension not just to boost professional knowledge but also to gain students financial independence. There appears to be no correlation between the share of working students and the distribution of hours between working and studying. By this means that practical work does not interfere in any way the study time on Universities, because often this technical issue is covered on agreements between Universities that provides a learning schedule and Companies. However, this may be questionable, does students take practical work for financial purposes or knowledge benefits. This is elaborated on the following section.

Analyzing importance of student's practical work (internships) on different prisms

On this section I will try to analyze on two different dimensions the importance and impact of students practical learning, and those are:

Figure 9. Financial Motives for Internships

Figure 10 .Work experience enhancement motives.

The correlation between internships for financial reasons and achieving practical work experience, represented graphically shows a very high intention of students to achieve practical work experience through internships. Financial reasons entail for a student's situation more often but achieving practical work knowledge is most important for students among EU member states. According to the chart from Eurostat on Fig. 11 below it is shown that in several countries, specifically on France, Italy and Germany, achieving work experience overcomes financial reasons. On this context, more precisely an average of 59% students state that they are working to practical work experience.
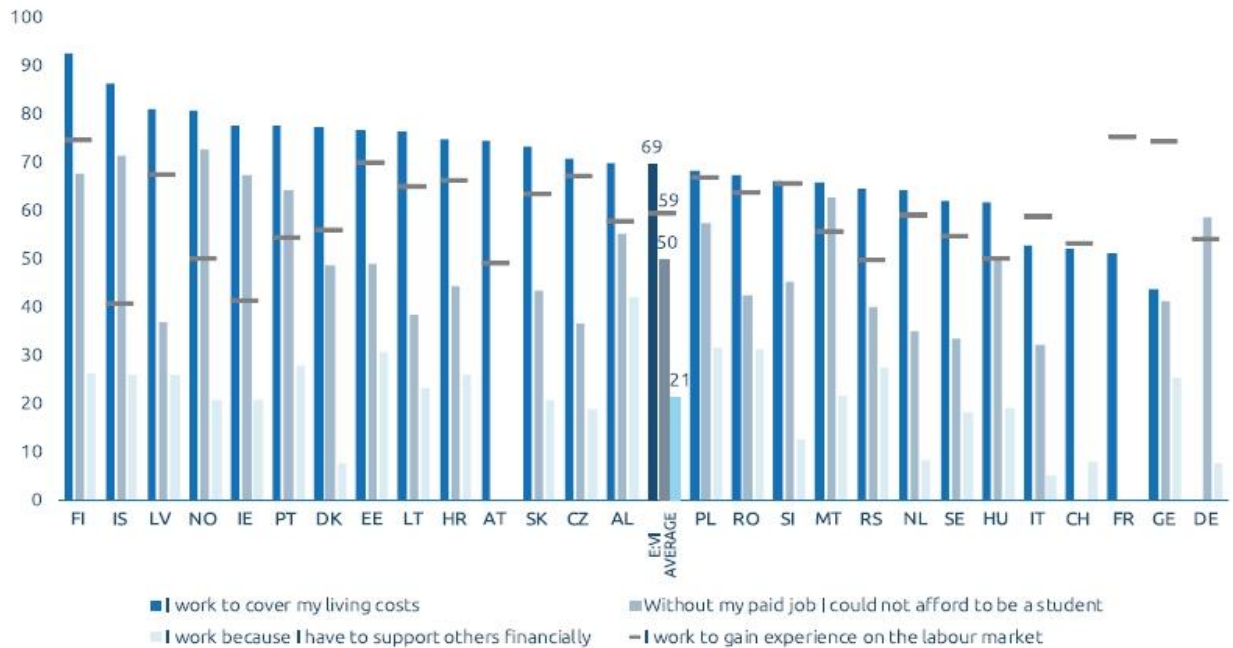
Figure 11. Role on student's practical work (internships) on two dimensions.

Furthermore, according to Eurostat (notations from 2018), they claim that 42% to 75% of students work to improve their practical knowledge and gain experience on the field on which they study. This is quite important because, by every statistical dimension overcomes the motive of students that work on EU countries for gaining financial benefits. In the majority of countries, students in second cycle programs start internships in order to achieve practical work experience more often than students on the first cycle of studies. This is most likely, due the fact that master students are much closer to passing onto the labor market as full-time employees. However, in Netherlands, Sweden and France, there are noticed only insignificant differences between the first cycle (Bachelor) students' rate practical work achievements are more frequently than Master students. This is represented on the chart below on fig. 12.

Figure 12. Students that work to improve their practical learning and gain work experience on field of Study.

However, the situation of Students unemployment on Republic of Macedonia is the worst on all European continent according to what official statistics say on the fig 13 below. We are all witness, that we see those statistics on real life according to the number of students that manage to find a work on the field on which they study. This may be to the lack of communication between companies and Universities, or the lack of appropriately legislative regulations on this sector. However, intending to build a bridge between Universities on one side, and Companies on other side may be helpful approach as a milestone on this path to correct the percentage of Students' unemployment on the future, and build more adequate staff for companies on the future which will reflect on every dimension, but most important certainly will result with successful profitable companies and overall economy improvement. But, determining the problems is always the first step that intend to find solutions for them. Macedonia: Youth unemployment rate from 2007 to 2017, is represented on the fig. 13 below:
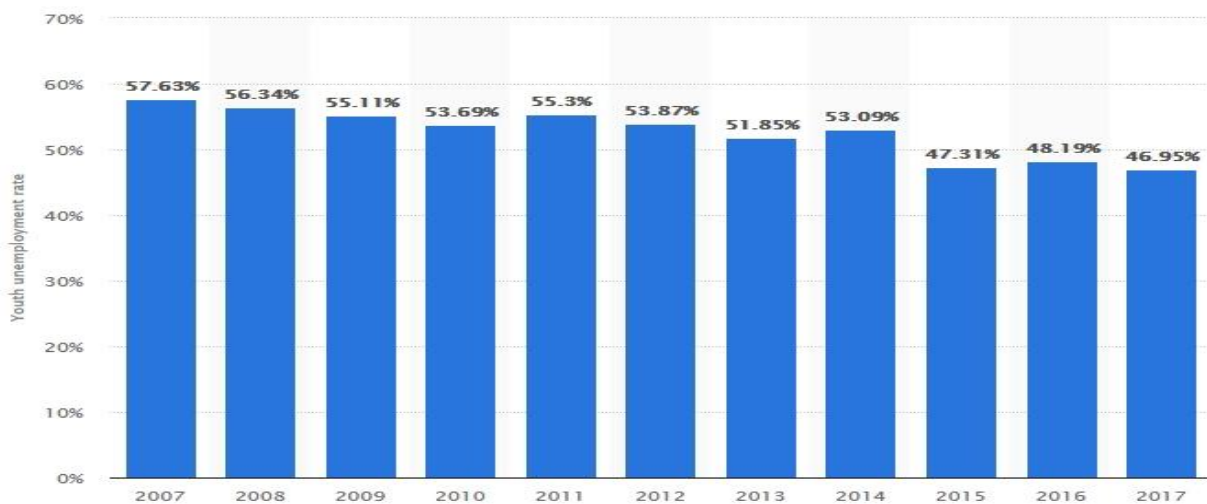

Figure 13. Macedonia: Youth unemployment rate from 2007 to 2017.

Source: https://www.statista.com

From 2007 to 2017, for a ten years' period there is 10.68% improvement on decreasing the unemployment among students. The rapid decries of unemployment among students on five recent years has mostly to do with first attempts to regulate by law this highly important issue which affect the overall economy. However, the last measurement ratio performed on 2017 is 46.95% unemployment rate among students and young people, which compared to the table on fig. 7 is much higher that Greece with 39.10% unemployment rate among students, and Spain with 32.70% unemployment rate among students. According to simple comparative analysis, Macedonia stands on the worst place far behind Greece, Spain and Serbia.
The percentages are alarm that crucial changes are needed immediately, and everything that may help on this direction will be quite useful.

There so, from software development perspective, this analyze give me green light to build a software system that will serve as bridge between Universities and Companies in order to decrease the unemployment rate among students, and in same time to build highly professionals that will be immediately adopted by labor market on Macedonia, which still is count as a country on development. But intention of this research claims that the internships may help to increase students practical learning, and on same time will help companies to build adequate staff for company according to company requirements. On context of this on the section below has been derived some important key points that must be fulfilled in order fill the gap of these issues and to build a successful software system, based on real world problems that we face on this context.

I.   Key points for companies

1. Determining what profile of personnel, they need
2. Determining how much their budged allows to hire students for practical work
3. Creating internal schedules on student practical work duration.
4. Determining how the company plan internships according to future development plan of company (e.g. new technicians for opening new department of servicing computers, or new business administrators that will manage future sales with expanding market to any new country).

II.   Key points for students
1. Deterring the future professional development (for e.g. if one IT engineer wants to be web developer, database administrator or business informatics domain).
2. Self-organizing the time University/Work so the impact of internship on theoretical lessons on University do not interfere.
3. Focusing on topic of interest (for. e.g. if a designer wants and have affinities to designs cars, he or she will apply for that industry on list of vacancies listed on SCP).

The intention of this research is to build the software system that serving as bridge, on the first edge of the bridge will satisfy the first listed key points, and on second edge will fulfill key points of students. However, this has to deal with self-organization. But is there a need of such software platform and would that software platform will be accepted by companies and students in order students to find internships to improve their practical learning. This is analyzed on the following sections through both edges surveys to determine the fact that is there a need for such software system.

VIII.   Research and data analysis for building SCP

SCP stands for Students Career Portal and is conceptualized software system platform that will intend to fill the gap between students that need practical work and companies that need highly professional staff, in same way improving the students practical learning and making them more concurrent on the labor market on Macedonia.

In above sections has been provided on statistical view of the importance and acceptance of student's practical work, referred as internships among every EU Countries, however through unemployment chart of students on Macedonia of 46.9% there is really a gap on comparative view with EU countries. Furthermore, on this section of research mainly focus is to identify whether the students agree or disagree on having a software platform such is SCP to easily find practical work, and by that to improve their practical learning.

The focus of research, apart from students, are also the companies, their thinking is same important in order to build functional system that will be successful on the intention of improving students practical learning through practical work on the field of their studies.

There so, the entire research and data analysis on this part will be divided onto two main section, research and data analysis from student survey, and research and data analysis from company survey.

I.   Research and representation of data analysis for student's survey

The primary actor of the SCP software system will be the students, because the primary purpose of the system is to help students to improve their practical knowledge through internships on companies, and by that this represents the crucial part of research.

II.   Research and representation of data analysis for company's survey.

Also, the primary actor on the SCP software platform will be companies, and other institutions which need student practical work and are capable to open vacancies for student internships.

Research and representation of data analysis from student's survey.

Apart from analyzing through research reports about student's internships on EU countries, and comparing them to situation on Republic of Macedonia, the main research tool for determining the real need of building SCP software system are the performed surveys. On this section, it will be explained what students think about internships, on context of improving their practical learning on the field on which they study. Furthermore, this section will give the answer for that: may the internships increase the student's practical skills on the field which they study and does the internships in companies can enhance students interest towards learning, which actually are first two hypotheses of the entire research. On context of this, here will be determined the fact is there actually the need for a SCP software system in order to help and simplify the process of finding students practical work on companies and enhance student's practical knowledge and productivity, on this way making students more concurrent and

adaptive to the labor market after their graduation. Because, the requirements of labor market often require staff with experience on the field on which they study, and every workplace has its own specific needs that graduated students must have appropriate knowledge to apply for those jobs on certain companies.

The survey on students is performed through SEEU Alumni, through Students Career Center from date 27 December 2018 to 11 January 2019. On this 15-day opened survey, for third group of students, bachelor, masters and doctoral, there are given 103 answers on 10 questions. Thereby, on this section will be provided the research, analysis and conclusions about first two aforementioned hypotheses as postulates of this project, as follows:

1. Which faculty you study ?
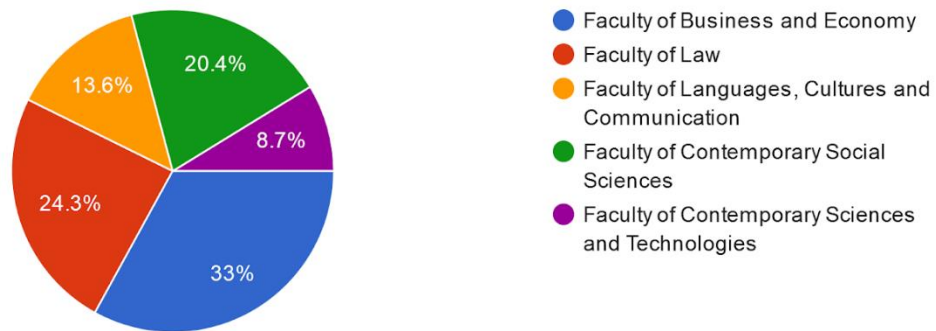103 responses

Figure 14. Which faculty you study Chart.

QS1. On survey participated students from all five faculties that are offered by South East European University, but from answered 33% were from faculty of Business and Economy, 24.3% were from faculty of law, 20.4% were from faculty of contemporary social sciences, 13.6% were from faculty of languages, and 8.7% were from faculty of Contemporary Sciences and Technologies.

2. Your gender:

103 responses
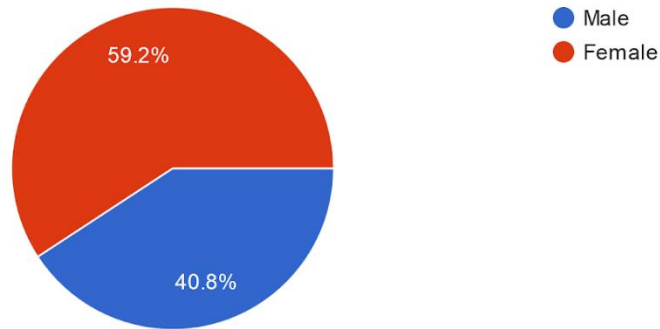
Figure 15. Gender Chart.

QS2. From participates on survey 59.2% were female, and 40.8% where male.

3. Do you have any experience with internships until now ?
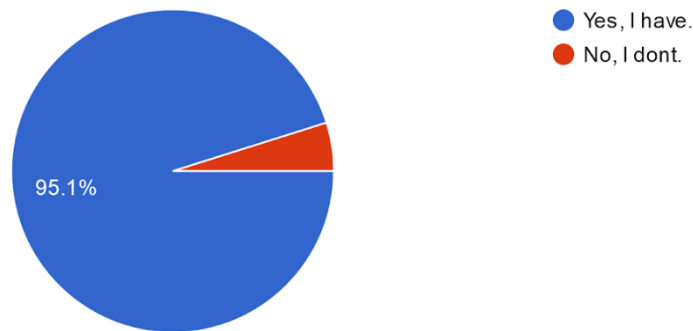
103 responses

Figure 16. Previously experience with internships Chart.

QS3. On question about does students who participated onto the survey, has had internship experience 95.1% answered positively, and 49% answered that they didn't have any kind of experience with internships until now.

4. How much internships helped you to improve theoretical lesson learned in University ?

103 responses
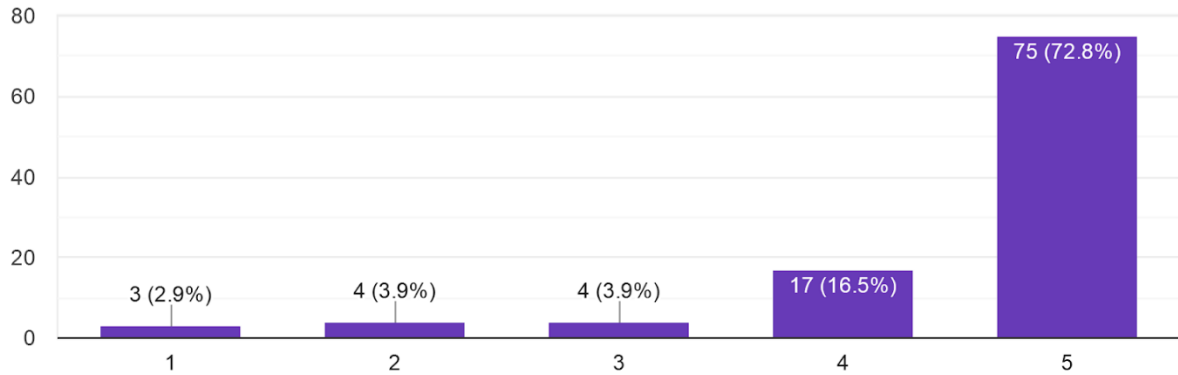
Figure 17. How much internships impact to theoretical knowledge from University Chart.

QS4. On the question how much internships helped you to improve theoretical lessons learned in University 72.8% strongly agree choosing scale 5 of 5, 16.5% chooses scale 4, then 3.9 chosen scale 3, also 3.9% scale two, and scale 1 is chosen by 2.9%. The important notation which may be determined as crucial is that 72.8% of students that has answered the survey, strongly agree that internships can help to improve their learning, upgraded with practical learning from theoretical lessons learned on University.

5. Would you accept internship on company, to work on the field of your studies ?

103 responses

Figure 18. Would internships on companies be accepted Chart.

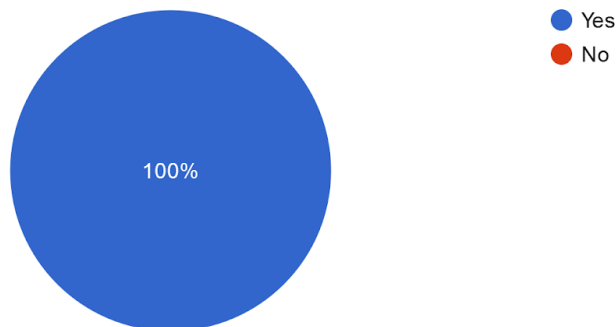QS5. Furthermore, to see the acceptance and interest of students for practical work on any company to work on the field on which they study all 103 students has approved.

6. Do you think internships on company may increase your practical learning ?
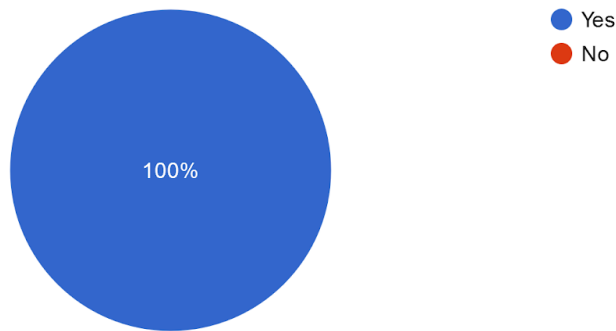
103 responses

Figure 19. What students think about internships in order to increase their practical learning Chart.

QS6. On question what students think would practical work may increase the level of their practical learning, all 103 students approved positively, that practical work is on favor of improving practical lessons learned from classroom. So 100% of students think that internships will increase the level of practical learning on the field on which they study. This is quite important, because together with result of question 4, are forming the base ground to determine the validity of first and second hypothesis of this research giving them highly significance, with 72.8 % that internships will increase interest toward learning, and 100% that internship will increase the skills on the field on which they study.

7. Do you think work experience during studies is beneficial for professional enhancement in the future ?
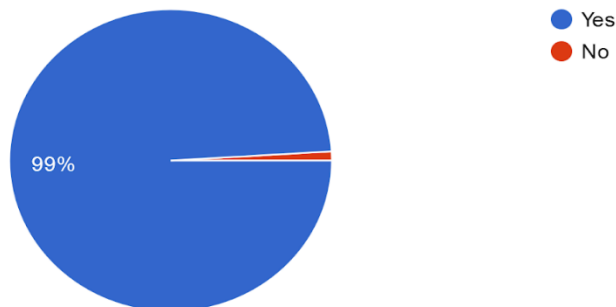
103 responses

Figure 20. Do students think that wok experience during studies in beneficial for their career Chart.

QS7. On question about how students intercept practical work during studies for future professional enhancements, 99% agreed that work experience during studies is beneficial for being more professional on the field on which they study. This is also quite important, because determination of this is that practical work or internships during studies is highly valued by students.

8. Do you think there is gap between what Students learn on University, and what companies needs, right now?
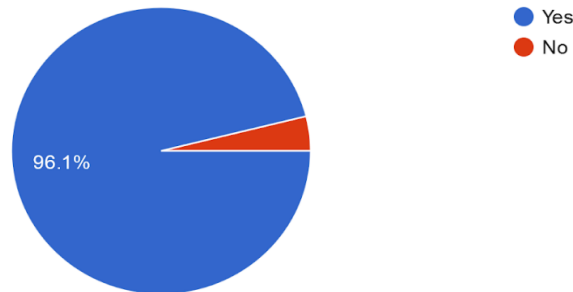
103 responses

Figure 21. Do students think that there is a gap between theoretical lessons on University and real company needs Chart.

QS8. On question do you think there is gap between what students learn on classrooms, and what real world workplace on company requires, 96.1% said that there is indeed a gap between theory on classroom, and practical work on company. This question is related to the first section where has been presented statistically the difference of student's practical work on EU countries and Macedonia. This gap maybe for different factors, like unemployment rate, GDP, political status of a country. Although very important field for further investigation for all those factors, is beyond the scope of this research, which intends to determine the need for building a SCP software platform in order to help filling the gap that 96.1% of questioned students admitted that truly exists there in between theoretical lesson from classrooms and practical work on companies.

9. Would you prefer an easier way to find internships on the field of your Studies?
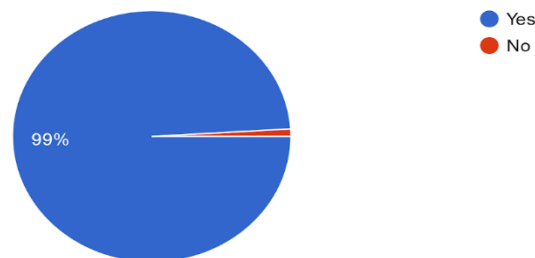
103 responses

Figure 22. Would students prefer a simpler and easier way to find internships.

QS9. In order to determine what students think about finding internships on easier way, other then going physically to companies and asking them for any opened vacancies in order to complete practical work criteria for graduation, or sending email student-to-company and waiting for replay, this is also quite important that 99% of students agree that there is a need for easier way to find internships on the field on which they study.

10. Do you think internships may increase your interest on learning more things on the field of your studies?
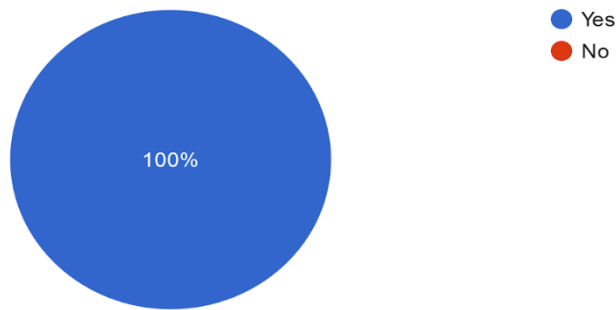103 responses

Figure 23. Does Students things that internships will increase their interest to learn new things Chart.

Q10. The tenth question is base ground of approvals of second hypothesis, toward with questions 4 gives strongly basis for determining as truth on second hypothesis. This is according the fact that on question about do students think that practical work (internships) will help them to learn new things, and improve their knowledge base on the field on which they study, all 103 students agreed that internships will be on favor of helping them to improve and increase their knowledge background by learning new things.

Determining the truthiness of First Hypothesis

The first survey that intent to have students' approval for building a SCP software platform, directly corresponds to testing the validity of two hypotheses, if they are true and give green light to go further on software project management phases of conceptualizing the project, or they are not true and building such software is not on interest of students. On this section I will examine the truthiness of hypotheses that directly relate with first survey.

The first hypothesis stands:

1.   Internships increase the students' practical skills on the field which they study.

According to presented results from the survey for students, all questions where more or less impacting this first hypothesis, but the direct impact which determine the truthiness of first hypothesis are results from question Q4 which intend to determine how much internships helped students to improve their practical learning and knowledge on the field of study, and results were absolutely on confirming the first hypothesis as true. 72.8% of students strongly agree that internships will help to increase practical skills on the field of study.

Furthermore, on context of first hypothesis, direct impact has also resulted from Q6 "Do you think internships on company may increase your practical learning?", the results are absolutely on favor of confirming the truthiness of first hypothesis. On this part of research, there is absolutely 100% from 103 asked Students which agree that internships on company will increase their practical learning.

Furthermore, other results from survey indicates that there is a need for such software platform that will help the students on easier way to find a practical work in order to increase practical skills on the field of studies.

According to results of impacted results Q4 and Q6, and indirectly impacted results of Q7 and Q9, it can be concluded that the first hypothesis which claims that Internships increase the students' practical skills on the field which they study, is true.

Determining the truthiness of Second Hypothesis

The realized survey on student side, has impact on testing the truthiness of second hypothesis of this research, that practical work on companies can enhance the interest of students to learn new things on field of studies. This approach will help the newly graduated from universities to be highly professionals that know every aspect of real-world work environment, know how to deal with issues on their profession, from day one of graduation.

The second hypothesis stands:
 "Internships in companies can enhance students' interest towards learning. "

To check the validity of truthiness of second hypothesis of this research, its crucially to see impact of results from students' survey. According to results the Q10 "Do you think internships may increase your interest on learning more things on the field of your studies?" has direct impact on validation the truthiness of second hypothesis. The result of 103 asked students say that 100% of them agree that practical work or internships will increase their interested to learn new things on the field of studies. This is quite important, because its and strong indicator that shows students perceptions on importance of practical work to develop their knowledge with new things on the field of studies.

Thereby, another important piece of mosaic that approves the crucial need of a SCP software platform that will serve students to get desired practical work in order to develop their interest on learning new things is completed.

Furthermore, another direct impact result that determine the truthiness of second hypothesis are results from Q8, which claims: "Do you think there is gap between what Students learn on University, and what company's needs, right now?", 96.1% of students claim that Yes there is gap between lessons learned in classrooms, and the actual needs on workplace on company. These two aspects, theoretical lessons learned on classrooms, and practical work, are not opponent, because neither theoretical lesson can substitute practical work, neither vice versa. These two aspects fulfill each other, and research is on context of improving theoretical lessons learned on classroom, with practical work.

However, on context of second hypothesis, practical work intends to the fill the gap between theoretical lessons and practical work, on context of increasing the interest of students towards learning more on field of their studies.

According to explained results from Q10 and Q8, the conclusion is that second hypothesis "Internships in companies can enhance students' interest towards learning." is true.

This is second part of mosaic that gives strong improvement that there is a need for SCP software platform to help students to get practical work on companies, and in same way to increase their interest towards learning and develop their knowledge with new things. This will help the entire learning process, because taking onto consideration the dual learning system, which was described on the first section, which is applicable currently on Slovenia and Germany, will be much easier for students to get into the essence of each problem, and to enhance their capabilities of putting what is learned into use, which may lead to increase their productivity.

Research and representation of data analysis from companies' survey.

The second edge of the bridge that SCP software platform intend to cover, are the companies. Their opinion is exactly same important as students, because they are engine were practical work will be performed.

The companies have interest to have highly professional personnel, which know how to deal with everyday tasks, because this directly affects the company productivity, innovations and catching step with global trends on quality and development. We all are witness that almost neither one company doesn't provide vacancies for 0-day work experience on the field, and this means that for students which doesn't have practical work completed, the doors are closed for those vacancies. This mean that apart the success on university, that must be fulfilled with practical work for successful career.

Being able, to take practical work on companies, apart for developing highly professional staff for the future company needs, it has another beneficial aspect, and that is money. Companies instead of spending a lot of money on expensive trainings of 0-day experience graduated personnel, it can relatively pay much less for practical work (from 42% to 70% of lowest regulated wage on that sector if it is industry regulated by collective agreements, and 40% to 70% of lowest minimum wage if its defined by law such is the case on Republic of Macedonia).

However, by this element there lies a risk of 'abuse', where employers make use of the imbalance of young people and available jobs to provide them with the opportunity to obtain work experience against no or low remuneration in return for labor, leading to cheap labor, systematic reliance on internships for conducting tasks that could have been conducted by regular employees and hence possibly replacing regular employees with Students internships. This is problematic among almost every country on European Union, concerns are raised regarding bad practices related to internships. In the Netherlands, for instance, a labor union for young people opened a telephone line to denounce bad practices in internships. In its inception numerous stories have been collected from graduates, most of which refer to the low compensation for full-time work. But, as a good practice that Macedonia can take in order to avoid those concerns, are the timely boxed internships like on some countries (Germany, Austria, Portugal), where the internship is time boxed in duration and payment is regulated by law. That means, that a student may take practical work for at most 3 months, but later if company wants to keep that student on regular basis, must hire as a regular employer with standard wage. This is good approach to avoid the only one criticism that has appear among student's practical work on some countries.

However, the role of companies to provide students with practical work is generally with positive context, and helps students to increase their practical learning, which is the highest payable value which students gain through internships.

On this section will be represented the result data from survey from companies in order to determine the truthiness of the third hypothesis of this research. This survey for companies has been realized from 23 January 2019 to 16 February 2019, and there were in total 38 subjects that answered this survey which includes private companies, local government institutions, central government institutions, non-government institutions, and other public subjects that are capable of hiring students for practical work. Thereby, on this section will be provided the research, analysis and conclusions about third aforementioned hypothesis as final postulate of this project, as follows:

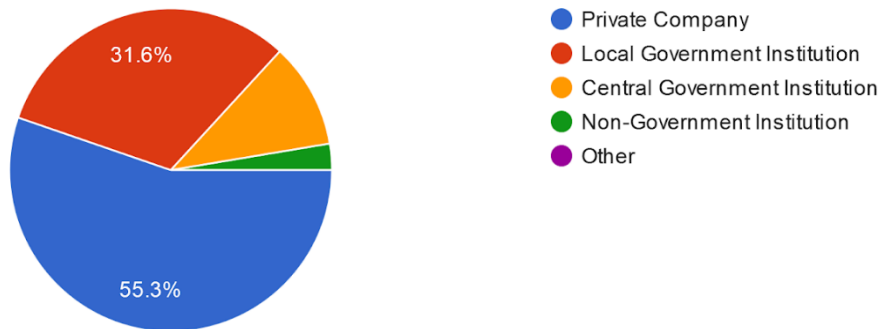## 1. What type of organization or business are you serving?
38 responses

Figure 24. What type of organization participates on this survey Chart.

QC1. On the first question about what type of organization of business is answering this survey, from 38 subjects the 55.3% were Private Companies, then follows 31.6% were local government institutions (municipalities and public organizations formed by municipalities), then 10.5% central government institutions, and 2.6% non-government institutions.

2. Are your company capable to hire students for practical work (internships)?
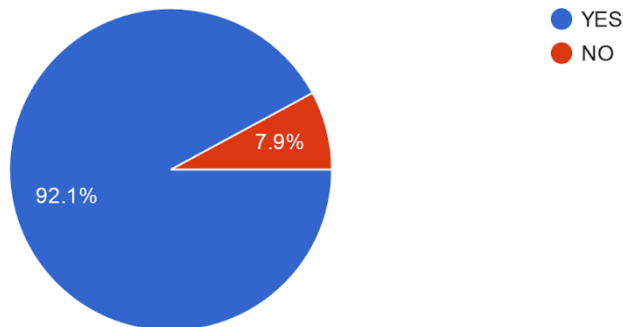38 responses

Figure 25. How much companies are capable on hiring students for practical work Chart.

QC2. On question are your company capable to hire students for practical work, 92.1% approved that they are capable to hire students for practical work, and 7.9% said that they are not capable of hiring students for internships. However, this percentage reports strong capability of asked companies that are ready to hire students for practical work, and this is good indicator that there is a need from companies also to have a software platform that will simplify the job of posting vacancies for student's practical work and waiting for their applications.

3. How important you consider work experience of your staff on your organization?
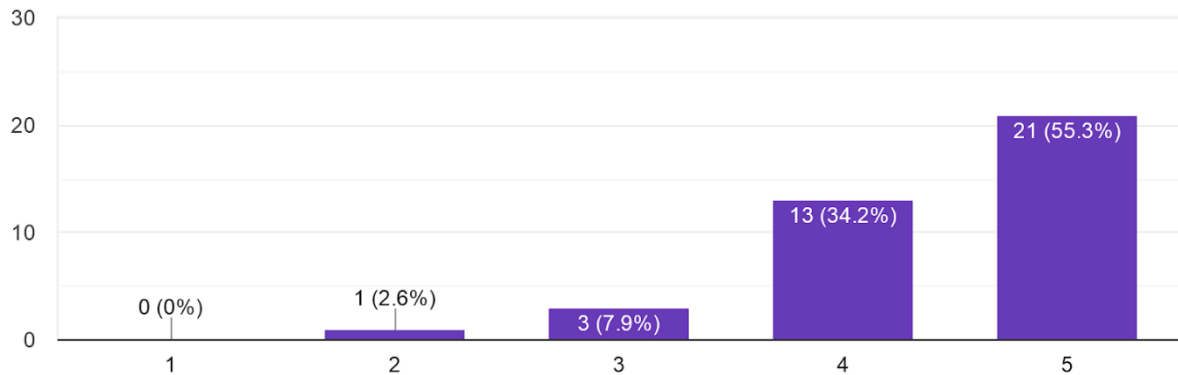
38 responses

Figure 26. How companies valued work experience of staff for hiring Chart.

QC3. On question how important organizations consider work experience of their staff, 55.3% approved as very important with value 5/5, 34.2% as important with value 4 of 5, following 7.9% which valued with 3, and 2.6% or just 1 subject on survey valued with grade 2.

This is strong indicator for importance of work experience because 21 from 38 subject has answered that they consider very important work experience of their staff. This indicator is red alarm for students to gain work experience during studies so they enhance both, their practical knowledge, and work experience background that will be required for employment further.

4. Do you think currently there is a gap between University learning and practical work on companies?

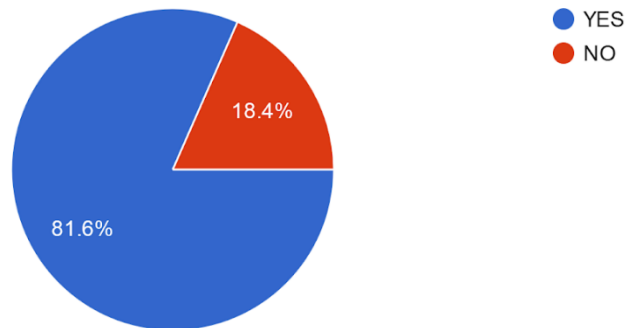38 responses

● YES
● NO

18.4%

81.6%

Figure 27. Does companies see the gap between University learning and practical work on companies Chart.

QC4. On question about does companies think that there is a gap between university learning and practical work that is required on their workplaces, 81.6% answered that yes there is gap, and 18.4% answered that no, there is no gap between university learning and practical work on companies.

However, this is also strong indicator, that teaching in classroom doesn't satisfy the requirements on workplace, by 81.6% of companies.

This also can be interpreted as one approval from companies that there is a need for a SCP software platform which will help to accommodate learning from classrooms on Universities and practical learning on companies or organizations. SCP software platform intent to make easier the process of hiring students for their practical work. For a published vacancy, where many students have applied the representative from companies will have option to choose from selected students for a vacancy according to Students CV and the overall success on University.

The SCP software system intent to fill the gap on both edges, between what's learned on classrooms and what's required on workplace, and to put learned things onto use, in order to develop their practical knowledge on field of studies. Because also students (on student's survey Q8) noticed by 96.1% that there is something incompatible between university learning and practical workplace needs, so as conclusion of this may be declared that building a SCP software platform is on favor both of Companies which easily can post their open vacancies and choose among the best students who applied, and on favor of students because this will give them the opportunity to improve and increase their knowledge by learning new things, and in same time gaining valuable work experience that will help them later to be more concurrent on labor market. SCP software system is intending to be a tool to help on context of this, and according to these statistics, one such system is rarely needed and helpful.

5. Do you think internship may help to build more professional staff for your company needs?
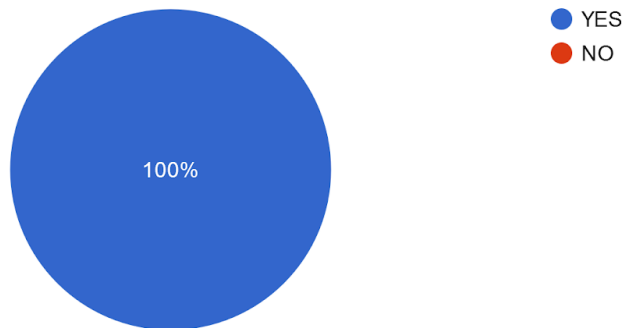
38 responses

Figure 28. Does companies think that internships are good approach to build professional staff Chart.

Q5. According to question about what companies think for internships in order to build more professional staff for company needs, all 38 companies agreed that internships are helpful on this context. This is another very important fact, that 100% gets approval from companies and organizations that are capable to hire students for practical work, that percepts internships as an excellent way to build highly professional personnel for future company needs.

6. Would you prefer an easier way to find students for practical work on your company?
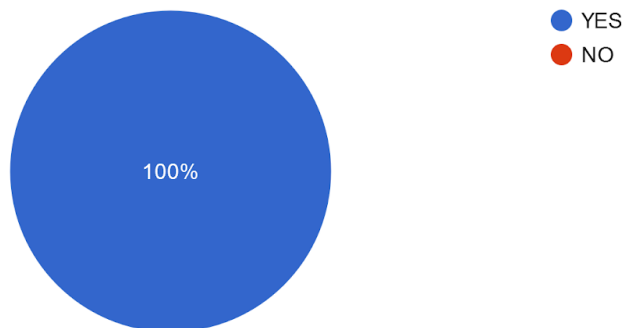
38 responses

Figure 29. Would company prefer easier and simpler way to find students for practical work Chart.

Q6. On question would companies prefer easier way to find students for practical work, 100% of asked companies agreed that would approve an easier way to find students for internships. This is quite

important because this will boost up the entire process of publishing open vacancies on company and finding students that would fulfill those criteria in order to apply for those jobs, by avoiding bureaucracies through publishing on newspapers or asking agency for employment to make the publications for their opened vacancies. On context of this, there is strong argument to build SCP software platform, because according to chart of Q6, that kind of software platform will have 100% support for companies as a much easier way to find students for practical work.

7. Are you currently in ability to cooperate with Universities for Students internships?
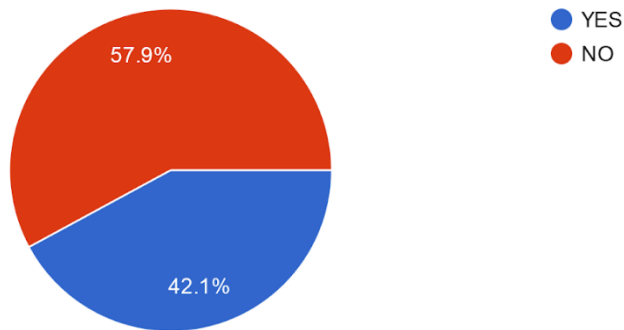
38 responses

Figure 30. Are companies currently cooperating with universities for student internships Chart.

QC7. On question are companies in ability to cooperate with Universities for student's practical work, 57.9% answered negatively, and only 42.1% answered that they are. These results probably may be due to the fact that nowadays practices of communications between Universities and Companies goes through by agreements between companies and Universities, however this takes more time, and often is not as fast approach for companies to find students for internships. There by, a SCP software system on this context will be quite helpful and useful, because from bureaucratic level of signing agreements with Universities, now the approach of finding students for practical work will change to student's level. Students through SCP software system will be able to apply for opened vacancies by companies.

8. Would you use a website platform to post your vacancies for practical work?
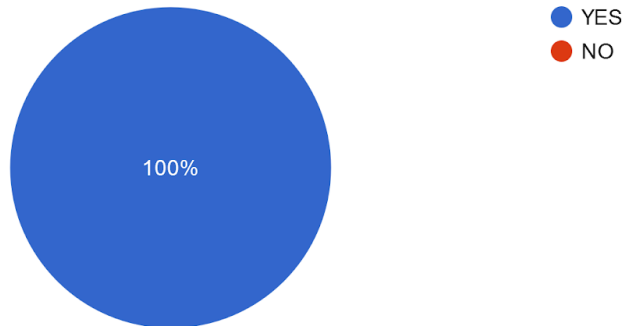
38 responses

Figure 31. Are companies ready to use web tool in order to find students for practical work Chart.

QC8. The question that directly determines would companies are able to use a software platform, to post their open vacancies, 100% of companies and organizations that participated on this survey answered positively. This is strong fact that determine the need of SCP software system as a useful tool to serve as bridge between companies and students for improving practical learning through practical work on companies.

Determining the truthiness of Third Hypothesis

Apart from the first and second hypothesis which truthiness was directly verified through survey of students, the third hypothesis deals with companies which represent a crucial part the system to function. Because of evident importance of companies as the second edge of bridge that should realize students practical work, for determining the third hypothesis, was performed the entire survey for companies. Furthermore, the second survey indented to determine the acceptance of a software system such Students Career Portal SCP intend to become. The third hypothesis deals entirely with companies' viewpoint of this issue and is defined:

"Internships better fill the needs for having more adequate staff for their company needs."

On second survey dedicated for companies, among all questions, the question with direct impact on truthiness of third hypothesis QC5: "Do you think internship may help to build more professional staff for your company needs?" which absolutely was answered positively, 38 of companies and organizations or 100% of them answered with "yes", which means that 100% of them agree that internships are very important in order to build more adequate staff for company needs.
Furthermore, on context of validating further the importance of third hypothesis, direct impact on validation are the answers of QC3: "How important you consider work experience of your staff on your organization?", 55.3% of answered considered as very important and 34.2% answered as important. This

is very strong indicator about the importance of work experience of staff is highly valued by companies. This should be strong indicator for students, as motivation to find appropriate work experience on field of their studies because that fact, according to what these statistics say, may be one of crucial aspect on their CV after graduation, and will make their path for desired job more comfortable.

Not just in Macedonia, but almost everywhere, companies hesitate to hire staff with no experience, due to the fact that every job has its own aspects and has specific requirements of skills. Hiring staff with no experience means extra costs for companies to send their employed-on trainings, which normally companies don't favor that.

On QC4 "Do you think currently there is a gap between University learning and practical work on companies?" 81.6% of companies claim that there is gap between university learning and practical work, this is good indicator on favor third hypothesis, which defines that internships may be excellent way to build more adequate staff for company needs.

As a conclusion of report from survey for companies, with direct impact on truthiness by answers from QC5, QC3 and QC4, there can be concluded that third hypothesis is true. So, Internships better fill the needs for having more adequate staff for their company needs, this hypothesis has been approved by companies and organizations asked on survey.

Other answers from survey for companies are indirectly related to the truthiness of third hypothesis, which mostly are on domain of determining the need for creating the SCP software platform. On context of this determination, the QC8 "Would you use a website platform to post your vacancies for practical work?" gets 100% acceptance, and gives strong argument that indeed there is need for a SCP software system to help companies find adequate staff for their needs, and help students to improve their knowledge with practical work and increase interest for learning new things on the field of study.

Determining the Null hypothesis.

The Student's Career Platform software system, is indented to serve as a bridge between two different groups of populations, the students and the companies. According to the results of the performed different surveys, respectively for each aforementioned group of observed population. A null hypothesis is the default position that there is no effect onto those aforementioned groups. There is defined as null hypotheses statement:

H_0: "Practical work on field of Studies is not significant factor for Students and Companies in order to improve practical knowledge".

To determine the value of null hypothesis between the two observed group of populations, students and companies, statistically will be focused their cumulative results from survey, with main focus on the questions of impact. According to what H_0 claims, to assume it is true it should have valued on range between 0 and less than 0.5, ($0 < H_0 < 0.5$). This will be examined through statistical calculations. To have a clear view about the null hypothesis, as correlated indicator between the observed the group of populations, first will be examined the impact results for students marked as (HS_0), then for companies marked as (HC_0), and then will be determining the validity of the H_0 null hypothesis.

The survey impact results for students, are focused on these QS (Question's for students) marked on data representation on the section above are:

QS6: Do you think internships on company may increase your practical learning on the field of studies?
QS6 = 1.0
QS7: Do you think work experience during studies is beneficial for professional enhancement on the future?
QS7 = 0.99
QS8: DO you think there is a gap between what Students learn on University, and what company's need's right now?
QS8 = 0.96

The median of aforementioned impact questions that correlate with significance of Students results (labeled as α) is:
α = (QS6 + QS7 + QS8) /3
α = (1.0 + 0.99 + 0.96) / 3 = (2.95)/3 = 0.98
According to statistical approaches which claims about the median of significance (if $\alpha < 0.5$ not significant and if $\alpha \geq 05$ is significant) the result of $\alpha = 0.98$ can be interpret as very significant for HS_0.

However, this is partially determination of the null hypothesis H_0, to have a clear picture, there is a need about observation of impact results for companies marked as HC_0.
The survey impact result for companies/institutions are focused on these QC (Questions for Companies) marked on data representation on the section above are:

QC3: How important you consider the work experience of your staff on your organization?
By answered as important (valued 4) and very important (valued 5), the approximately commutation is
QC3 = (55.3 % + 34.2 %) = 89.5%
QC3 = 0.895
QC4: Do you think currently there is a gap between University learning and practical work on companies?

QC4 = 0.82
QC5: Do you think internships may help to build more professional staff for company needs?
QC5 = 1.0

The median of aforementioned impact questions that correlate with significance of Company results (labeled as β) is:
β = (QC3 + QC4 + QC5) /3
β = (0.89 + 0.82 + 1.0) / 3 = (2.71)/3 = 0.903
According to statistical approaches which claims about the median of significance (if $\beta < 0.5$ not significant and if $\beta \geq 05$ is significant) the result of $\beta = 0.9$ can be interpret as very significant for HC_0.

Now, having calculated the median of significance of two observed group of population that will interfere with this software project, it easily can be determined the truthiness of null hypothesis H_0. According to the numbers that indicate HS_0 and HC_0, in report of number of observed populations N, which on this case N = 2 (because there were observed students and institutions).

H_0 = (HS_0 + HC_0)/ N

H_0 = (0.98 + 0.90) / 2= 0.94

For Conclusion, taking onto consideration that if and only if ($0 < H_0 < 0.5$) the null hypothesis may be true, but on this case the calculation determines $H_0 = 0.94$, as conclusion the null hypothesis H_0 = "Practical work on field of Studies is not significant factor for Students and Companies in order to improve practical knowledge" can be rejected.

The rejection of null hypothesis H_0, may be interpret that practical work is significant factor both for Students from one side, and Companies on other side in order to improve the practical knowledge of students on the field of their studies.

IX. Conceptualizing and Modeling the Students Career Portal platform

After examining by statistical way the need and acceptance of a system that will serve as bridge between students and companies, and after determining the truthiness of all three of hypothesis that are main postulates of this research, these gives strong arguments to move on conceptualization and modeling phase of the system. Having the green light from research to build a such software project, on this section will be examined the concept of SCP software system. The software solution Students Career Portal, according to its conceptualization as a fully functional system, can be simplified and described by the diagram in figure 32, below:
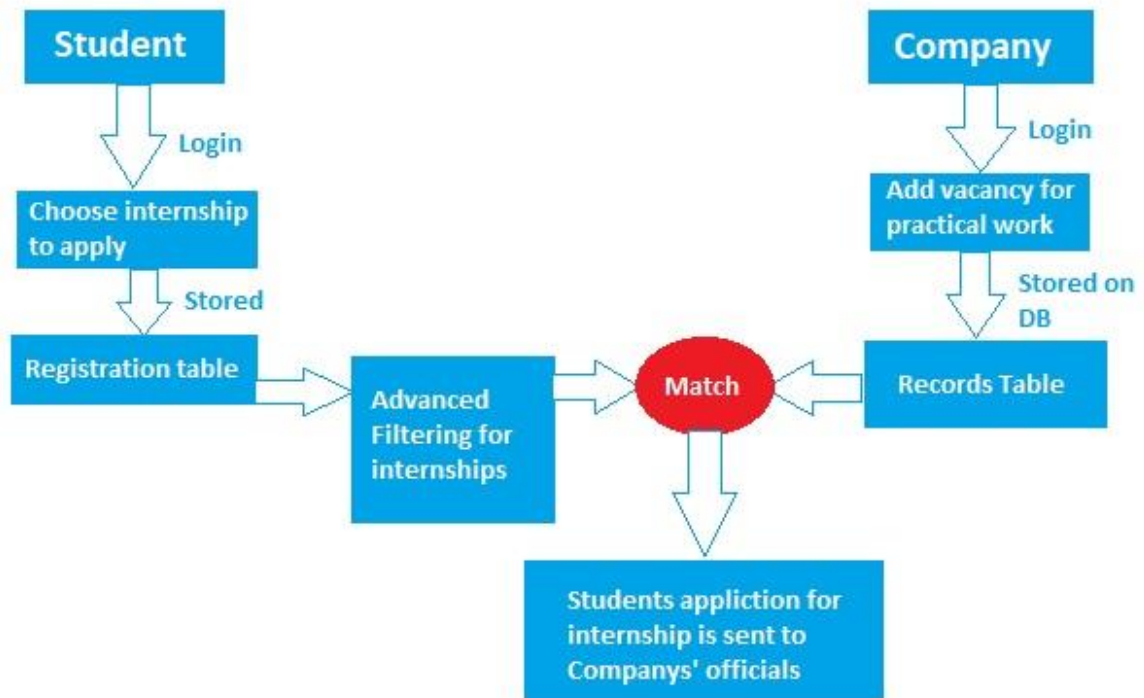

Figure 32. Conceptualize the functionality of SCP.

The student, will need to create an account onto the system, and then login, then chooses the internship to apply for the practical work, according to what the student studies (e.g. Business Administration, Law, Computer Sciences.), and that information is stored in registration table, and by that criteria system does advanced filtering for those internships that requires such profile of education.

On other side of system, the company official, needs also to create a profile on the system SCP system, and then login with those credentials. Then company manager, add an open position for practical work (vacancy) by filling the forms and that information are stored onto the database. Which then queried by Student profile will be filtered and applicable to student profile that fulfills the education requirements

for that opened internship, and provides a certain match, by offering to the student concrete listed internships.

Of course, students may have more than one job offers onto the system, and after applying to the most likely jobs, that is described as match on the diagram, and after fills the form and clicks apply. Those details of student candidate are sent to company representative for further processing.

Modeling the SCP software system

The modeling of SCP software system will demonstrate through UML all concepts of the system, as a pre-programming phase of the system. On this section, will be defined, and analyzed on detail each modeling aspect of SCP project on terms of software engineering approach.

Primary system stakeholders

Although the system Student Career Portal, from software engineering point of view will face many systems actors that will interact directly or indirectly with the system, here it's given brief explanation of three primary systems stakeholders:

1. Students
   This actor provides functionalities for students that searching for internships. Applicants can post their resumes with personal and professional details. They can also update the resume as frequently as required. The applicant can also browse through the present vacancies available. Students can also get mail alerts when their resumes are selected by employers to which vacancies they had applied.
2. Companies
   This actor provides functionalities related to companies that need students for practical work. Companies or organizations can post vacancy details and update the details as and when necessary. Furthermore, companies/organizations can search through applicant resumes based on different criteria.
3. Administrator
   This actor provides administrator related functionalities. Administrator manages entire SCP application and maintains the profiles of students and companies/or organizations.

The software solution Student Career Portal, and its entire process of how above-mentioned actors will do with the system, can be conceptualized through the system flowchart diagram, on fig. 33 below:
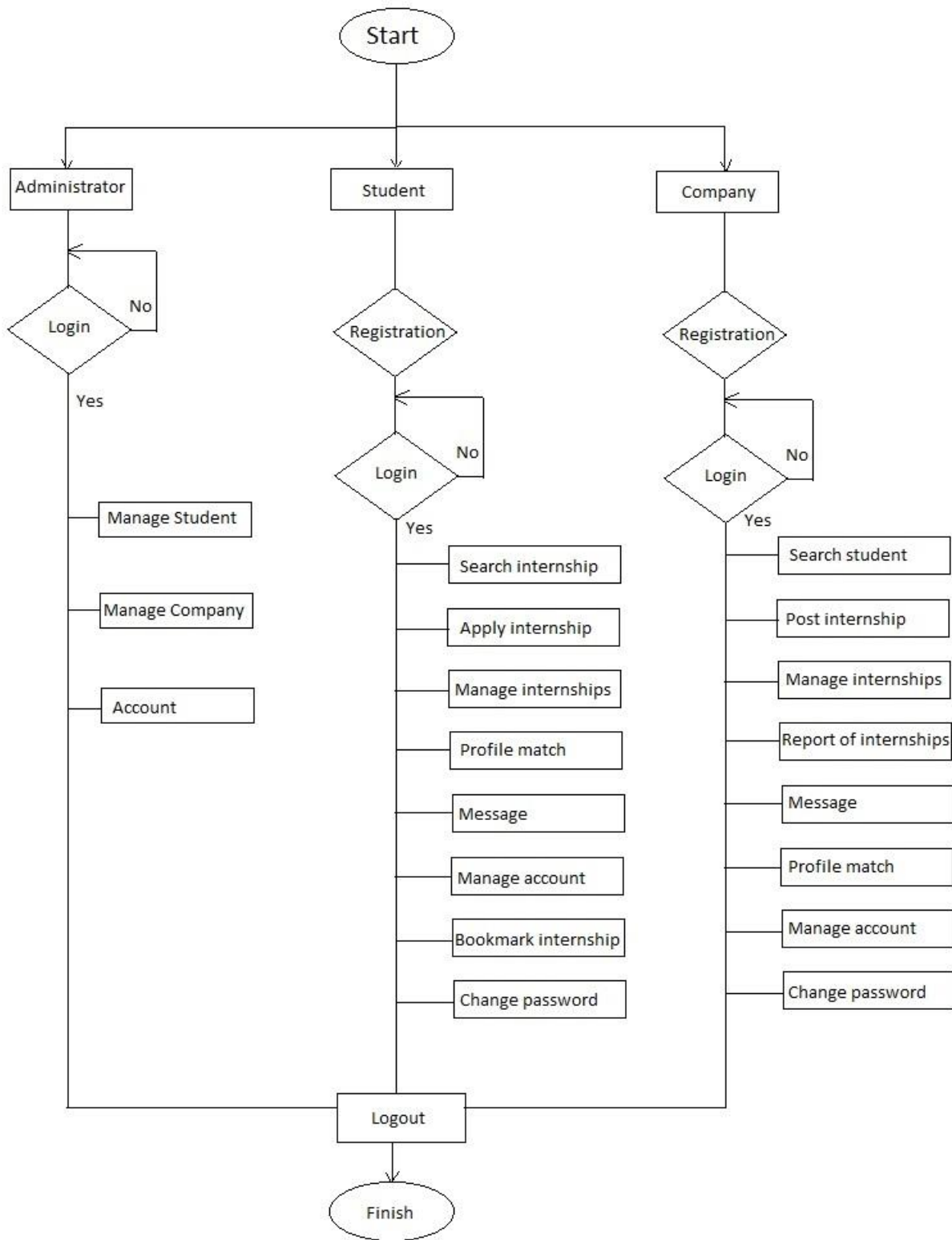
Figure 33. SCP system flowchart diagram.

Functional Requirements of SCP

Now, that are defined three actors (or stakeholders) of SCP system, and visualized the system flow through diagram on figure 30, it's important to determine the functional requirements of each stakeholder, because this gives clear view what the system will do, and what functionalities will provide to each actor onto the system.
First will be given detail description of functional requirements for stakeholders separately.

1. Functional Requirements for actor Student

On the table below are listed the functional requirements of SCP software system for actor Student.

Functional Req. no.	Requirement	Description
1.	Registration	Students in order to register to SCP system, must click on Register Now button, which will forward to the registration form. Then the student must fulfill all the details onto the textboxes on the registration form. The necessary field are market with * symbol as required for registration process. Then student to complete the registration process, must click Submit button, which process leads to a message box that informs the student that registration was successful or some provided information must be corrected.
2.	Login	Only authorized people can access the application. This means that user, in order to access the system must provide correct username and password onto the appropriate fields and click Login button. Then the system validates the given credentials (username/password) and if they are correct the system will give access to application, and the system redirects to user profile.
3.	Forgot Password Option	The user, in case forgets the passwords, the system must provide functionality to recover. To recover the password, user must click the Forgot password option and then type the e-mail which is used upon registration of that profile, and the system will forward the password to that user.
4.	Search internships	The student can search for an internship by entering keyword, faculty on which student study, or company name. And after clicking the Search button, the system will redirect to display results page that fulfill searched criteria of Student.

5.	Add Resume	The system should provide the functionality the registered student to upload his/her CV or Resume, which will be accessed by companies on which student apply for practical work (internships). In order to complete this Student should click Browse button, choose the Resume and then click Upload button.
6.	Delete CV	The system should give the option the student to delete an old CV and update another one with new details.
7.	Receive notifications	The system should be able to notify the students, through email, if their application for a certain internship is approved.
8.	Delete profile	The system also should provide functionality of deleting the profile if the student for his/her personal reasons doesn't want anymore to be part onto the system.
9.	Save internships details	The system should be able to provide functionality of saving and bookmarking a certain internship that student is interested to.
10.	Arrange job search Results	The system should provide to the student who searched with certain criteria for internships, a way to filter and arrange search results on the display results page, so to have view on only those which more specifically accommodates his/her needs.
11.	Apply for internship	The student after chooses a specific internship on display result page, and filling the required details, the system provides the functionality to send that application to company by clicking the apply button.
12.	Privacy	The system should provide to the student the option so only Companies to which the student has applied to have rights to see students Resume. This is option is due to possible concern of the student.
13.	Receive reports	The system should send reports to the student about application to which the students has apply for practical work.
14.	Sing out	The system should give the option to sing out form the system after student has used the system.

Figure 34. Table of Functional Requirements for actor Student.

2. Functional Requirements for Companies

On the table below are listed Functional Requirements on SCP system for the role Company.

Functional Req. no.	Requirement	Description
1.	Registration	The Company official to be able to use the SCP system, must first register to the system, by filling the detailed information about company and then clicking submit button. If that information are correct the system will display a message box that the user has been successfully registered onto the system, otherwise it will require additional missing information for registration.
2.	Login	The system will allow only authorized companies to use the SCP system. So, the company official, must first type the username and password onto the system and then click the Login button. If credentials of company (username/password) are correct, the system will redirect to the company profile, otherwise will display error message for non-authorized login attempt.
3.	Forgot password option	The system should be able, in case the company official has forgot the password, to be able to recover by clicking the option forgot password, then typing the e-mail which is provided onto the system upon registration, and the system will send the password through email to company official.
4.	Add new open position for internship	The company official must click Add new button to be redirected onto the add new internship page, where the company official must fulfill all information about that internship and then click button submit.
5.	Get applications report	The system should sent report to the company official via registered e-mail for students that have applied for that internship.
6.	Download Resumes	The company representative should have option to download the Resumes uploaded by applicant students for a particular internship.
7.	Delete company profile	The system should give the option if any company or organization doesn't want any more to be part of SCP software platform to have the option to delete the profile from the system.
8.	Sign out	The system should give the option, after the company official has used the system to sing out form the system.

Figure 35. Table of Functional Requirements for actor Company.

3. Functional Requirements for Administrator of SCP

On the table below are listed the Functional Requirements on SCP system for the actor Administrator.

Functional Req. no.	Requirement	Description
1.	Manage students and company system modules	The system should give the functionality to administrator of the system to manage the system module for students, and system module for companies or organizations.
2.	Send notifications to students and/or company	The system should provide the functionality to system administrator to send notification to students or companies which are registered onto the SCP system.
3.	Delete students or company profile	The system administrator should have functionality to delete student or company profile upon misuse or abuse of any kind onto the system.
4.	Contact via e-mail companies and students.	The system administrator for any issue should have the functionality to contact with two other stakeholders via their registered e-mail onto the system.

Figure 36. Table of Functional Requirements for actor Administrator.

Modeling the SCP software project

On this section will be analyzed the SCP software system through the prism of software engineering approaches, and will be given on detail through diagramming UML of every aspect of SCP project.

Data flow diagram (Level 0)

According to determined functional requirements on the previous section, the context level diagram represented on figure 37, below:
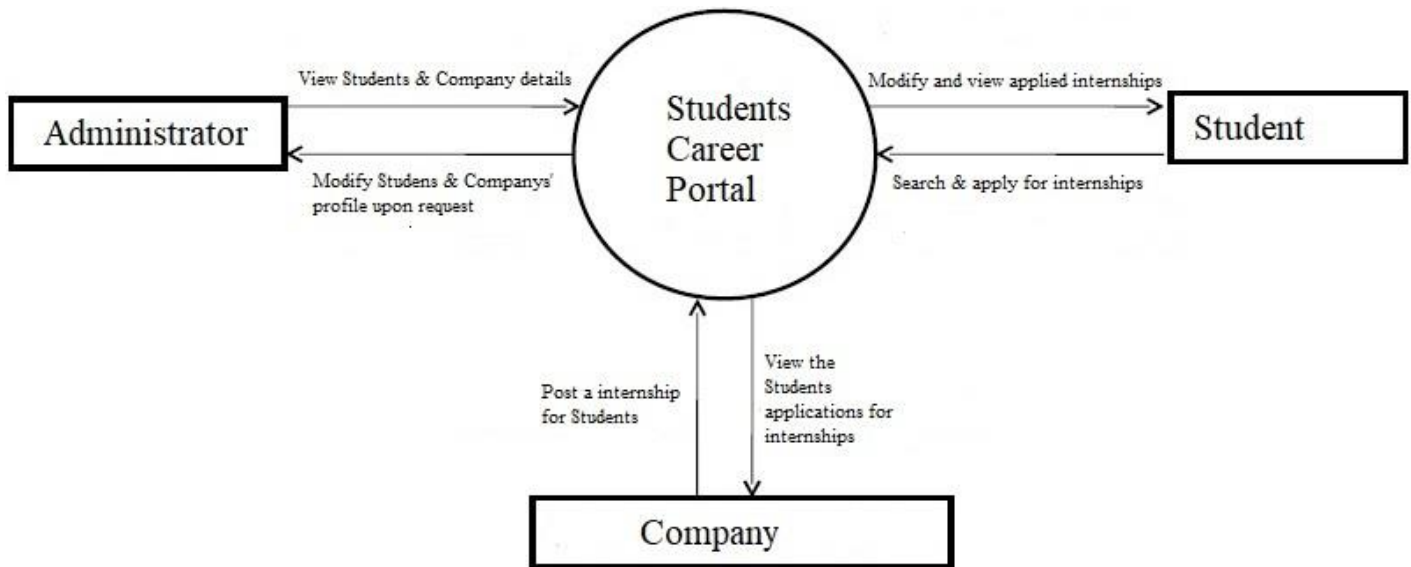
Figure 37. Context diagram of SCP.

On context of appropriate modeling of SCP software system is crucially important according to provided information above to provide:

- Activity diagram for Students
- Activity diagram for Companies

Students Activity Diagram

On the Figure 38, below is modeled the activity diagram for the role Student onto the SCP system.
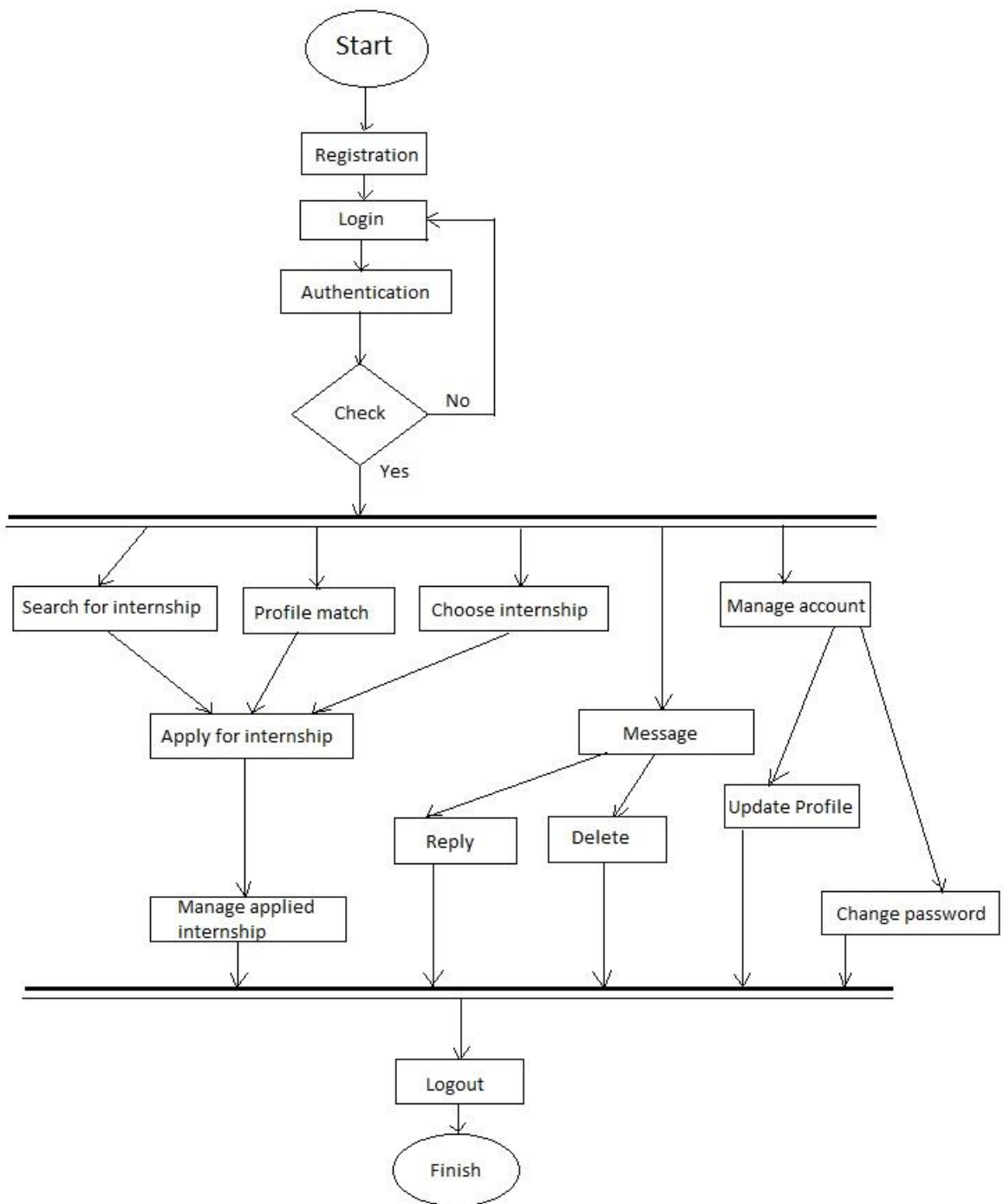
Figure 38. Students Activity Diagram.

Company activity diagram

On the figure 39, below is shown the activity diagram for the role Company onto SCP system.
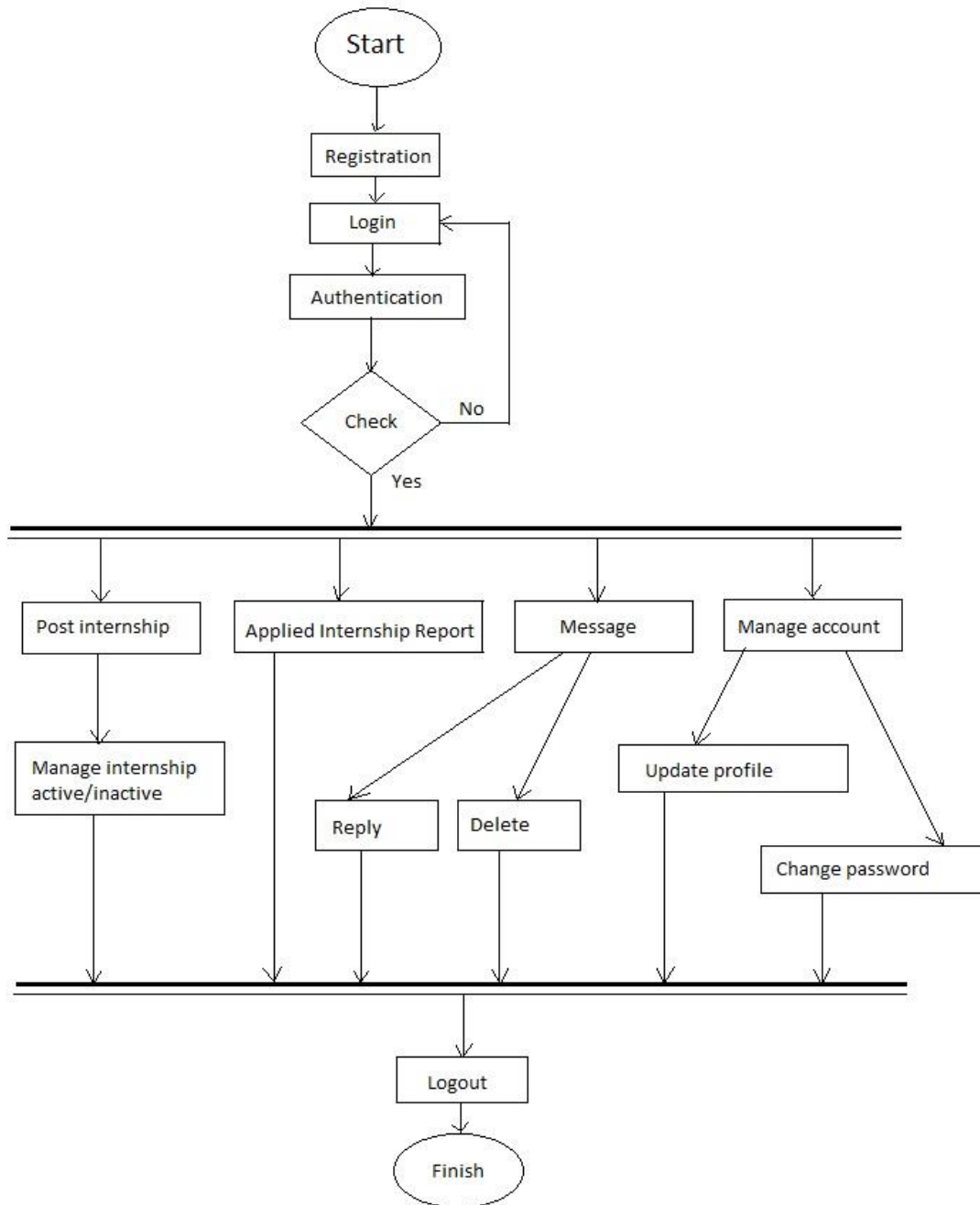
Figure 39. Company activity diagram.

Use Case diagram of SCP

The figure 40, below provides the USE CASE diagram for Student's Career Portal system.
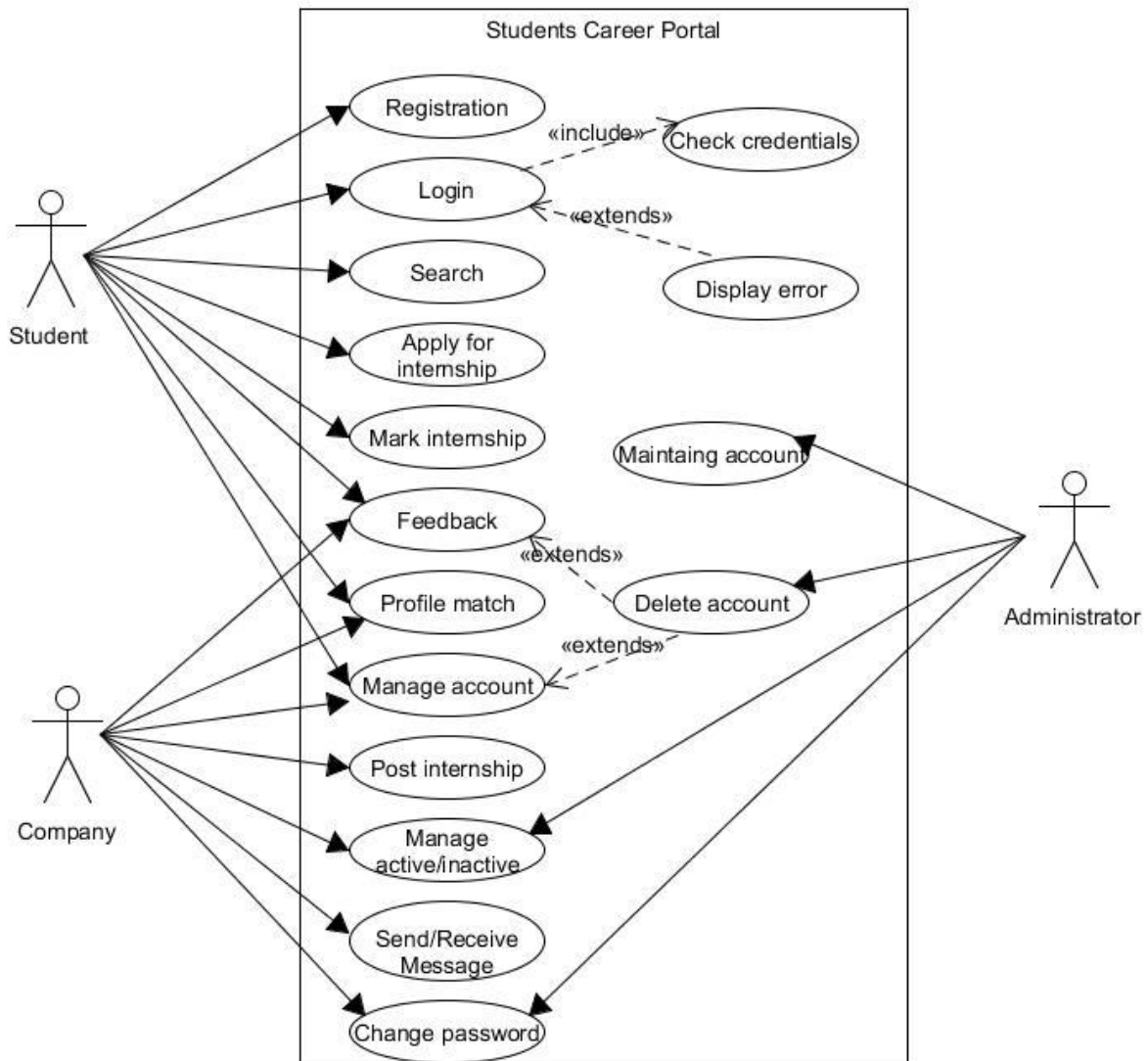
Figure 40. Use Case diagram for SCP system.

Sequence diagram of SCP system

The sequence diagram of SCP software system represents an important UML notation od describing, conceptualizing and modeling the system. Such was described earlier, the system will have three main stakeholders that directly will interact with system, and those by, on this section will be introduced:

- Sequence diagram for actor Student
- Sequence diagram for actor Company
- Sequence diagram for actor Administrator

Sequence diagram for actor Student

On the figure 41, below is described the sequence diagram for the actor Student onto SCP software system.
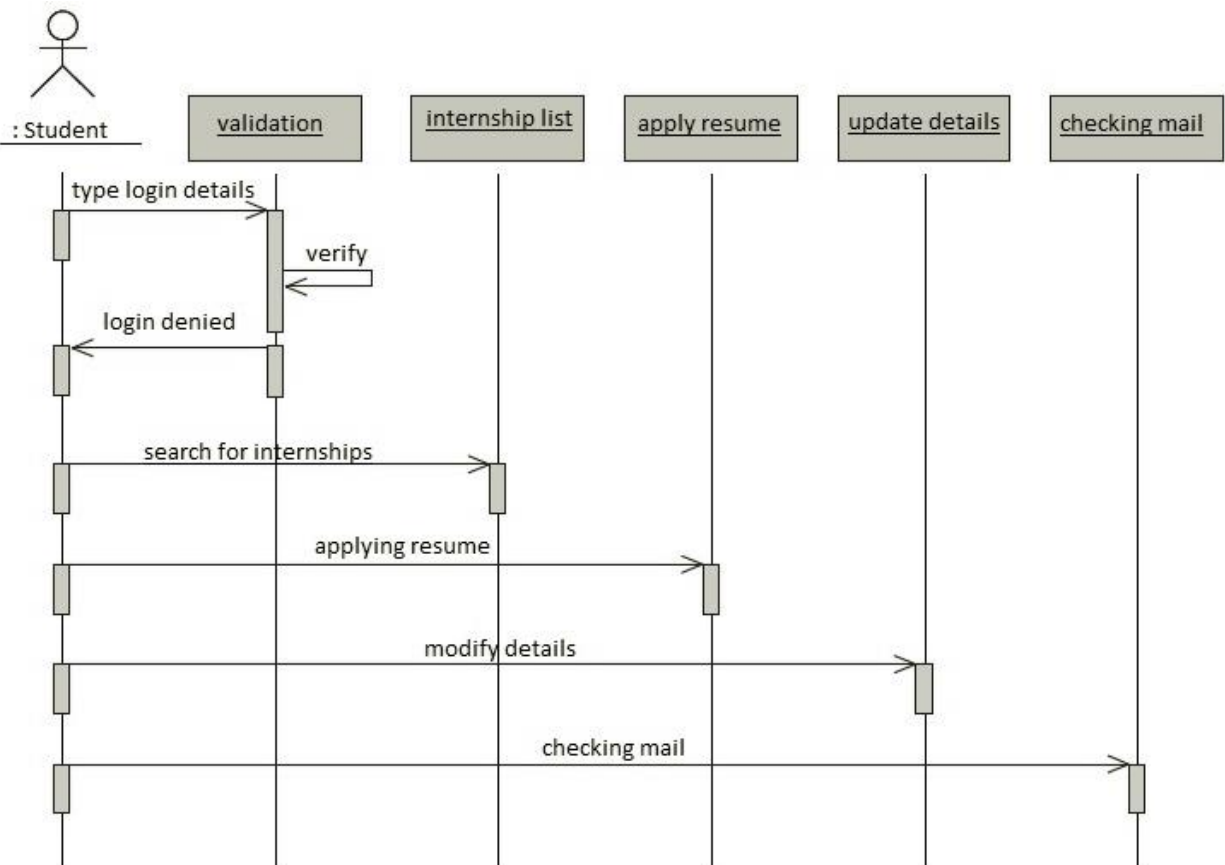
Figure 41. Sequence Diagram for actor Student.

Sequence diagram for actor Company

On the figure 42, below is described the sequence diagram for the actor Company on the SCP system.
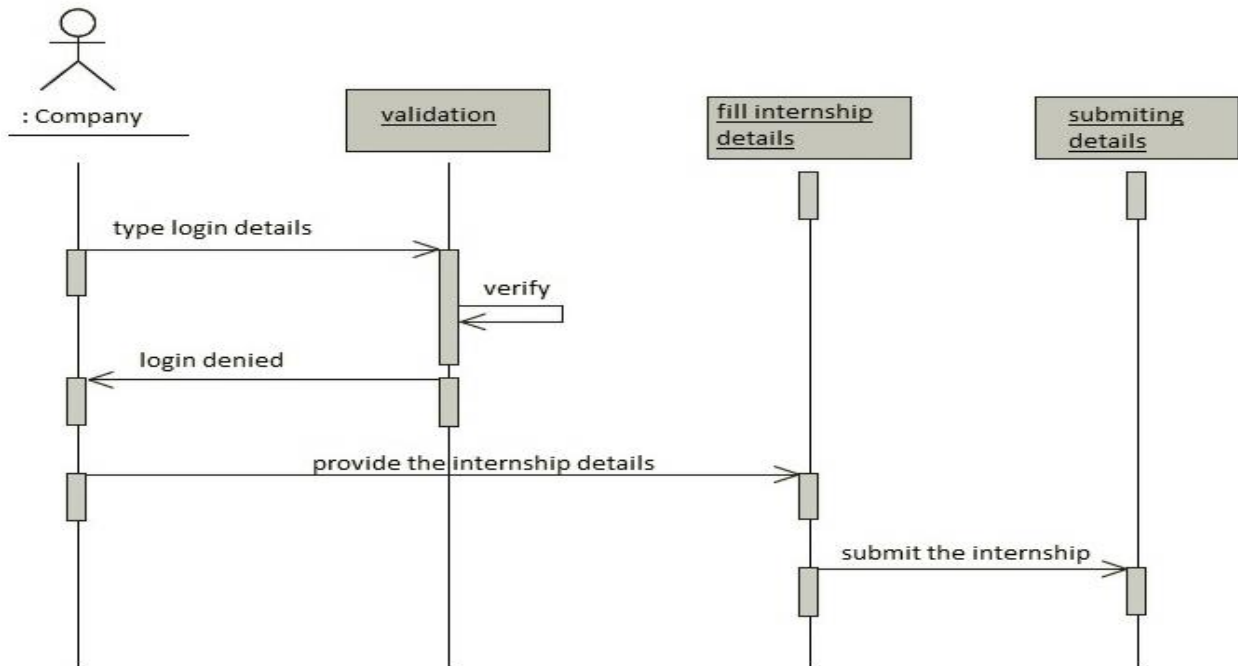

Figure 42. Sequence diagram for actor Company.

Sequence diagram for actor Administrator

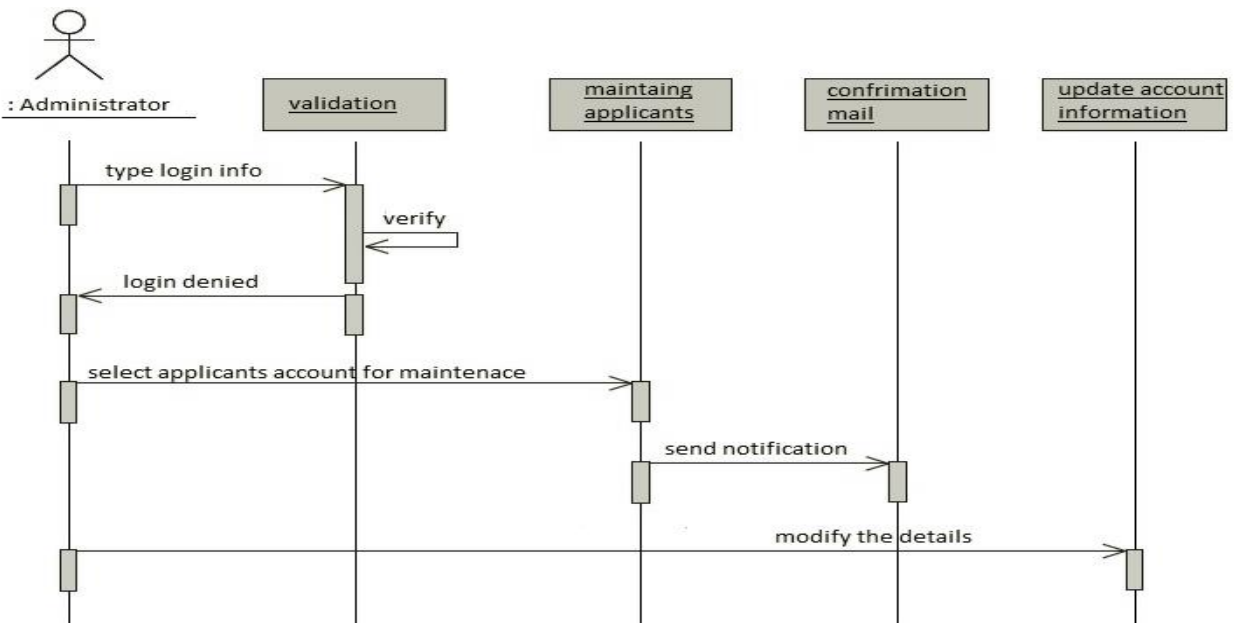On the figure 43, below is described the sequence diagram for the actor Administrator on the SCP system.

Figure 43. Sequence diagram for actor Administrator.

Class diagram for SCP project

On the figure 44, below is described the Class diagram for SCP software system.
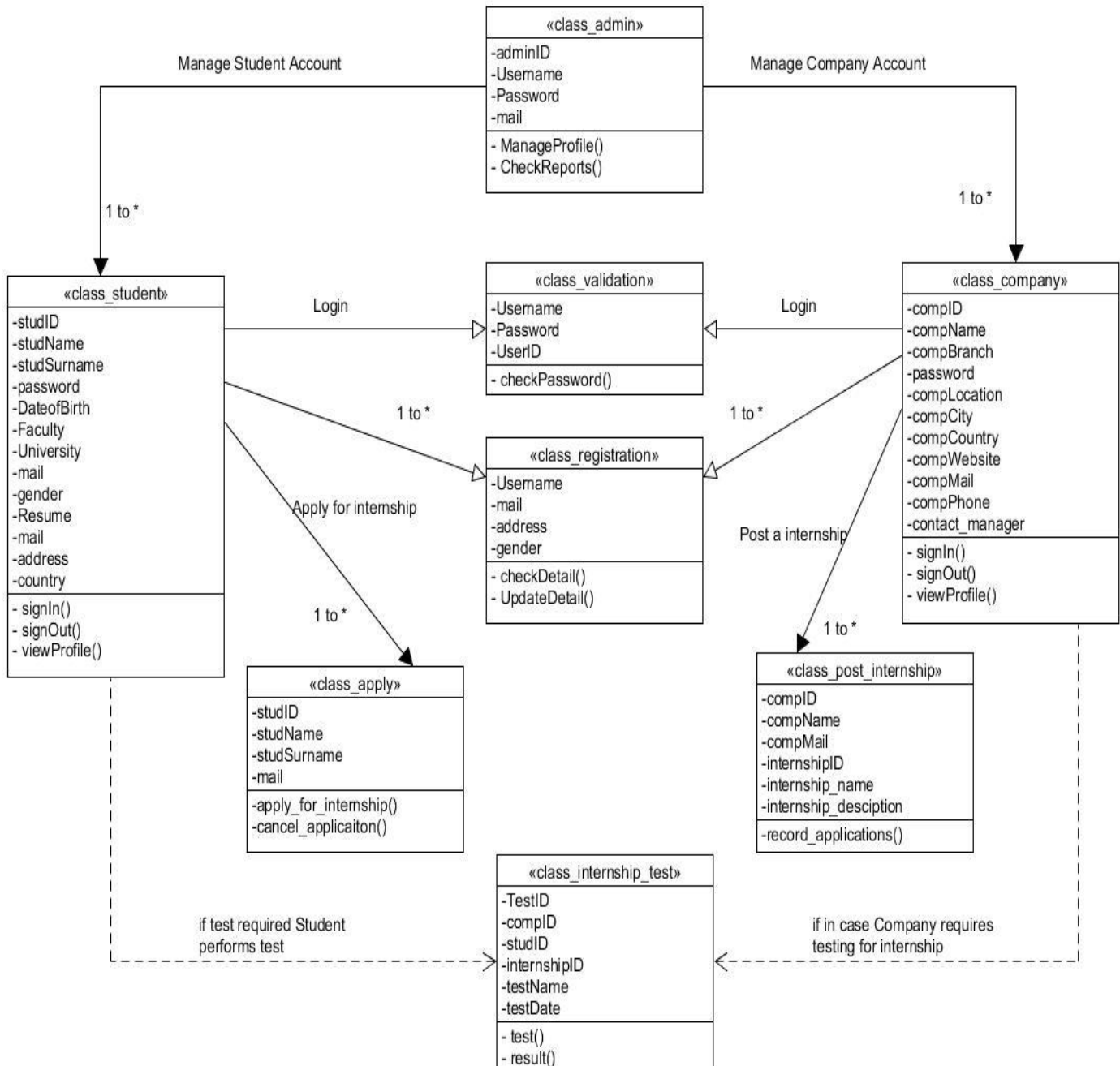

Figure 44. Class diagram of SCP system.

X.   Building the SCP software solution

On the first phase of this research, through statistical analysis was determined a need for such software system SCP which will serve as bridge between students and companies, in order to improve their practical learning through internships and be more competitive on labor market after graduation. Further, on second phase was conceptualized and modeled on detail the SCP system from software engineering perspectives, and according to that analyzed and conceptualized approach, the research moves to the third and final phase which will concretize the SCP software system with real world application that will help to fill the gap between Students and Companies for performing practical work, and developing knowledge with new things on the field of studies.

SCP software system development tools

1. Microsoft Visual c#.net. C# represents an excellent high-level object-oriented programming language, to incorporate all conceptualized features and functionalities for SCP system.
2. ASP.net, which asp.net client-server technology offers everything needed in terms of web tools and programming approaches for successful development of SCP project.
3. Microsoft SQL Server 2014, as a backend of the SCP system, for storing and querying data will be used proved Microsoft SQL server DBMS
4. HTML/CSS as a scripting language for user interface enhancements and practical usage from the end-users.

The development phase will be on detail explained as the project is being developed, by explaining the most crucial part of source code and giving a look about user interfaces of this system.

SCP Database design

▪ Such it was already conceptualized on the modeling phase, the SCP software project will have three main actors: Students, Companies, and Administrator. By this context I start by creating company profile. The first step is by creating the backend MS SQL Server database with those tables:
Tbl. Appy_Mst

Column Name	Data Type	Allow Nulls
AID	int	☐
Jname	nvarchar(50)	☐
Cname	nvarchar(50)	☐
Status	int	☐
EntryDate	datetime	☑
		☐

Figure 45. Table Apply on database.

Tbl. CFavorite_Mst

Column Name	Data Type	Allow Nulls
CFID	int	☐
CID	int	☑
UID	int	☑
Status	nvarchar(50)	☑
		☐

Figure 46. Table Favorite companies on database.

Tbl. CMessage_Mst

Column Name	Data Type	Allow Nulls
MID	int	☐
CName	nvarchar(50)	☑
JName	nvarchar(50)	☑
Message	nvarchar(2500)	☑
EntryDate	datetime	☑
		☐

Figure 47. Table Message on Database.

Tbl. CompanyMst

Column Name	Data Type	Allow Nulls
CID	int	☐
CompanyName	nvarchar(50)	☑
Address	nvarchar(50)	☑
City	nvarchar(50)	☑
Personalno	nvarchar(50)	☑
ContactPerson	nvarchar(50)	☑
ContactNo	nvarchar(50)	☑
Detail	nvarchar(50)	☑
Type	nvarchar(50)	☑
Email	nvarchar(50)	☑
Pass	nvarchar(50)	☑
Edate	datetime	☑
		☐

Figure 48. Table Company on Database.

Tbl. Company_Mst

Column Name	Data Type	Allow Nulls
CID	int	☐
CName	nvarchar(50)	☑
JobTitle	nvarchar(50)	☑
City	nvarchar(50)	☑
Address	nvarchar(100)	☑
PersonalNo	nvarchar(100)	☑
MobileNo	nvarchar(100)	☑
Gender	nvarchar(50)	☑
Degree	nvarchar(50)	☑
Skill	nvarchar(50)	☑
Salary	nvarchar(100)	☑
Experience	nvarchar(100)	☑
Email_ID	nvarchar(50)	☑
Password	nvarchar(50)	☑
		☐

Figure 49. Table company representative for recruitments on SCP database.

Tbl. ContactUs_Mst

Column Name	Data Type	Allow Nulls
CID	int	☐
FromName	nvarchar(50)	☑
MobileNo	nvarchar(50)	☑
EmailId	nvarchar(50)	☑
Message	nvarchar(2500)	☑
		☐

Figure 50. Table Contacts on SCP Database.

Tbl. Favourite_Mst

Column Name	Data Type	Allow Nulls
FID	int	☐
UID	int	☑
CID	int	☑
Status	nvarchar(50)	☑
		☐

Figure 51. Table favorite posted internships on SCP Database.

Tbl. FeedBack_Mst

Column Name	Data Type	Allow Nulls
FID	int	☐
Name	nvarchar(50)	☑
Email	nvarchar(50)	☑
Mobile	nvarchar(50)	☑
Feedback	nvarchar(500)	☑
EDate	datetime	☑
		☐

Figure 52. Table Feedback on SCP database.

Tbl. JobSeeker_Mst

Column Name	Data Type	Allow Nulls
UID	int	☐
FName	nvarchar(50)	☑
LName	nvarchar(50)	☑
City	nvarchar(50)	☑
Address	nvarchar(50)	☑
PersonalNo	nvarchar(50)	☑
MobileNo	nvarchar(50)	☑
Gender	nvarchar(50)	☑
BirthDate	datetime	☑
Photo	nvarchar(500)	☑
Degree	nvarchar(50)	☑
Skill	nvarchar(50)	☑
Detail	nvarchar(50)	☑
PaasYear	nvarchar(50)	☑
Experience	nvarchar(50)	☑
Email	nvarchar(50)	☑
Password	nvarchar(50)	☑
EntryDate	datetime	☑
		☐

Figure 53. Table jobseeker on SCP database.

Tbl. Login_Mst

Column Name	Data Type	Allow Nulls
LID	int	☐
UID	int	☑
EmailId	nvarchar(50)	☑
Password	nvarchar(50)	☑
		☐

Figure 54. Table login on SCP database.

Tbl. Message_Mst

Column Name	Data Type	Allow Nulls
MID	int	☐
JName	nvarchar(50)	☑
CName	nvarchar(50)	☑
Message	nvarchar(2500)	☑
EntryDate	datetime	☑
		☐

Figure 55. Table messages on SCP database.

Tbl. PostJob_Mst

Column Name	Data Type	Allow Nulls
PID	int	☐
JobTitle	nvarchar(50)	☑
Degree	nvarchar(50)	☑
Skill	nvarchar(50)	☑
Salary	nvarchar(50)	☑
Experience	int	☑
Vacancy	int	☑
Detail	nvarchar(50)	☑
CompanyName	nvarchar(50)	☑
EDate	datetime	☑
		☐

Figure 56. Table Post Job on SCP database.

The more precise overview about all tables and elements on database of Students Career Portal, on appendix section is provided the entire Stored Procedure of the Database of the system.
On the stored procedure listed on appendix has been given the overall operations within database which later separately will be called by each aspx page onto the Students Career System development process.

Designing and programming the SCP system

The next phase of building the Students Career Portal starts with Visual Studio 2015, and Visual C# as programming language for further front end development of this project.

Designing and programming the profile for role Student

- According to what has been documented precisely to section of modeling, the project has three main components: Student as jobseeker, Company as jobprovider, and Administrator of system for maintain the overall system usability. Thereby, the project development starts by creating the Master page Home.Master, which is presented on the figure 57, below:
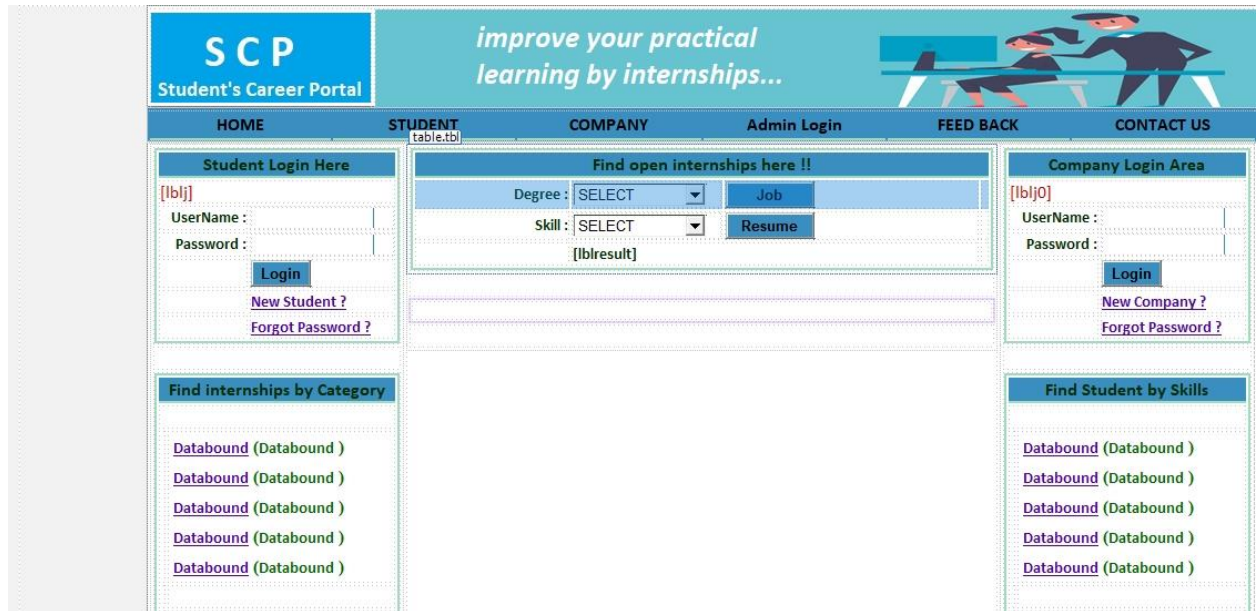
Figure 57. Home.Master of SCP system.

- The project development continues by creating the Home page, which logically will inherit the Home.Master, and will be the default page during the project execution, thereby will contain all information's that later will be linked and code-behind programed, according to all functionalities that were precisely described on modeling phase of project documentation.
  Thereby, on the figure 58, below is provided the home page of SCP project:
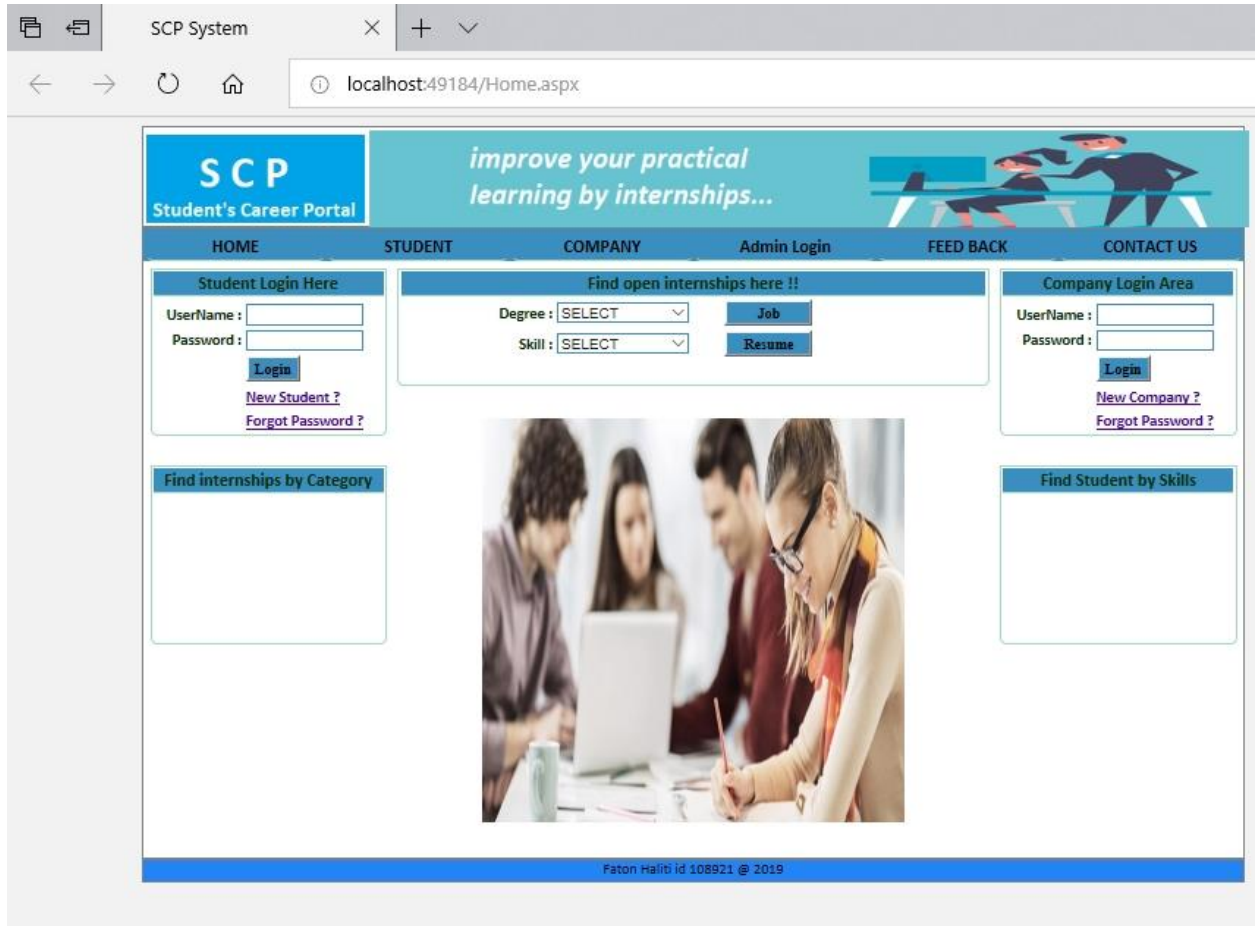
Figure 58. Home page of SCP.

On this viewpoint of SCP project documentation, there will be described all project components, on this case aspx pages which inherits from home.Master.

- Such, it can be seen from homepage, the second tab points to student registration page which has been described in the figure 59, below:

Figure 59. The page to insert new student on SCP.

The C# code of this page has been provided below:

```
public partial class NewStudent : System.Web.UI.Page
{
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {

    }
    protected void Button3_Click(object sender, EventArgs e)
    {
        string gnd = "";
        string img="";
        if (rdomale.Checked == true)
        {
            gnd = "MALE";
            img = "~/img/KPM.jpg";
        }
        else
        {
            gnd = "FEMALE";
            img = "~/img/KPF.jpg";
        }

        int inst = JAdapter.Insert(txtfname.Text, txtlname.Text, txtcity.Text,
txtadd.Text, txtpin.Text, txtmobile.Text, gnd, Convert.ToDateTime(drpdd.SelectedItem.Text
+ " " + drpmm.SelectedItem.Text + " " + drpyyy.SelectedItem.Text), img,
drpdegree.SelectedItem.Text, drpskill.SelectedItem.Text, txtdetail.Text,
txtpassyear.Text, drpexp.SelectedItem.Text, txtuname.Text, txtupass.Text);
        Response.Redirect("home.aspx");
    }
}
```

Figure 60. The C# code for inserting new student onto SCP database.

▪ The next important section of SCP project is the Company, there so NewCompany.aspx is on the main tab after NewStudent.aspx. The company must register to the system, in order to post open jobs for students. This page is represented on the figure 61, below:

Figure 61 The page to register the Company onto SCP system.

```
public partial class NewCompany : System.Web.UI.Page
{
    DS_COMP.COMPANYMST_SELECTDataTable CoDT = new DS_COMP.COMPANYMST_SELECTDataTable();
    DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter CoAdapter = new
DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
    }
    protected void btnregister_Click(object sender, EventArgs e)
    {
        CoAdapter.Insert(txtname.Text, txtadd.Text, txtcity.Text, txtpin.Text,
txtcontactperson.Text, txtmobile.Text, txtdetail.Text, txttype.Text, txtuname.Text,
txtupass.Text);
        lbldone.Text = "Registration Completed";

      txtname.Text="";
       txtadd.Text="";
       txtcity.Text="";
       txtpin.Text="";
       txtcontactperson.Text="";
       txtmobile.Text="";
       txtdetail.Text="";
       txttype.Text="";
       txtuname.Text="";
    }
}
```

Figure 62. The C# code for inserting new company onto SCP database.

On the following section will be represented user interfaces for three main roles, at post-registration status onto the SCP system. The three main roles are Students, Company, and Administrator of the system. Each of the roles will have its own view according to functionalities of the role, hence that each of them will have its own master page from which will inherit their rendered content.

- For the role student onto the system is created StudentLogin.Master, which is presented on the figure 63, below:
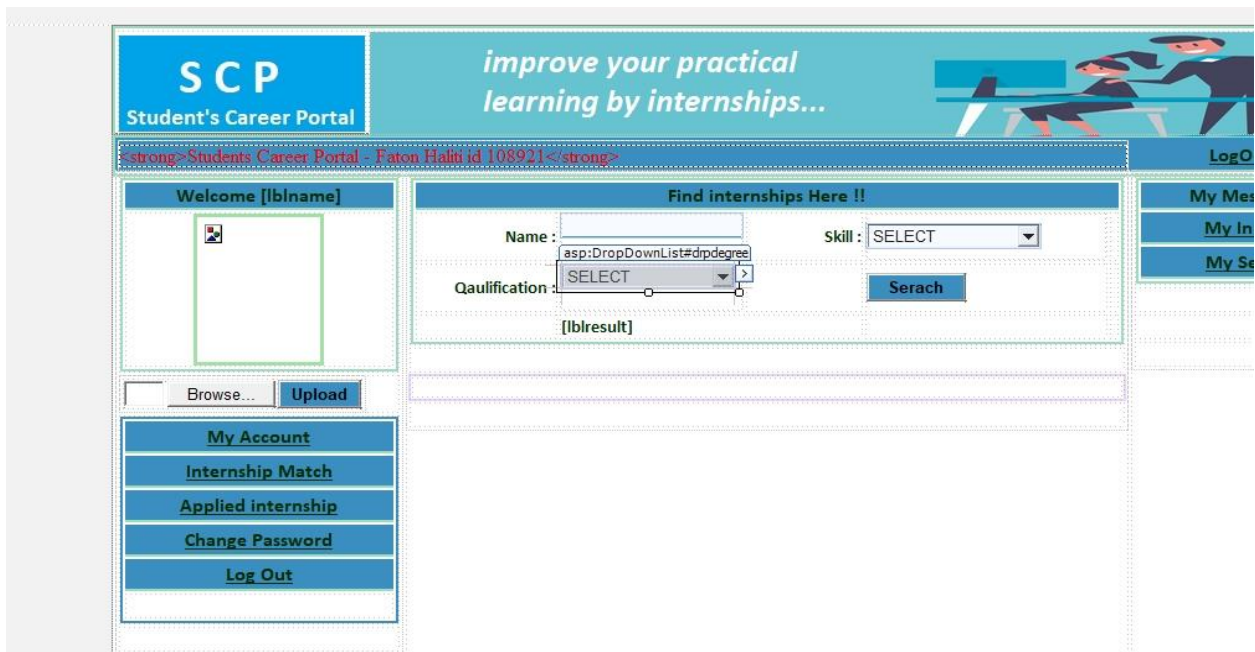
Figure 63. The student account main page.

- On context of previously explained graphical user interface, the role student, after successful login onto the Student's Career Portal, the first task which logically can perform is search for open internships that are posted by companies. There by the SearchJob.aspx is added onto the project, as on the figure 64, below:
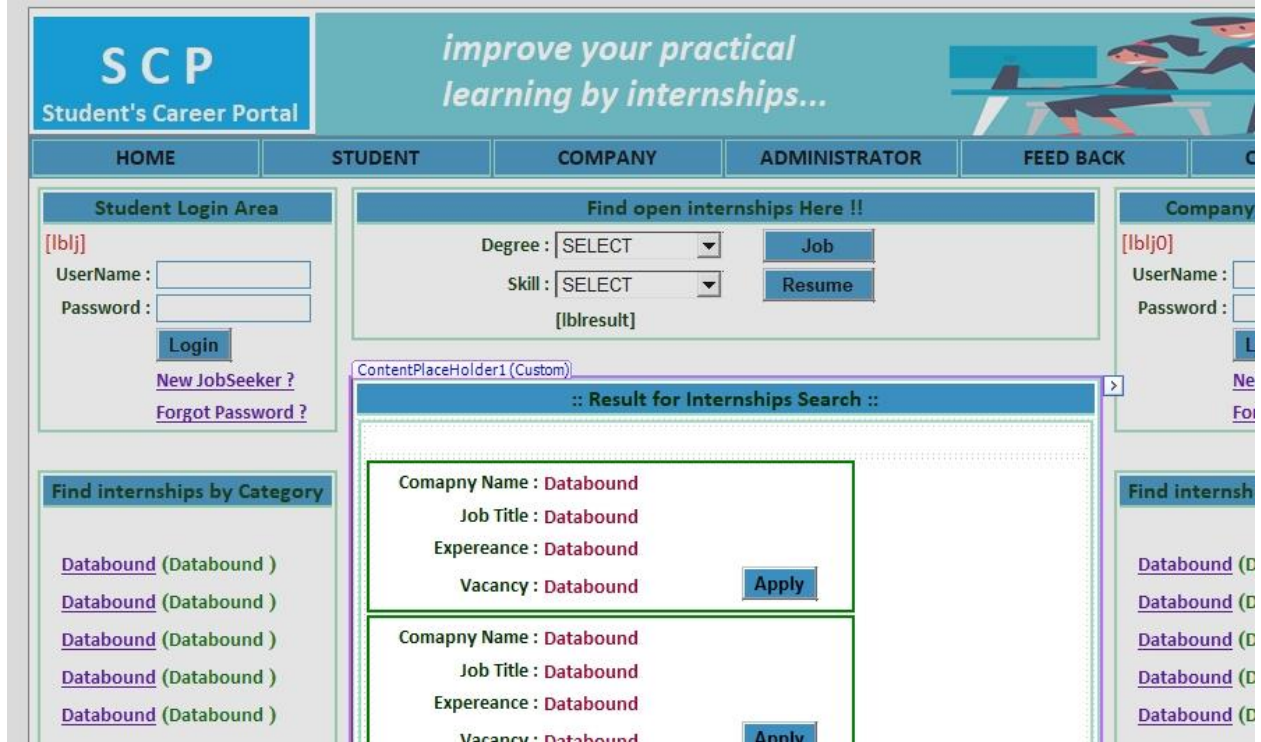
Figure 64 Student's page to search for internships.

The C# code behind the SearchJob.aspx is provided below:

```csharp
public partial class HRM_SearchJob : System.Web.UI.Page
{
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_POSTJOB.POSTJOBMST_SELECTDataTable PDT = new
DS_POSTJOB.POSTJOBMST_SELECTDataTable();
    DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter PAdapte = new
DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            //CDT = CAdapter.SelectSearch_HOME(Session["D"].ToString(),
Session["S"].ToString());
            PDT = PAdapte.Search_Degree_Skill(Session["D"].ToString(),
Session["S"].ToString());
            DataList3.DataSource = PDT;
            DataList3.DataBind();
        }
    }
    protected void DataList3_ItemCommand(object source, DataListCommandEventArgs e)
    {
        Response.Redirect("NewStudent.aspx");
    }
}
```

Figure 65 The C# code for SearchJob.aspx

- On context of this, the student after login will also have a list of recently added internships or jobs by companies, there so is added new aspx file called: StudentLogin.aspx, as on figure 66, below:
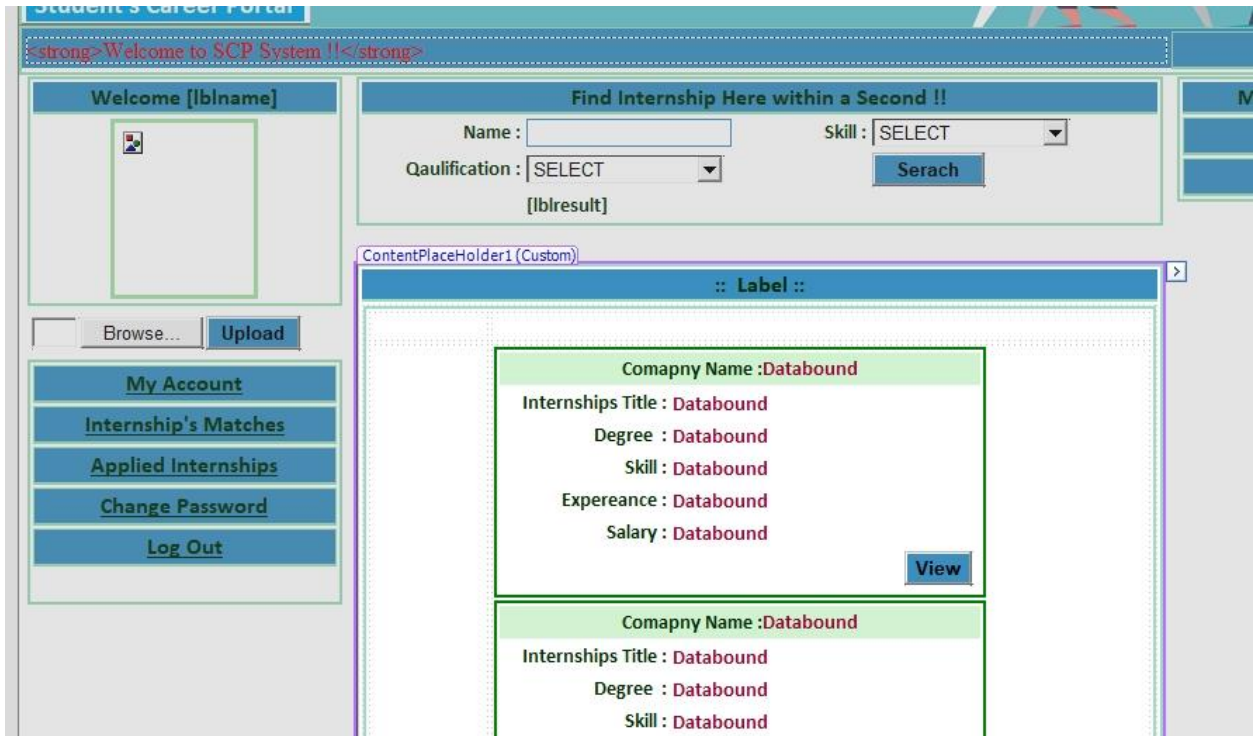
Figure 66. Student post login page on SCP system.

The C# code behind the StudentLogin.aspx page is provided below:

```csharp
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_POSTJOB.POSTJOBMST_SELECTDataTable PDT = new
DS_POSTJOB.POSTJOBMST_SELECTDataTable();
    DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter PAdapte = new
DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            JDT = JAdapter.SelectBY_UID(Convert.ToInt32(Session["JID"].ToString()));

            if (Session["CL"] == null)
            {

                PDT = PAdapte.Search_Degree_Skill(JDT.Rows[0]["Degree"].ToString(),
JDT.Rows[0]["Skill"].ToString());
                // CDT = CAdapter.SelectSearch_HOME(JDT.Rows[0]["Degree"].ToString(),
JDT.Rows[0]["Skill"].ToString());
                DataList3.DataSource = PDT;
                DataList3.DataBind();
                Label1.Text = "Job match with your Profile (" +
DataList3.Items.Count.ToString() + ")";
            }
            else
            {
                PDT = PAdapte.Search_After_login(Session["CL"].ToString(),
Session["DL"].ToString(), Session["SL"].ToString());
                //CDT = CAdapter.Search_LOGIN(Session["CL"].ToString(),
Session["DL"].ToString(), Session["SL"].ToString());
                DataList3.DataSource = PDT;
                DataList3.DataBind();
                Session["CL"] = null;
                Label1.Text = "Result for Job Search (" +
DataList3.Items.Count.ToString() +")";
            }
        }
    }
    protected void DataList3_ItemCommand(object source, DataListCommandEventArgs e)
    {
        Session["VCID"] = e.CommandArgument.ToString();
        Response.Redirect("StudentViewmore.aspx");
    }
}
```

Figure 67. The C# code behind StudentLogin.aspx page.

- On context of previously developed SCP system features, the Student after selects an open internship by company, clicks on that in order to apply. By this approach, is added the page Studendviewmore.aspx on development where the student will view further information about that internship, and then click apply to internship button. Such is described on the figure 68, below:
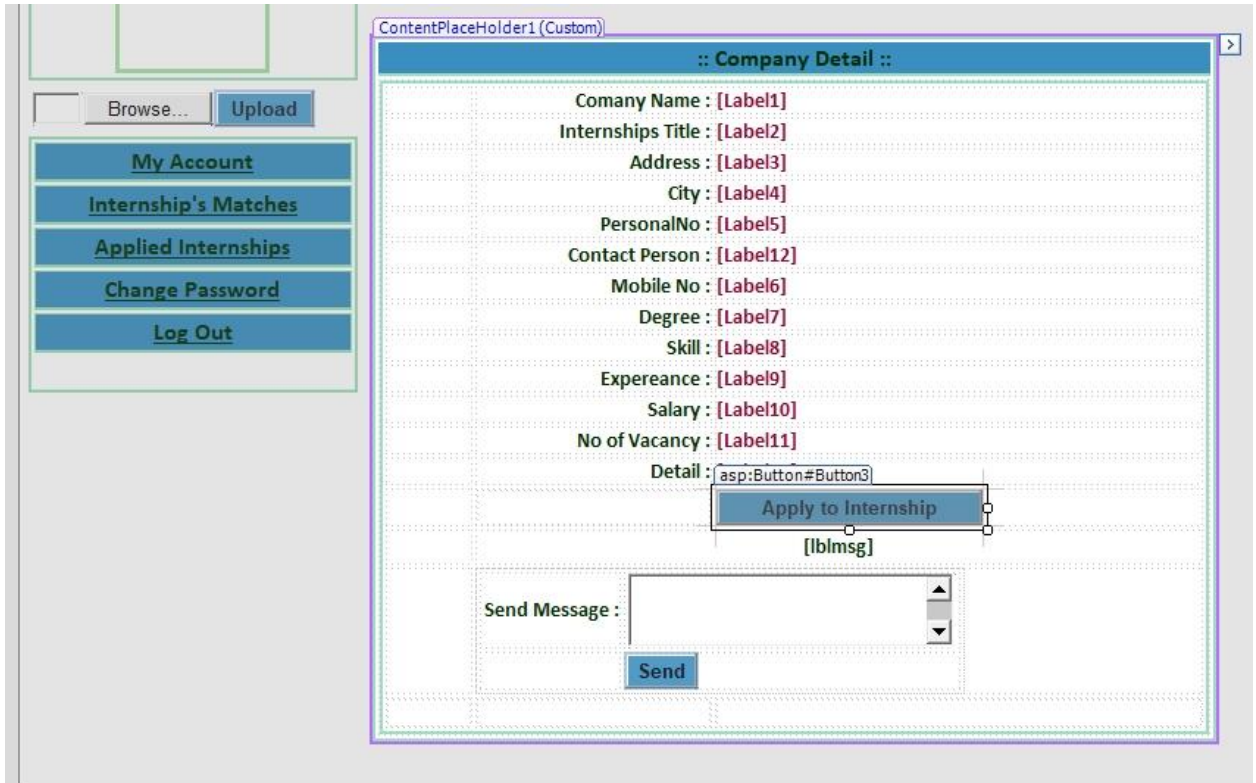
Figure 68. Student view more page.

The C# code behind Studentviewmore.aspx file is provided below:

```csharp
public partial class JViewmore : System.Web.UI.Page
{
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();


    DS_JMSG.Message_Mst_selectDataTable JMDT = new DS_JMSG.Message_Mst_selectDataTable();
    DS_JMSGTableAdapters.Message_Mst_selectTableAdapter JMAdapter = new
DS_JMSGTableAdapters.Message_Mst_selectTableAdapter();
    DS_Apply.Apply_Mst_selectDataTable ADT = new DS_Apply.Apply_Mst_selectDataTable();
    DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter AAdapter = new
DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter();


    DS_COMP.COMPANYMST_SELECTDataTable CoDT = new DS_COMP.COMPANYMST_SELECTDataTable();
    DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter CoAdapter = new
DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter();

    DS_POSTJOB.POSTJOBMST_SELECTDataTable PDT = new
DS_POSTJOB.POSTJOBMST_SELECTDataTable();
    DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter PAdapte = new
DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        lblmsg.Text = "";
        if (Page.IsPostBack == false)
        {
            PDT = PAdapte.Select_By_PID(Convert.ToInt32(Session["VCID"].ToString()));

            //CDT = CAdapter.SelectBY_CID(Convert.ToInt32(Session["VCID"].ToString()));
            Label1.Text = PDT.Rows[0]["companyname"].ToString();
            Label2.Text = PDT.Rows[0]["jobtitle"].ToString();

            Label7.Text = PDT.Rows[0]["degree"].ToString();
            Label8.Text = PDT.Rows[0]["skill"].ToString();
            Label9.Text = PDT.Rows[0]["Experience"].ToString();
            Label10.Text = PDT.Rows[0]["Salary"].ToString();
            Label11.Text = PDT.Rows[0]["vacancy"].ToString();
            Label13.Text = PDT.Rows[0]["detail"].ToString();

            CoDT = CoAdapter.select_By_CNAME(PDT.Rows[0]["companyname"].ToString());

            Label3.Text = CoDT.Rows[0]["Address"].ToString();
            Label4.Text = CoDT.Rows[0]["city"].ToString();
            Label5.Text = CoDT.Rows[0]["pincode"].ToString();
            Label12.Text = CoDT.Rows[0]["contactperson"].ToString();
            Label6.Text = CoDT.Rows[0]["contactno"].ToString();

        }

    }
    protected void Button3_Click(object sender, EventArgs e)
    {

        ADT = AAdapter.Select_Befor_Apply(Session["semail"].ToString(), Label1.Text);
```

Figure 69 The C# code behind Studentviewmore.aspx page.

- Hence, the SCP project development is still on role student, which need as a necessary part the page where the student can see all internships to companies where the student has applied. This is developed by adding the page StudentApplied.aspx onto the project development which has been represented with figure 70, below:

Figure 70. Student Applied page on SCP system.

The C# code behind the StudentApplied.aspx file is proved below:

```csharp
public partial class JApplied : System.Web.UI.Page
{
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_Apply.Apply_Mst_MY_APPLIEDDataTable MADT = new
DS_Apply.Apply_Mst_MY_APPLIEDDataTable();
    DS_ApplyTableAdapters.Apply_Mst_MY_APPLIEDTableAdapter MAADapter = new
DS_ApplyTableAdapters.Apply_Mst_MY_APPLIEDTableAdapter();
    DS_Apply.Apply_Mst_selectDataTable ADT = new DS_Apply.Apply_Mst_selectDataTable();
    DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter AADapter = new
DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {

            //ADT = AADapter.Select_MY_Applied(Session["jemail"].ToString());
            //if (ADT.Rows.Count > 0)
            //{
                MADT=MAADapter.SlectFOE_MY_APPLIED(Session["semail"].ToString());
                //CDT = CAdapter.SelectBY_CNAME(ADT.Rows[0]["Cname"].ToString());
                DataList3.DataSource = MADT;
                DataList3.DataBind();
            //}
        }

    }
    protected void DataList3_ItemCommand(object source, DataListCommandEventArgs e)
    {
        int del = AADapter.Delete(Convert.ToInt32(e.CommandArgument.ToString()));

        MADT = MAADapter.SlectFOE_MY_APPLIED(Session["semail"].ToString());
        DataList3.DataSource = MADT;
        DataList3.DataBind();
    }
```

Figure 71. The C# code behind StudentApplied.aspx page.

- Such was showed on the figure Studentviewmore.aspx, except the option to apply, the student has option to send a short message like email to company that has posted that internship. There by, the student may have sent email or short messages to multiple companies to which the student applies, and to view the sent mail, on further development of SCP is added the page StudentSent.aspx, which has been shown of the figure 72, below:
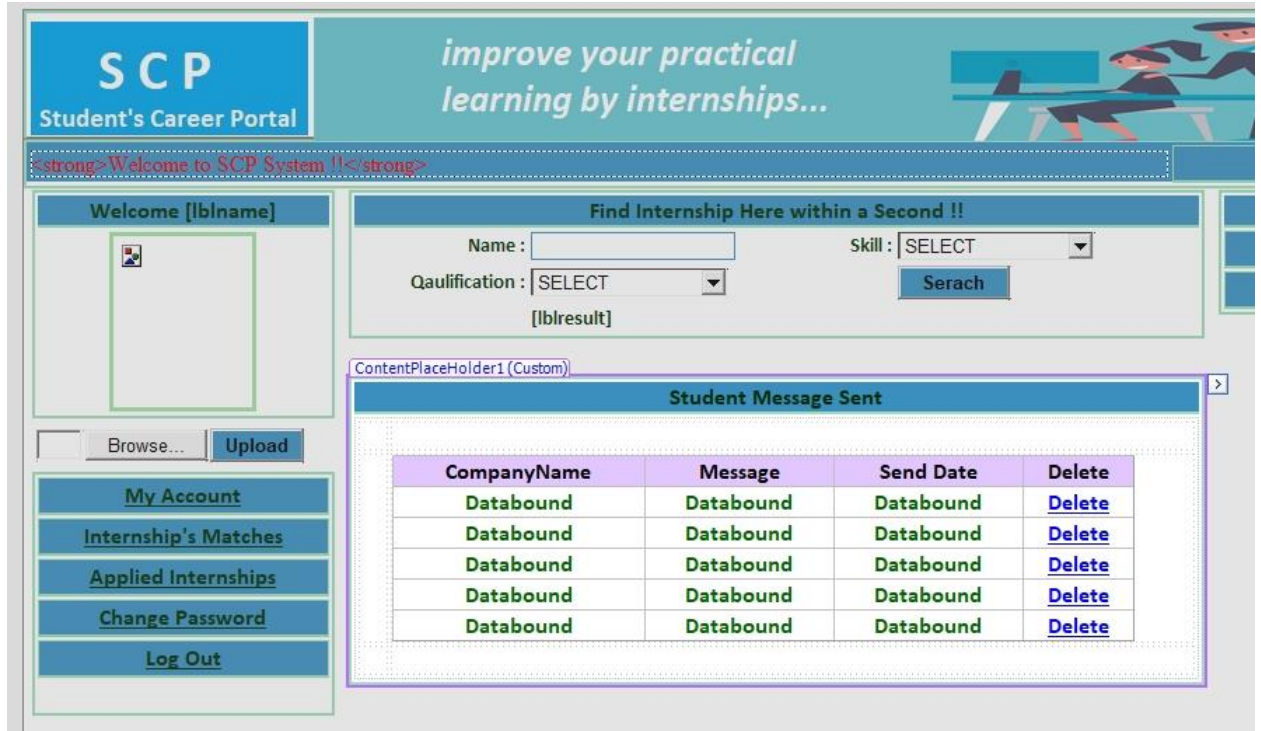
Figure 72. Student sent box to companies.

The C# code behind the StudentSent.aspx file is proved below:

```csharp
public partial class StudentSent : System.Web.UI.Page
{
    DS_JMSG.Message_Mst_selectDataTable MDT = new DS_JMSG.Message_Mst_selectDataTable();
    DS_JMSGTableAdapters.Message_Mst_selectTableAdapter MAdapter = new
DS_JMSGTableAdapters.Message_Mst_selectTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            MDT = MAdapter.SelectBY_JANME(Session["semail"].ToString());
            GridView1.DataSource = MDT;
            GridView1.DataBind();
        }
    }
    protected void GridView1_RowCommand(object sender, GridViewCommandEventArgs e)
    {
        int del = MAdapter.Delete(Convert.ToInt32(e.CommandArgument.ToString()));
        MDT = MAdapter.SelectBY_JANME(Session["semail"].ToString());
        GridView1.DataSource = MDT;
        GridView1.DataBind();
    }
}
```

Figure 73. The C# code behind StudentSent.aspx page.

- On context to previously described feature of sending short messages to companies and seeing them, the student also needs an inbox where the replay from companies whether they are accepted or not for particular applied internship will come. By this context, on further development to SCP project is added the StudentInbox.aspx file, which will display the responses from companies to the student, after the student has login onto his/her account. This page has been represented on Figure 74, below:
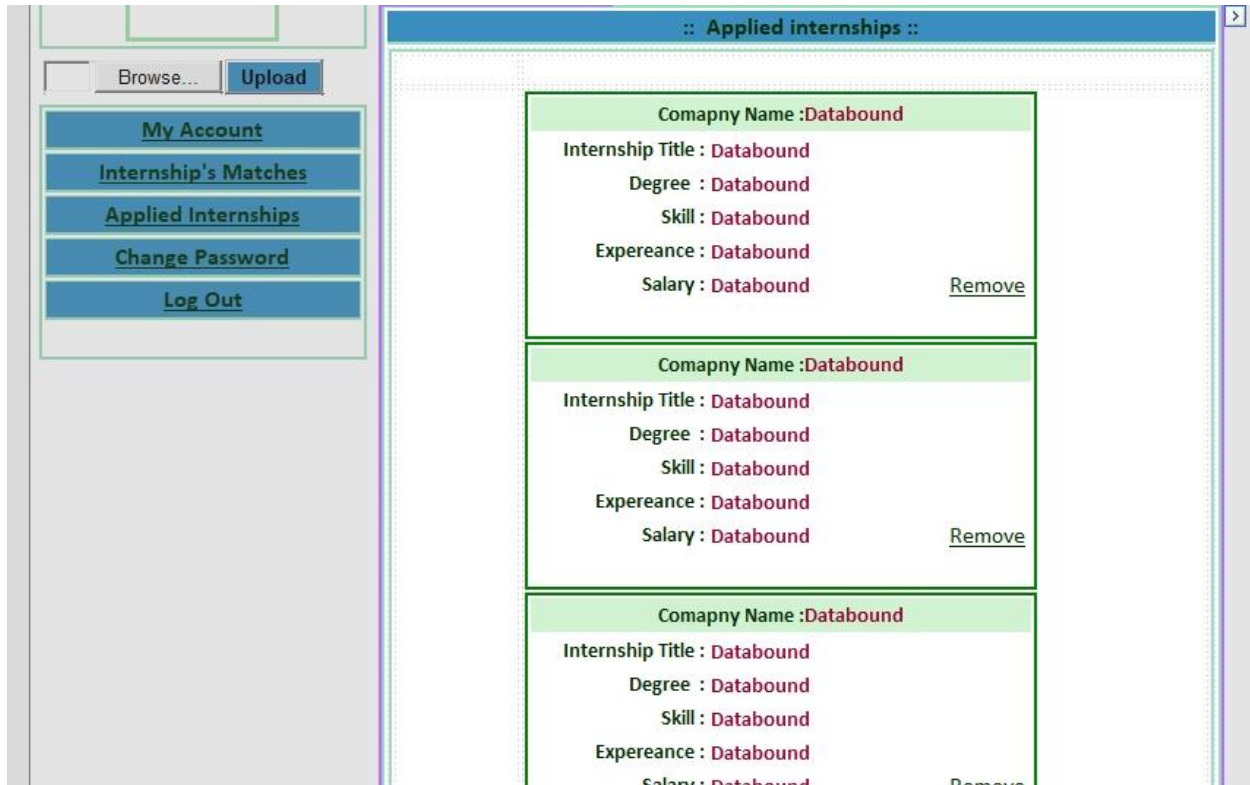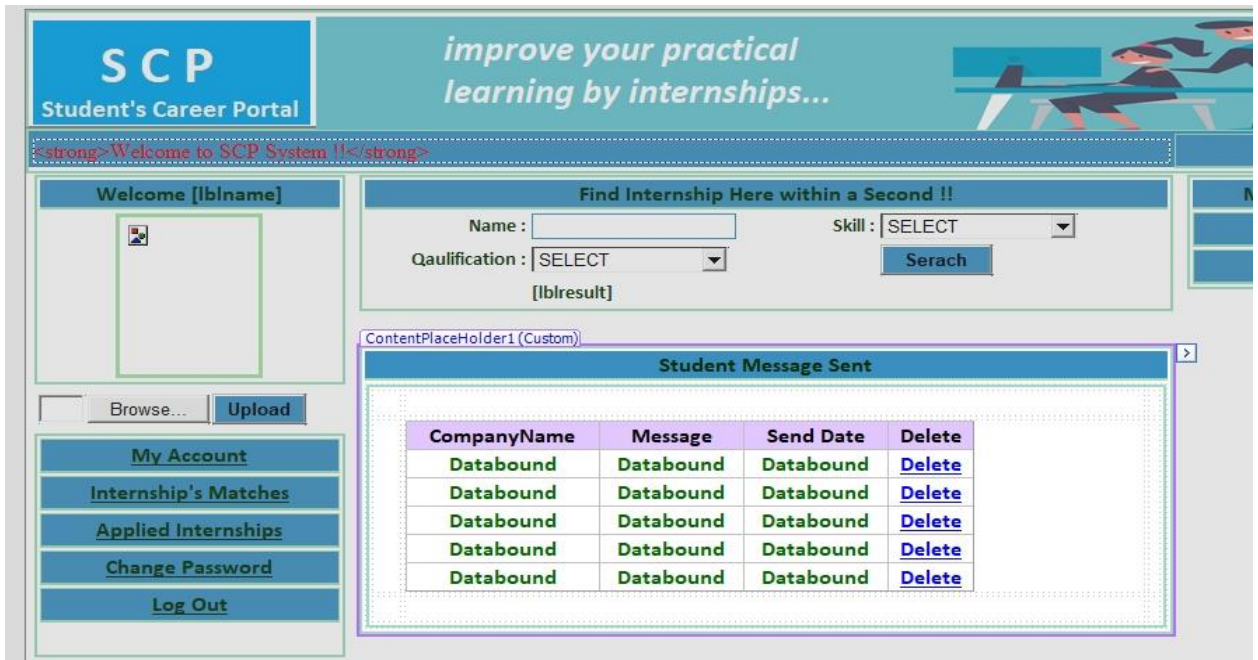

Figure 74. Student Inbox page on SCP system.

The C# code behind the StudentInbox.aspx is provided below:

```
public partial class StudentInbox : System.Web.UI.Page
{
    DS_CMSG.CMessage_Mst_selectDataTable CMDT = new
DS_CMSG.CMessage_Mst_selectDataTable();
    DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter CMAdapter = new
DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter();

    // DS_JMSG.Message_Mst_selectDataTable MDT = new
DS_JMSG.Message_Mst_selectDataTable();
    //  DS_JMSGTableAdapters.Message_Mst_selectTableAdapter MAdapter = new
DS_JMSGTableAdapters.Message_Mst_selectTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            CMDT = CMAdapter.SelectBY_JNAME(Session["semail"].ToString());
            GridView1.DataSource = CMDT;
            GridView1.DataBind();

        }
    }
    protected void GridView1_RowCommand(object sender, GridViewCommandEventArgs e)
    {
        int del = CMAdapter.Delete(Convert.ToInt32(e.CommandArgument.ToString()));
        CMDT = CMAdapter.SelectBY_JNAME(Session["semail"].ToString());
        GridView1.DataSource = CMDT;
        GridView1.DataBind();
    }
}
```

Figure 75. The C# code behind the StudentInbox.aspx page.

- On continuum of development of SCP project for role Student, there will be a need for student to change the account password, as a security feature of the system. There so, the file StudenPasswordChange.aspx is added onto the development, which has been shown in the figure 76, below:

Figure 76. Student password change page on SCP system.

The C# code behind the StudentPasswordChange.aspx has been provided below:

```csharp
public partial class StudentChangePass : System.Web.UI.Page
{
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        lbl.Text = "";

    }
    protected void Button3_Click(object sender, EventArgs e)
    {
        if (txtnpass.Text == "")
        {
            lbl.Text = "Enter password";
        }
        else if (txtnpass.Text != txtlcpass.Text)
        {
            lbl.Text = "password not match";

        }
        else
        {
JAdapter.JobSheeker_Mst_CHANGE_PASS(Convert.ToInt32(Session["JID"].ToString()),
txtnpass.Text);
            lbl.Text = "Password has been chaged";
        }
```

Figure 77. The C# code behind the StudentPasswordChange.aspx page.

Designing and programming the profile for role Administrator

- The next role on the SCP system is Administrator, and according to what was in detail explained on modeling section, the administrator role will have privileges to see reports about students that apply to open internships, and companies which post internships onto the SCP system. Also on the future development of the system there is provided feedback report, which may serve as bug reporting or new ideas from companies and students about SCP system improvement on future releases.
  For this specific role of the system is created the own master page called MasterPage.master, which has been shown on the figure 78, below:
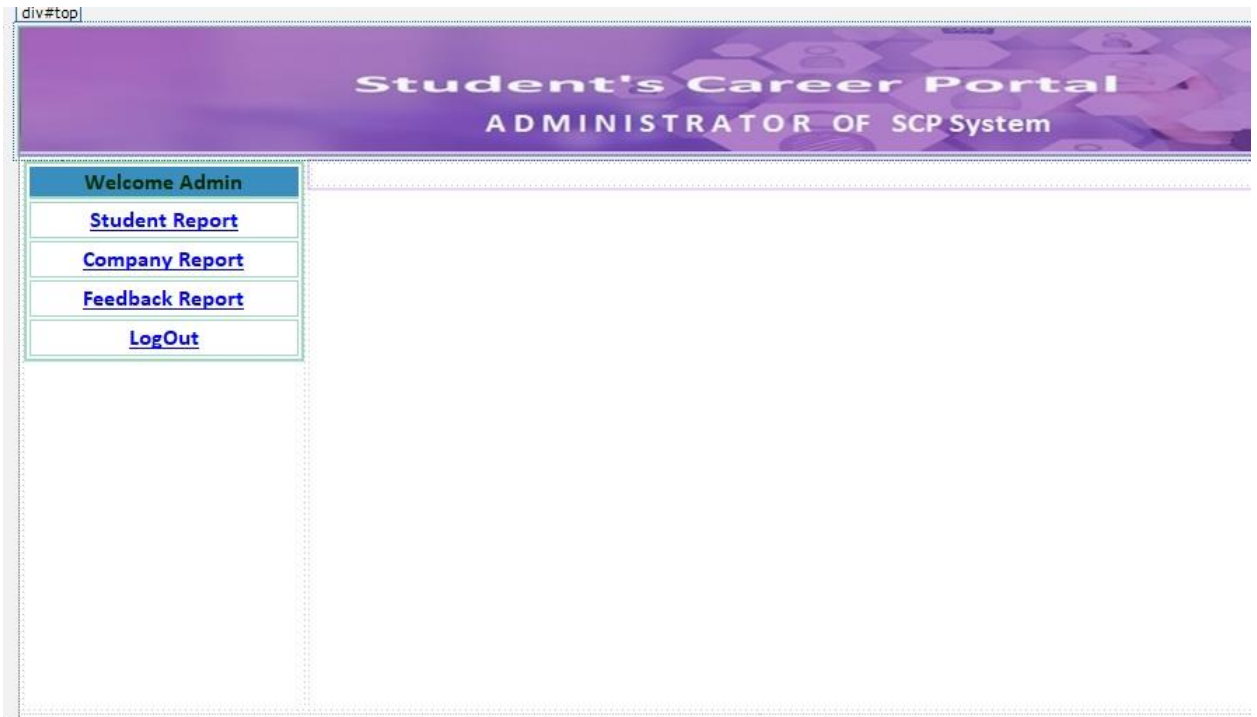
Figure 78. Admin welcome page.

- The first page added onto the admin role is the Login.aspx, which will serve as login page for administrator of the system, and is represented on the figure 79, below:

Figure 79. Admin login page.

- The first and most important Administrator role feature is to have access on students' information management, there so is created the Home.aspx onto the subfolder for Admin which is represented on the figure 80, below:
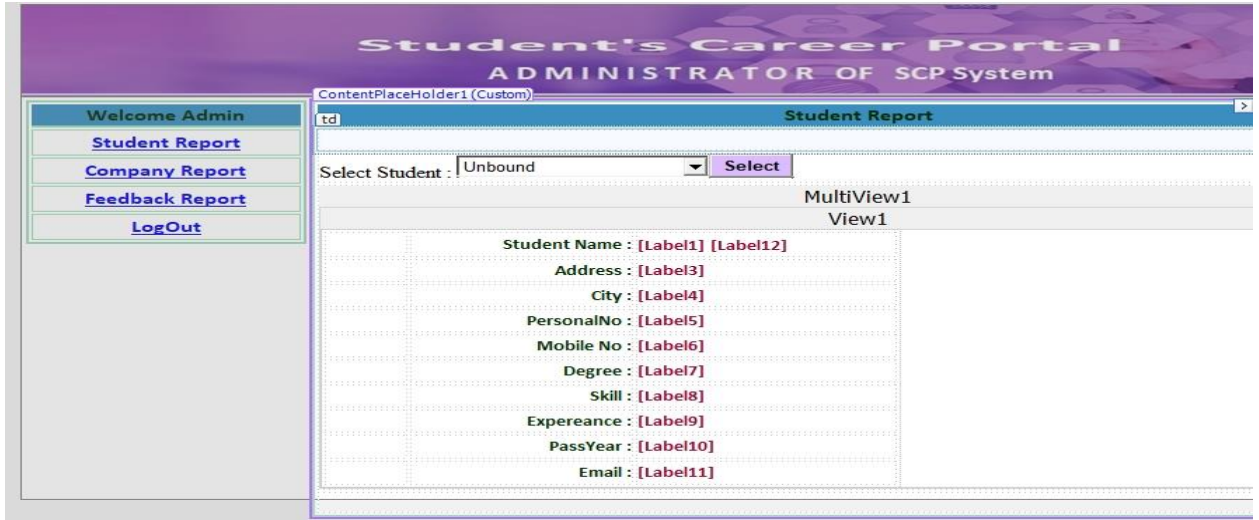
Figure 80. Admin page to manage Students on SCP system.

```csharp
ublic partial class Admin_Home : System.Web.UI.Page
{
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            JDT = JAdapter.SelectJSeeker();
            DropDownList1.DataSource = JDT;
            DropDownList1.DataTextField = "Email";
            DropDownList1.DataValueField = "uID";
            DropDownList1.DataBind();
            MultiView1.ActiveViewIndex = -1;
        }
    }
    protected void Button5_Click(object sender, EventArgs e)
    {
        MultiView1.ActiveViewIndex = 0;

        JDT = JAdapter.SelectBY_UID(Convert.ToInt32(DropDownList1.SelectedValue));
        Label1.Text = JDT.Rows[0]["Fname"].ToString();
        Label12.Text = JDT.Rows[0]["Lname"].ToString();

        Label3.Text = JDT.Rows[0]["Address"].ToString();
        Label4.Text = JDT.Rows[0]["city"].ToString();
        Label5.Text = JDT.Rows[0]["personalno"].ToString();
        Label6.Text = JDT.Rows[0]["mobileno"].ToString();
        Label7.Text = JDT.Rows[0]["degree"].ToString();
        Label8.Text = JDT.Rows[0]["skill"].ToString();
        Label9.Text = JDT.Rows[0]["Experience"].ToString();
        Label10.Text = JDT.Rows[0]["Paasyear"].ToString();
        Label11.Text = JDT.Rows[0]["email"].ToString();
    }
}
```

Figure 81 The C# code behind the Admin_home page

- On SCP administrator role, next important feature is to manage the list of registered companies onto the system. There so, by this context is developed the Company.aspx under the Admin folder of project, which has been described on Figure 82, below:
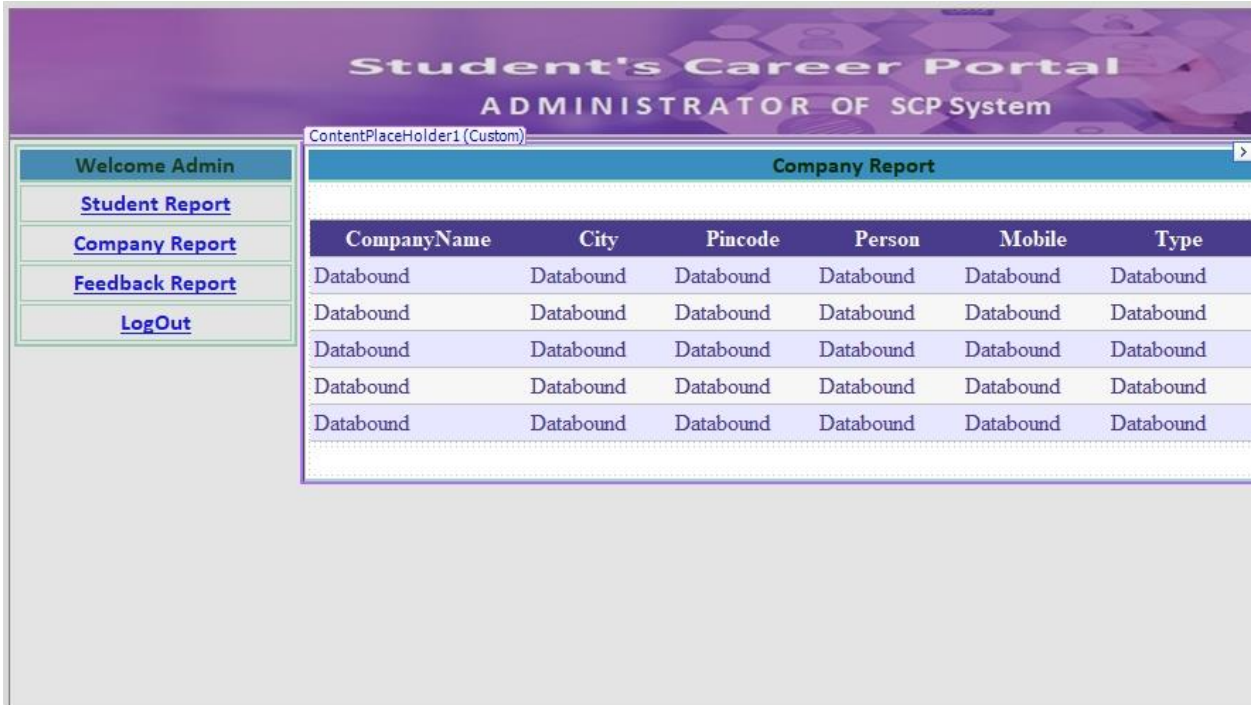
Figure 82 Admin page to manage companies.

The C# code for the administration of Company.aspx is provided below:

```csharp
public partial class Admin_Company : System.Web.UI.Page
{
    DS_COMP.COMPANYMST_SELECTDataTable CoDT = new DS_COMP.COMPANYMST_SELECTDataTable();
    DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter CoAdapter = new
DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {

        CoDT = CoAdapter.SELECTCOMMP();
        GridView1.DataSource = CoDT;
        GridView1.DataBind();
    }
}
```

Figure 83. The C# code behind admin Company.aspx page.

Designing and programming the profile for role Company

▪ The next important role of the system are Companies which should register onto the SCP system, and post open internships, vacancies or jobs for students on which the students may apply.
The role Company will have its own user interface pattern, and according to that onto the SCP system development is added the CLogin.Master. This page is represented on Figure 84, below:
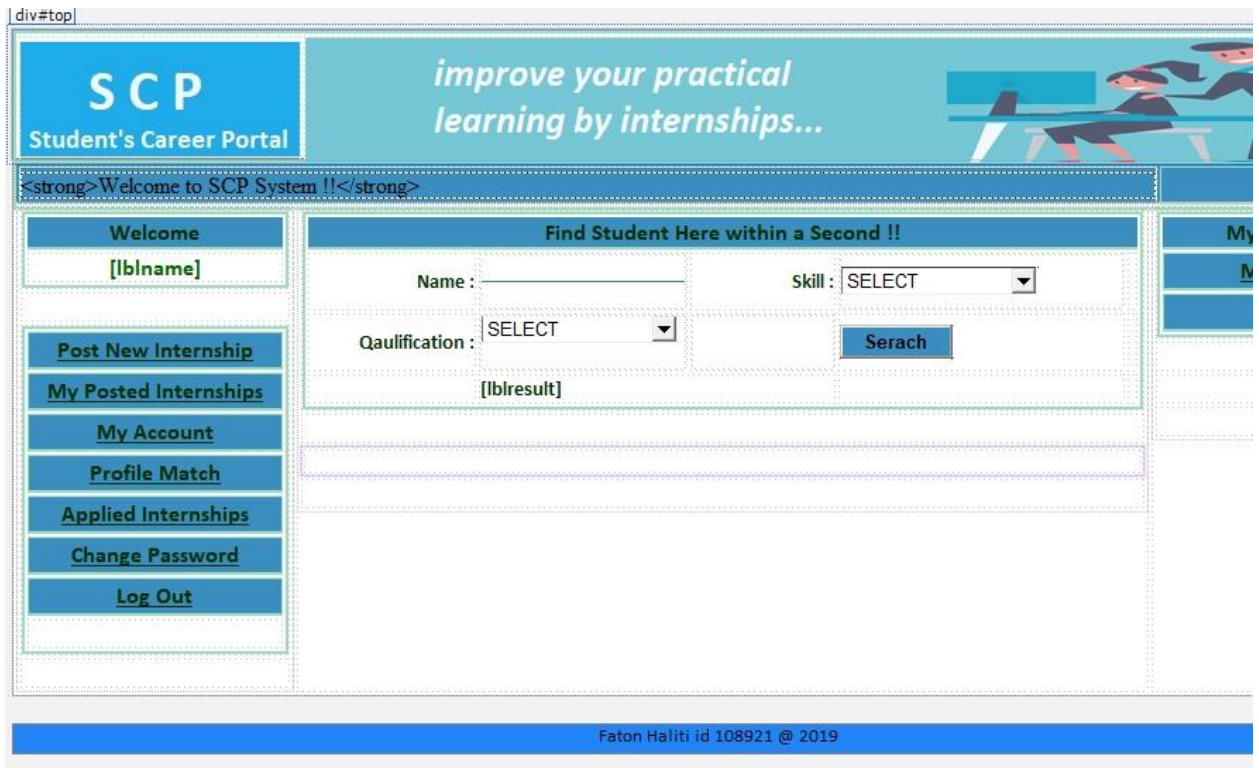
Figure 84. Company log-in page.

The C# code behind the CLogin.master is provided below:

```csharp
public partial class CLogin : System.Web.UI.MasterPage
{
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_COMP.COMPANYMST_SELECTDataTable CoDT = new DS_COMP.COMPANYMST_SELECTDataTable();
    DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter CoAdapter = new
DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        CoDT = CoAdapter.select_By_cid(Convert.ToInt32(Session["CID"].ToString()));

      //  CDT = CAdapter.SelectBY_CID(Convert.ToInt32(Session["CID"].ToString()));

        lblname.Text = CoDT.Rows[0]["companyname"].ToString();
    }
    protected void Button2_Click(object sender, EventArgs e)
    {
        //lblname.Text = "";
        if (drpskill.SelectedIndex == 0 || drpdegree.SelectedIndex == 0)
        {
            lblresult.Text = "Invalid Search";
        }
        else
        {
            Session["CL"] = txtjname.Text + "%";
            Session["DL"] = drpdegree.SelectedItem.Text;
            Session["SL"] = drpskill.SelectedItem.Text;
            Response.Redirect("CLogin.aspx");
        }
    }
    protected void LinkButton2_Click(object sender, EventArgs e)
    {
        Session["CL"] = null;
        Response.Redirect("CLogin.aspx");
    }
    protected void LinkButton8_Click(object sender, EventArgs e)
    {

    }
    protected void LinkButton6_Click(object sender, EventArgs e)
    {
        Session["CID"] = null;
        Session["cemail"] = null;
        Response.Redirect("Home.aspx");
    }
}
```

Figure 85. The C# code behind CLogin.master page

- The role Company should have the feature to update company registration details, and other company information. There so, onto the SCP project is incorporated the page CAccount.aspx, which has been provided figure 86, below:
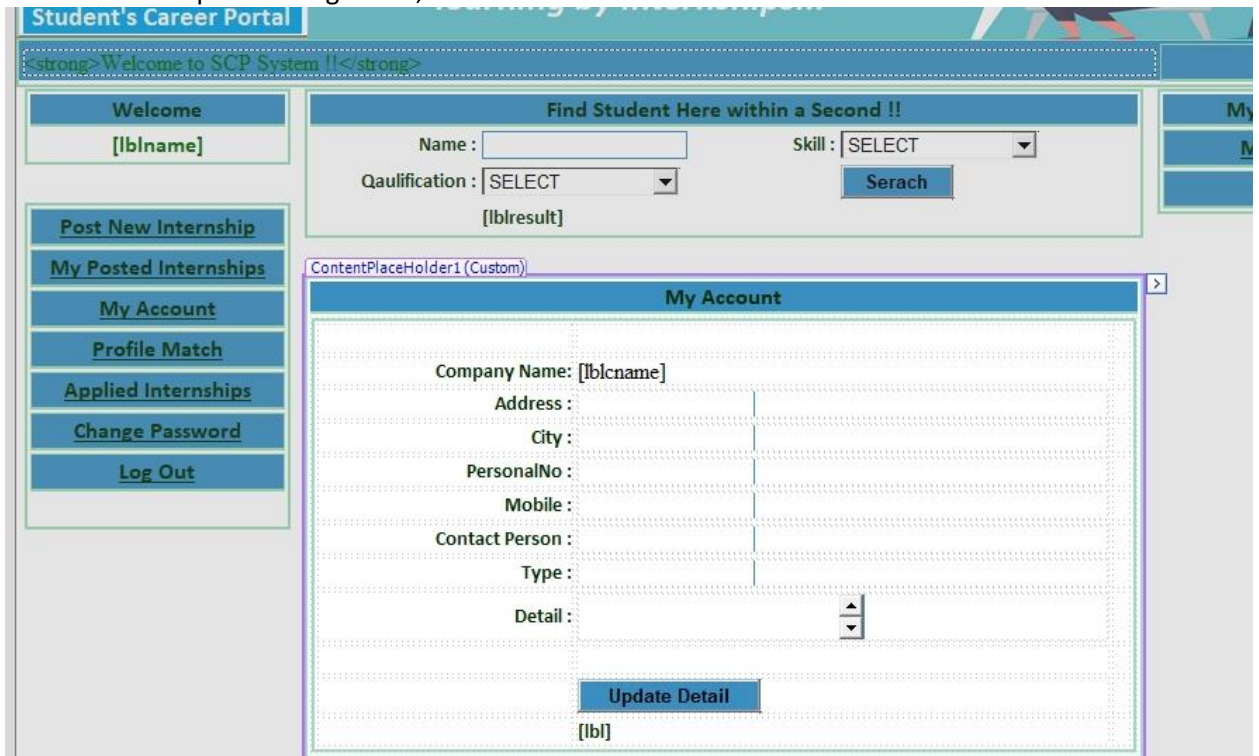
Figure 86. Company account page on SCP system.

The C# code behind the CAccount.aspx is provided below:

```
public partial class CAccount : System.Web.UI.Page
{
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_COMP.COMPANYMST_SELECTDataTable CoDT = new DS_COMP.COMPANYMST_SELECTDataTable();
    DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter CoAdapter = new
DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        lbl.Text = "";
        if (Page.IsPostBack == false)
        {

            CoDT = CoAdapter.select_By_cid(Convert.ToInt32(Session["CID"].ToString()));

            lblcname.Text = CoDT.Rows[0]["companyname"].ToString();
            txtcity.Text = CoDT.Rows[0]["city"].ToString();
            txtadd.Text = CoDT.Rows[0]["address"].ToString();
            txtpin.Text = CoDT.Rows[0]["pincode"].ToString();
            txtmob.Text = CoDT.Rows[0]["contactno"].ToString();
            txtcperson.Text = CoDT.Rows[0]["contactperson"].ToString();
            txttype.Text = CoDT.Rows[0]["type"].ToString();
            txtdetil.Text = CoDT.Rows[0]["detail"].ToString();
        }
    }
    protected void Button3_Click(object sender, EventArgs e)
    {
        CoAdapter.Update(lblcname.Text, txtadd.Text, txtcity.Text, txtpin.Text,
txtcperson.Text, txtmob.Text, txtdetil.Text, txttype.Text, Session["cemail"].ToString());
    //  int d = JAdapter.Update(Convert.ToInt32(Session["JID"].ToString()), txtfname.Text,
txtlname.Text, txtcity.Text, txtadd.Text, txtpin.Text, txtmob.Text,
drpdegree.SelectedItem.Text, drpskill.SelectedItem.Text, txtsal.Text, txtpassyear.Text,
drpexp.SelectedItem.Text);
        lbl.Text = "Detail Updated !!";
    }
}
```

Figure 87. The C# code behind CAccount.aspx page.

▪ The most important feature of role Company is to post a job, there so onto the SCP system is added the PostJob.aspx, which has been provided figure 88, below:

Figure 88. Company page to post open vacancies.

The C# code behind PostJob.aspx is provided below:

```csharp
public partial class PostJob : System.Web.UI.Page
{
    DS_POSTJOB.POSTJOBMST_SELECTDataTable PDT = new
DS_POSTJOB.POSTJOBMST_SELECTDataTable();
    DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter PAdapte = new
DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {

    }
    protected void btnpostjob_Click(object sender, EventArgs e)
    {
        PAdapte.Insert(txttile.Text, drpdegree.SelectedItem.Text,
drpskill.SelectedItem.Text, txtsalary.Text, Convert.ToInt32(drpexp.SelectedItem.Text),
Convert.ToInt32(txtvacancy.Text), txtdetail.Text, Session["Cname"].ToString());

        txtdetail.Text = "";
        txtsalary.Text = "";
        txttile.Text = "";
        txtvacancy.Text = "";
        drpexp.SelectedIndex = 0;
        drpdegree.SelectedIndex = 0;
        drpskill.SelectedIndex = 0;
        lbl.Text = "Internship Posted..";
    }
}
```

Figure 89. The C# code behind the PostJob.aspx page.

- On following context is added to SCP project the file MyPosteJob.aspx, which will contain data about all posted jobs, internships, or vacancies for the company representative that has logged in onto SCP system. The file MyPostedJob.aspx is represented on the figure 90, below:
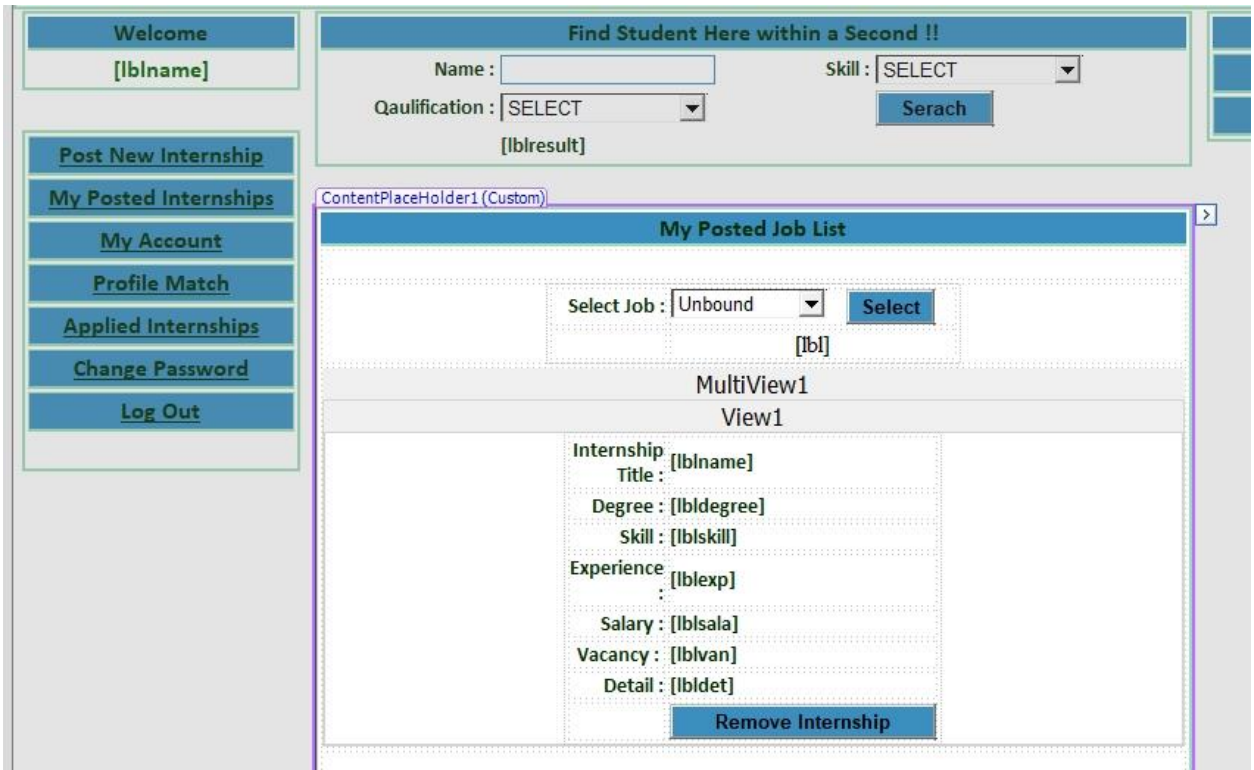
Figure 90. Company review of already posted vacancies.

The C# code behind the MyPostedJob.aspx is provided below:

```csharp
public partial class MyPostedJob : System.Web.UI.Page
{
    DS_POSTJOB.POSTJOBMST_SELECTDataTable PDT = new
DS_POSTJOB.POSTJOBMST_SELECTDataTable();
    DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter PAdapte = new
DS_POSTJOBTableAdapters.POSTJOBMST_SELECTTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {

            PDT = PAdapte.select_by_Cname(Session["cname"].ToString());
            drpjobtitle.DataSource = PDT;
            drpjobtitle.DataTextField = "jobtitle";
            drpjobtitle.DataValueField = "pid";
            drpjobtitle.DataBind();

            MultiView1.ActiveViewIndex = -1;
        }


    }
    protected void btnselect_Click(object sender, EventArgs e)
    {

        PDT = PAdapte.Select_By_PID(Convert.ToInt32(drpjobtitle.SelectedValue));

        lbldegree.Text = PDT.Rows[0]["degree"].ToString();
        lbldet.Text = PDT.Rows[0]["detail"].ToString();
        lblexp.Text = PDT.Rows[0]["experience"].ToString();
        lblname.Text = PDT.Rows[0]["jobtitle"].ToString();
        lblsala.Text = PDT.Rows[0]["salary"].ToString();
        lblskill.Text = PDT.Rows[0]["skill"].ToString();
        lblvan.Text = PDT.Rows[0]["vacancy"].ToString();

        ViewState["pid"] = PDT.Rows[0]["pid"].ToString();
        MultiView1.ActiveViewIndex = 0;
    }
    protected void btnremove_Click(object sender, EventArgs e)
    {

        PAdapte.Delete(Convert.ToInt32(ViewState["pid"].ToString()));
        MultiView1.ActiveViewIndex = -1;
        lbl.Text = "Job Deleted";
        PDT = PAdapte.select_by_Cname(Session["cname"].ToString());
        drpjobtitle.DataSource = PDT;
        drpjobtitle.DataTextField = "jobtitle";
        drpjobtitle.DataValueField = "pid";
        drpjobtitle.DataBind();
    }
}
```

Figure 91. The C# code behind MyPostedJob.aspx page.

▪ Furthermore, adding the features and functionalities such were described on modeling phase of SCP system development, its necessary to incorporate a page that will show an acknowledgement to company about students that have applied to a posted internship. There so the page CApplied.aspx is incorporated onto the SCP development, which has been represented on the figure 92, below:
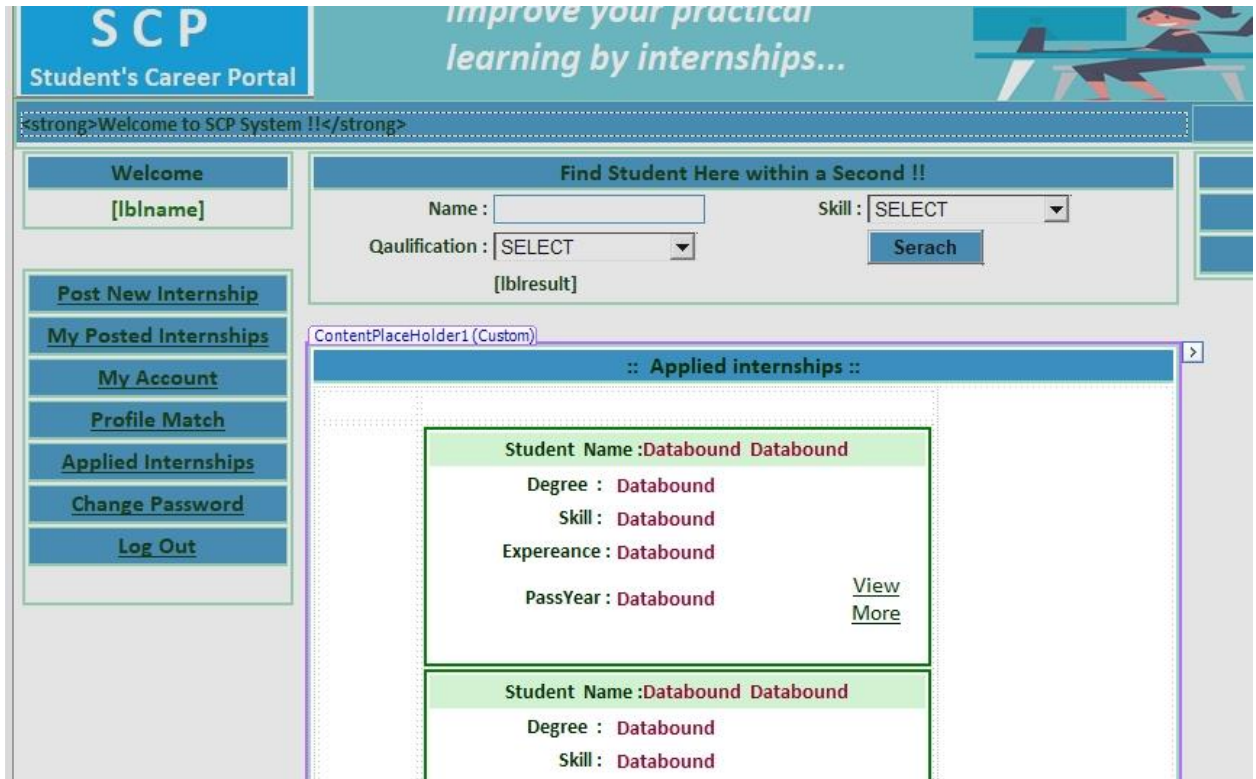
Figure 92. Company page to view students who have apply.

The C# code behind the page CApplied.aspx is provided below:

```csharp
public partial class CApplied : System.Web.UI.Page
{
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();
    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();

    DS_Apply.Apply_Mst_MY_APPLIEDDataTable MADT = new
DS_Apply.Apply_Mst_MY_APPLIEDDataTable();
    DS_ApplyTableAdapters.Apply_Mst_MY_APPLIEDTableAdapter MAADapter = new
DS_ApplyTableAdapters.Apply_Mst_MY_APPLIEDTableAdapter();
    DS_Apply.Apply_Mst_selectDataTable ADT = new DS_Apply.Apply_Mst_selectDataTable();
    DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter AADapter = new
DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter();

    DS_Apply.Apply_Mst_MY_APPLIED_COMPANYDataTable ACDT = new
DS_Apply.Apply_Mst_MY_APPLIED_COMPANYDataTable();
    DS_ApplyTableAdapters.Apply_Mst_MY_APPLIED_COMPANYTableAdapter ACAdapter = new
DS_ApplyTableAdapters.Apply_Mst_MY_APPLIED_COMPANYTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {

            ACDT = ACAdapter.Apply_COMPANYY(Session["cname"].ToString());
            //CDT = CAdapter.SelectBY_CNAME(ADT.Rows[0]["Cname"].ToString());
            DataList3.DataSource = ACDT;
            DataList3.DataBind();
        }

    }
    protected void DataList3_ItemCommand(object source, DataListCommandEventArgs e)
    {

        ADT=AADapter.SelectBY_AID(Convert.ToInt32(e.CommandArgument.ToString()));

      JDT=JAdapter.Select_BY_EMAIL(ADT.Rows[0]["jname"].ToString());

        Session["VJID"] = JDT.Rows[0]["UID"].ToString();
        Response.Redirect("CViewmore.aspx");

    }
}
```

Figure 93. The C# code behind CApplied.aspx page.

- The previously described page CApplied.aspx, just lists all the students that have applied for a particular internship posted by company. But if company representative wants to find more information about specific candidate that has applied, there has been implemented the new aspx page will lead to more information. This page is called CViewmore.aspx, and is represented on the figure 94, below
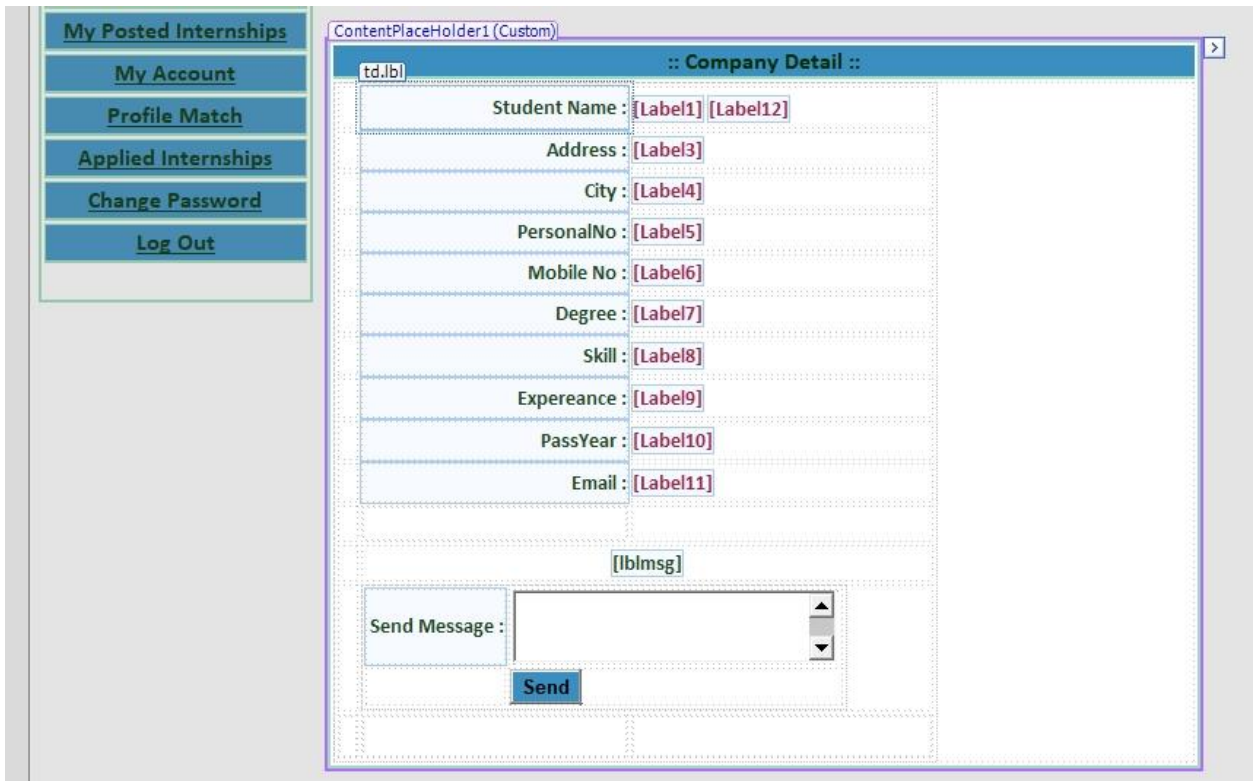
Figure 94. Company page to view more student applicant details.

The C# code behind the CViewmore.aspx page is provided below:

```csharp
public partial class CViewmore : System.Web.UI.Page
{
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_JSeeker.JobSheeker_Mst_selectDataTable JDT = new
DS_JSeeker.JobSheeker_Mst_selectDataTable();
    DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter JAdapter = new
DS_JSeekerTableAdapters.JobSheeker_Mst_selectTableAdapter();

    DS_CMSG.CMessage_Mst_selectDataTable CMDT = new
DS_CMSG.CMessage_Mst_selectDataTable();
    DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter CMAdapter = new
DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter();

    DS_Apply.Apply_Mst_selectDataTable ADT = new DS_Apply.Apply_Mst_selectDataTable();
    DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter AAdapter = new
DS_ApplyTableAdapters.Apply_Mst_selectTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        lblmsg.Text = "";
        if (Page.IsPostBack == false)
        {

            JDT = JAdapter.SelectBY_UID(Convert.ToInt32(Session["VJID"].ToString()));
            Label1.Text = JDT.Rows[0]["Fname"].ToString();
            Label12.Text = JDT.Rows[0]["Lname"].ToString();

            Label3.Text = JDT.Rows[0]["Address"].ToString();
            Label4.Text = JDT.Rows[0]["city"].ToString();
            Label5.Text = JDT.Rows[0]["personalno"].ToString();
            Label6.Text = JDT.Rows[0]["mobileno"].ToString();
            Label7.Text = JDT.Rows[0]["degree"].ToString();
            Label8.Text = JDT.Rows[0]["skill"].ToString();
            Label9.Text = JDT.Rows[0]["Experience"].ToString();
            Label10.Text = JDT.Rows[0]["Paasyear"].ToString();
            Label11.Text = JDT.Rows[0]["email"].ToString();


        }

    }
    protected void Button3_Click(object sender, EventArgs e)
    {


    }
    protected void Button4_Click(object sender, EventArgs e)
    {
        int inmsg = CMAdapter.Insert(Session["cname"].ToString(), Label11.Text,
txtmsg.Text);
        txtmsg.Text = "";
        lblmsg.Text = "Message send Successfully";
    }
}
```

Figure 95. The C# code behind the CViewmore.aspx page.

- Further on development of SCP project, there is an option to notify the accepted student by sending a short message on form of email to the accepted student. For this solution, onto the system must be developed the page CInbox.aspx where the company representative can see the arrived messages from students that has applied for a specific internship. The page CInbox.aspx is represented on the figure 96, below:
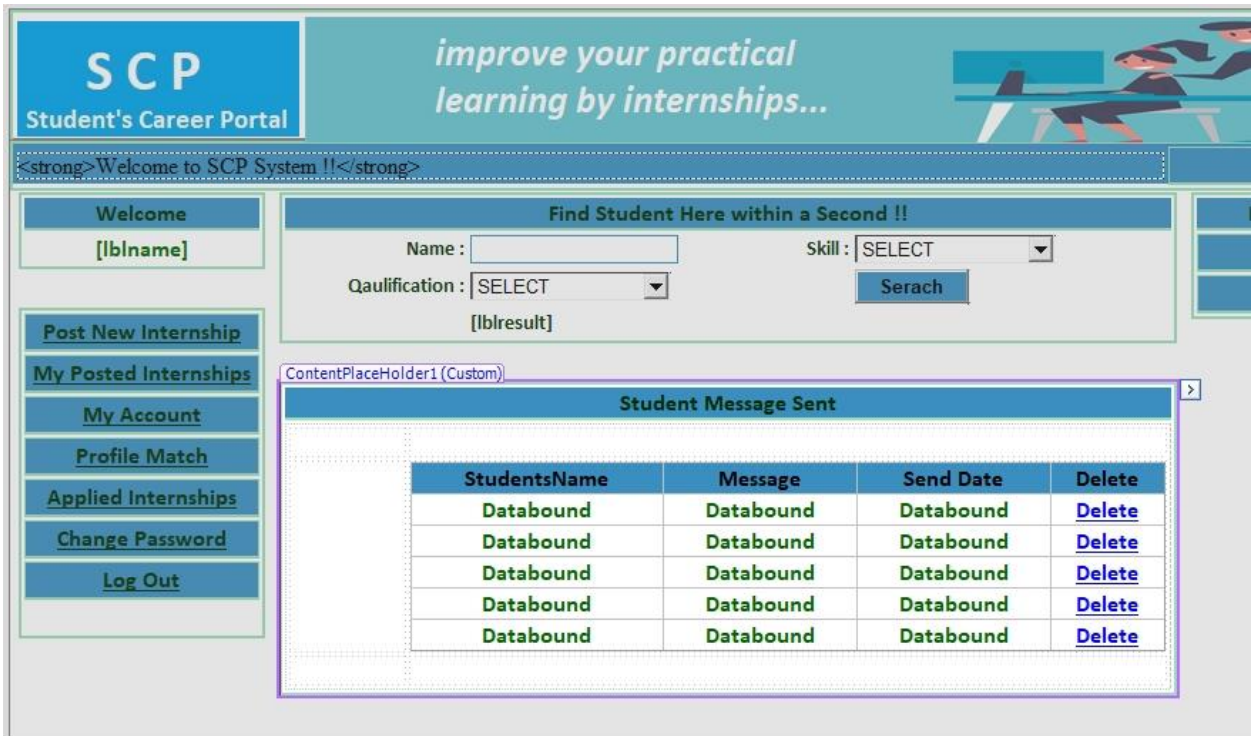
Figure 96. Company inbox page.

The C# code behind CInbox.aspx page is provided below:

```csharp
public partial class CInbox : System.Web.UI.Page
{
    DS_JMSG.Message_Mst_selectDataTable MDT = new DS_JMSG.Message_Mst_selectDataTable();
    DS_JMSGTableAdapters.Message_Mst_selectTableAdapter MAdapter = new
DS_JMSGTableAdapters.Message_Mst_selectTableAdapter();

    //DS_CMSG.CMessage_Mst_selectDataTable CMDT = new
DS_CMSG.CMessage_Mst_selectDataTable();
    //DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter CMAdapter = new
DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            MDT = MAdapter.SelectBY_CNAME(Session["cname"].ToString());
            GridView1.DataSource = MDT;
            GridView1.DataBind();

        }

    }
    protected void GridView1_RowCommand(object sender, GridViewCommandEventArgs e)
    {

    }
    protected void GridView1_RowCommand1(object sender, GridViewCommandEventArgs e)
    {
        if (e.CommandName == "del")
        {
            int del = MAdapter.Delete(Convert.ToInt32(e.CommandArgument.ToString()));
            MDT = MAdapter.SelectBY_CNAME(Session["cname"].ToString());
            GridView1.DataSource = MDT;
            GridView1.DataBind();
        }
        //else
        //{

        //  //  Session["VJID"] = e.CommandArgument.ToString();
        //    // Response.Redirect("CViewmore.aspx");
        //}
    }
}
```

Figure 97. The C# code behind the CInbox.aspx page.

- On context of sending and receiving short messages as acknowledgment about whether the student has been accepted or not for specific internship, onto the role Company must be developed a page CSent.aspx, where are displayed the messages that are already sent to the students. The page CSent.aspx is provided on the figure 98, below:
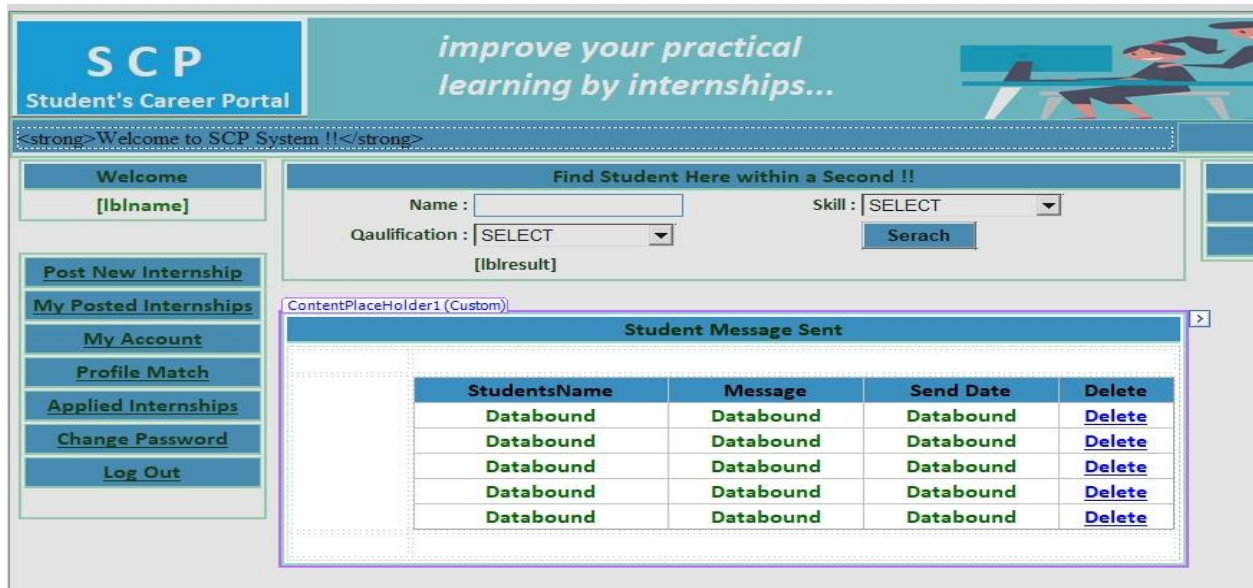
Figure 98. Company sent box page on SCP system.

The C# code behind the CSent.aspx page is provided below:

```
public partial class CSent : System.Web.UI.Page
{
    DS_CMSG.CMessage_Mst_selectDataTable CMDT = new
DS_CMSG.CMessage_Mst_selectDataTable();
    DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter CMAdapter = new
DS_CMSGTableAdapters.CMessage_Mst_selectTableAdapter();

    protected void Page_Load(object sender, EventArgs e)
    {
        if (Page.IsPostBack == false)
        {
            CMDT = CMAdapter.SelectBY_CNEMR(Session["cname"].ToString());
            GridView1.DataSource = CMDT;
            GridView1.DataBind();
        }

    }
    protected void GridView1_RowCommand(object sender, GridViewCommandEventArgs e)
    {

    }
    protected void GridView1_RowCommand1(object sender, GridViewCommandEventArgs e)
    {
  int del = CMAdapter.Delete(Convert.ToInt32(e.CommandArgument.ToString()));
        CMDT = CMAdapter.SelectBY_CNEMR(Session["cname"].ToString());
        GridView1.DataSource = CMDT;
        GridView1.DataBind();
    }
}
```

Figure 99. The C# code behind the CSent.aspx page.

- Same as Student role, which generally has been elaborated, the Company role may need a page for password change. There so, on context of this is added the page CChangePassowrd.aspx which is represented on the figure 100, below:
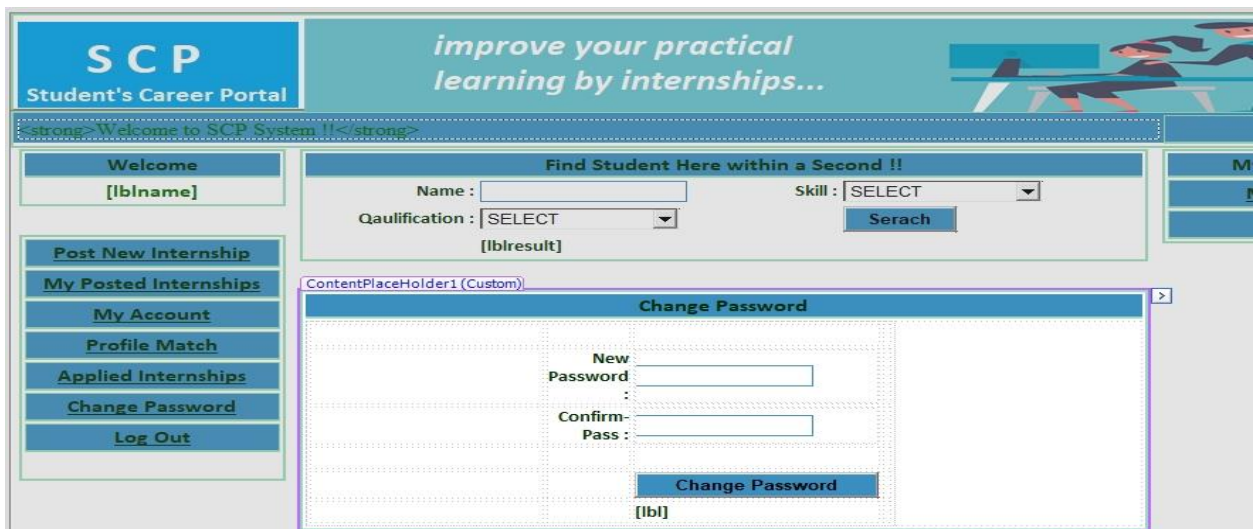
Figure 100. Company password change page on SCP system.

The C# code behind the CChangePassword.aspx is provided below:

```
public partial class CChangePass : System.Web.UI.Page
{
    DS_CCOMPANY.Company_Mst_selectDataTable CDT = new
DS_CCOMPANY.Company_Mst_selectDataTable();
    DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter CAdapter = new
DS_CCOMPANYTableAdapters.Company_Mst_selectTableAdapter();

    DS_COMP.COMPANYMST_SELECTDataTable CoDT = new DS_COMP.COMPANYMST_SELECTDataTable();
    DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter CoAdapter = new
DS_COMPTableAdapters.COMPANYMST_SELECTTableAdapter();
    protected void Page_Load(object sender, EventArgs e)
    {
        lbl.Text = "";

    }
    protected void Button3_Click(object sender, EventArgs e)
    {
        if (txtnpass.Text == "")
        {
            lbl.Text = "Enate pass";
        }
        else if (txtnpass.Text != txtlcpass.Text)
        {
            lbl.Text = "password not match";

        }
        else
        {
            CoAdapter.COMPANYMST_CHANGE_PASS(Session["cemail"].ToString(),
txtnpass.Text);

//CAdapter.Company_Mst_update_pass(Convert.ToInt32(Session["CID"].ToString()),
txtnpass.Text);
            lbl.Text = "Password has been changed";
        }
    }
```

Figure 101. The C# code behind the CChangePassword.aspx page.

XI.   Conclusion

The genesis of this research was to determine the need of developing a Software System which will serve as bridge between Companies and Students in order to increase the students practical learning through internships. During the research phases the three hypotheses has been determined as true, which gave green light on starting the development of SCP software system. On this context its important to mention that more than 95% of both students and companies answered that they were ready to accept a web platform in order to post their open vacancies for students. Furthermore, both questioners performed at Students and Companies have noticed that there is a gap between theoretical lessons learned on classrooms and real-world workplace requirements. To fill the gap of the lack of practical knowledge as a deliverable of this research was proposed a software solution called Student Career Portal. Students Career Portal or SCP will serve as a milestone for further development, in order to be improved and upgraded with features that will serve the context of its development. Because even the most successful journey must start with the first step, thereby SCP software system represents and first step on filling the gap between Companies and Students. Companies will have good opportunity to post their open vacancies for students' internships, from one side, and Students from other side will have excellent opportunity to find good practical teaching through adequate internship, and by that to increase and improve their practical learning on the field of Studies.

Appendix

Appendix A.

On this section will be provided the stored procedure source code and all operations with database that later will be called from programming side.

```sql
USE [SCP_system]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[CFavourite_Mst](
       [CFID] [int] IDENTITY(1,1) NOT NULL,
       [CID] [int] NULL,
       [UID] [int] NULL,
       [Status] [nvarchar](50) NULL
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Apply_Mst](
       [AID] [int] IDENTITY(1,1) NOT NULL,
       [Jname] [nvarchar](50) NOT NULL,
       [Cname] [nvarchar](50) NOT NULL,
       [Status] [int] NOT NULL,
       [EntryDate] [datetime] NULL,
 CONSTRAINT [PK_Apply_Mst] PRIMARY KEY CLUSTERED
(
       [AID] ASC
)WITH (PAD_INDEX   =  OFF,  STATISTICS_NORECOMPUTE   =  OFF,  IGNORE_DUP_KEY  =  OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[CMessage_Mst](
       [MID] [int] IDENTITY(1,1) NOT NULL,
       [CName] [nvarchar](50) NULL,
       [JName] [nvarchar](50) NULL,
       [Message] [nvarchar](2500) NULL,
       [EntryDate] [datetime] NULL,
 CONSTRAINT [PK_CMessage_Mst] PRIMARY KEY CLUSTERED
(
       [MID] ASC
)WITH (PAD_INDEX   =  OFF,  STATISTICS_NORECOMPUTE   =  OFF,  IGNORE_DUP_KEY  =  OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
```

```sql
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Company_Mst](
	[CID] [int] IDENTITY(1,1) NOT NULL,
	[CName] [nvarchar](50) NULL,
	[JobTitle] [nvarchar](50) NULL,
	[City] [nvarchar](50) NULL,
	[Address] [nvarchar](100) NULL,
	[PersonalNo] [nvarchar](100) NULL,
	[MobileNo] [nvarchar](100) NULL,
	[Gender] [nvarchar](50) NULL,
	[Degree] [nvarchar](50) NULL,
	[Skill] [nvarchar](50) NULL,
	[Salary] [nvarchar](100) NULL,
	[Experience] [nvarchar](100) NULL,
	[Email_ID] [nvarchar](50) NULL,
	[Password] [nvarchar](50) NULL,
 CONSTRAINT [PK_Company_Mst] PRIMARY KEY CLUSTERED
(
	[CID] ASC
)WITH (PAD_INDEX   =  OFF,  STATISTICS_NORECOMPUTE   =  OFF,  IGNORE_DUP_KEY  =  OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[ComapnyMst](
	[CID] [int] IDENTITY(1,1) NOT NULL,
	[CompanyName] [nvarchar](50) NULL,
	[Address] [nvarchar](50) NULL,
	[City] [nvarchar](50) NULL,
	[PersonalNo] [nvarchar](50) NULL,
	[ContactPerson] [nvarchar](50) NULL,
	[ContactNo] [nvarchar](50) NULL,
	[Detail] [nvarchar](50) NULL,
	[Type] [nvarchar](50) NULL,
	[Email] [nvarchar](50) NULL,
	[Pass] [nvarchar](50) NULL,
	[Edate] [datetime] NULL,
 CONSTRAINT [PK_ComapnyMst] PRIMARY KEY CLUSTERED
(
	[CID] ASC
)WITH (PAD_INDEX   =  OFF,  STATISTICS_NORECOMPUTE   =  OFF,  IGNORE_DUP_KEY  =  OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[ContactUsMst](
	[CID] [int] IDENTITY(1,1) NOT NULL,
	[FromName] [nvarchar](50) NULL,
```

```sql
        [MobileNo] [nvarchar](50) NULL,
        [EmailId] [nvarchar](50) NULL,
        [Message] [nvarchar](2500) NULL,
 CONSTRAINT [PK_ContactusMst] PRIMARY KEY CLUSTERED
(
        [CID] ASC
)WITH (PAD_INDEX  = OFF, STATISTICS_NORECOMPUTE  = OFF, IGNORE_DUP_KEY  = OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Favourite_Mst](
        [FID] [int] IDENTITY(1,1) NOT NULL,
        [UID] [int] NULL,
        [CID] [int] NULL,
        [Status] [nvarchar](50) NULL,
 CONSTRAINT [PK_Favourite_Mst] PRIMARY KEY CLUSTERED
(
        [FID] ASC
)WITH (PAD_INDEX  = OFF, STATISTICS_NORECOMPUTE  = OFF, IGNORE_DUP_KEY  = OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Education_Mst_update]
@eid as int,
@degree as nvarchar(256),
@detail as nvarchar(256),
@passyear as nvarchar(256),
@experience as nvarchar(256)
As
BEGIN
        update                            Education_Mst                            set
Degree=@degree,Detail=@detail,PassYear=@passyear,Experience=@experience where EID=@eid
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Education_Mst_select_people_Serach]
@uid as int,
@degree as nvarchar(50)


As
BEGIN
        select * from Education_Mst where UID=@uid and Degree=@degree
END
GO
SET ANSI_NULLS ON
GO
```

```sql
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Education_Mst_select_ById]
@uid as int
As
BEGIN
        select * from Education_Mst where UId=@uid
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Education_Mst_select]

As
BEGIN
        select * from Education_Mst
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Education_Mst_insert]
@uid as int,
@degree as nvarchar(256),
@detail as nvarchar(256),
@passyear as nvarchar(256),
@experience as nvarchar(256)
As
BEGIN
        insert into Education_Mst values(@uid,@degree,@detail,@passyear,@experience)
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Education_Mst_delete]
@eid as int
As
BEGIN
        delete from Education_Mst where EID=@eid
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[JobSheeker_Mst](
        [UID] [int] IDENTITY(1,1) NOT NULL,
        [FName] [nvarchar](50) NULL,
        [LName] [nvarchar](50) NULL,
        [City] [nvarchar](50) NULL,
        [Address] [nvarchar](50) NULL,
        [PersonalNo] [nvarchar](50) NULL,
        [MobileNo] [nvarchar](50) NULL,
```

```sql
        [Gender] [nvarchar](50) NULL,
        [BirthDate] [datetime] NULL,
        [Photo] [nvarchar](500) NULL,
        [Degree] [nvarchar](50) NULL,
        [Skill] [nvarchar](50) NULL,
        [Detail] [nvarchar](50) NULL,
        [PaasYear] [nvarchar](50) NULL,
        [Experience] [nvarchar](50) NULL,
        [Email] [nvarchar](50) NULL,
        [Password] [nvarchar](50) NULL,
        [EntryDate] [datetime] NULL,
 CONSTRAINT [PK_JobSheeker_Mst] PRIMARY KEY CLUSTERED
(
        [UID] ASC
)WITH (PAD_INDEX    = OFF,  STATISTICS_NORECOMPUTE   = OFF,  IGNORE_DUP_KEY  = OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Login_Mst](
        [LID] [int] IDENTITY(1,1) NOT NULL,
        [UID] [int] NULL,
        [EmailId] [nvarchar](50) NULL,
        [Password] [nvarchar](50) NULL,
 CONSTRAINT [PK_LoginMST] PRIMARY KEY CLUSTERED
(
        [LID] ASC
)WITH (PAD_INDEX    = OFF,  STATISTICS_NORECOMPUTE   = OFF,  IGNORE_DUP_KEY  = OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[Message_Mst](
        [MID] [int] IDENTITY(1,1) NOT NULL,
        [JName] [nvarchar](50) NULL,
        [CName] [nvarchar](50) NULL,
        [Message] [nvarchar](2500) NULL,
        [EntryDate] [datetime] NULL,
 CONSTRAINT [PK_Message_Mst] PRIMARY KEY CLUSTERED
(
        [MID] ASC
)WITH (PAD_INDEX    = OFF,  STATISTICS_NORECOMPUTE   = OFF,  IGNORE_DUP_KEY  = OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[PostJobMst](
        [PID] [int] IDENTITY(1,1) NOT NULL,
        [JobTitle] [nvarchar](50) NULL,
```

```sql
        [Degree] [nvarchar](50) NULL,
        [Skill] [nvarchar](50) NULL,
        [Salary] [nvarchar](50) NULL,
        [Experience] [int] NULL,
        [Vacancy] [int] NULL,
        [Detail] [nvarchar](50) NULL,
        [CompanyName] [nvarchar](50) NULL,
        [EDate] [datetime] NULL,
 CONSTRAINT [PK_PostJobMst] PRIMARY KEY CLUSTERED
(
        [PID] ASC
)WITH (PAD_INDEX   = OFF,  STATISTICS_NORECOMPUTE   = OFF,  IGNORE_DUP_KEY =  OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE TABLE [dbo].[FeedBackMst](
        [FID] [int] IDENTITY(1,1) NOT NULL,
        [Name] [nvarchar](50) NULL,
        [Email] [nvarchar](50) NULL,
        [Mobile] [nvarchar](50) NULL,
        [Feedback] [nvarchar](500) NULL,
        [EDate] [datetime] NULL,
 CONSTRAINT [PK_FeedBackMst] PRIMARY KEY CLUSTERED
(
        [FID] ASC
)WITH (PAD_INDEX   = OFF,  STATISTICS_NORECOMPUTE   = OFF,  IGNORE_DUP_KEY =  OFF,
ALLOW_ROW_LOCKS  = ON, ALLOW_PAGE_LOCKS  = ON) ON [PRIMARY]
) ON [PRIMARY]
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[POSTJOBMST_select_HOME]
AS
BEGIN
        select  skill, count(skill) as sk from POSTJOBMST group by skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[POSTJOBMST_SELECT_BY_PID]

@PID AS INT
As
BEGIN
        SELECT * FROM POSTJOBMST  WHERE PID=@PID
END
GO
```

```sql
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[POSTJOBMST_SELECT_BY_CNAME]

@CNAME AS NVARCHAR(256)
As
BEGIN
      SELECT * FROM POSTJOBMST  WHERE COMPANYNAME=@CNAME
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[POSTJOBMST_SELECT]

As
BEGIN
      SELECT * FROM POSTJOBMST
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[POSTJOBMST_SEARCH_LOGIN]
@cname as nvarchar(256),
@degree as nvarchar(256),
@skill as nvarchar(256)

As
BEGIN
      select * from POSTJOBMST  where COMPANYNAME like @cname and  degree=@degree and
skill=@skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[POSTJOBMST_SEARCH_JOBTILE]

@JOB AS NVARCHAR(256)
As
BEGIN
      SELECT * FROM POSTJOBMST   where jobtitle like @JOB
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
```

```sql
CREATE PROCEDURE[dbo].[POSTJOBMST_SEARCH_BY_DEGREE_AND_SKILL]

@DEGREE AS NVARCHAR(256),
@SKILL AS NVARCHAR(256)
As
BEGIN
        SELECT * FROM POSTJOBMST    where DEGREE=@DEGREE AND SKILL=@SKILL
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[POSTJOBMST_INSERT]

@TITLE AS NVARCHAR(256),
@DEGREE AS NVARCHAR(256),
@SKILL AS NVARCHAR(256),
@SALARY AS NVARCHAR(256),
@EXP AS INT,
@VAC AS INT,
@DETAIL AS NVARCHAR(256),
@CNAME AS NVARCHAR(256)
As
BEGIN
        INSERT                     INTO                    POSTJOBMST                     VALUES
(@TITLE,@DEGREE,@SKILL,@SALARY,@EXP,@VAC,@DETAIL,@CNAME,GETDATE())
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[POSTJOBMST_delete]

@pid as int
As
BEGIN
        delete from POSTJOBMST where pid=@pid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[FEEDBACK_SELECT]

As
BEGIN
        select * from FEEDBACKMST
END
GO

SET ANSI_NULLS ON
GO
```

```sql
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[FEEDBACK_INSERT]

@NAME AS NVARCHAR(256),
@EMAIL AS NVARCHAR(256),
@MOBILE AS NVARCHAR(256),
@FEED AS NVARCHAR(256)

As
BEGIN
        INSERT INTO FEEDBACKMST VALUES (@NAME,@EMAIL,@MOBILE,@FEED,GETDATE())
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[FEEDBACK_DELETE]

@ID AS INT

As
BEGIN
        DELETE FROM FEEDBACKMST WHERE FID=@ID
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Favourite_Mst_update]
@fid as int,
@status as nvarchar(256)

As
BEGIN
        update Favourite_Mst set Status=@status where FID=@fid
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Favourite_Mst_select_Byid]
@uid as int
As
BEGIN
        select * from Favourite_Mst where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
```

```sql
CREATE PROCEDURE[dbo].[Favourite_Mst_select_ByCid]
@cid as int
As
BEGIN
        select * from Favourite_Mst where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Favourite_Mst_select]

As
BEGIN
        select * from Favourite_Mst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Favourite_Mst_insert]
@uid as int,
@cid as int,
@status as nvarchar(256)

As
BEGIN
        insert into Favourite_Mst values(@uid,@cid,@status)
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Favourite_Mst_delete_Byid]
@uid as int,
@cid as int

As
BEGIN
        delete from Favourite_Mst where UID=@uid and CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Favourite_Mst_delete]
@fid as int

As
BEGIN
```

```sql
        delete from Favourite_Mst where FID=@fid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[POSTJOB_select_HOME]


As
BEGIN
        select skill, count(skill) as sk from PostJobMst group by skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Message_Mst_update]
@mid as int,
@uid as int,
@cname as nvarchar(256),
@message as nvarchar(256)

As
BEGIN
        update Message_Mst set UID=@uid, CName=@cname,Message=@message where MID=@mid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Message_Mst_select_ByUid]
@uid as int
As
BEGIN
        select * from Message_Mst where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Message_Mst_select_By_JNAME]
@jname as nvarchar(256)
As
BEGIN
        select * from Message_Mst where jname=@jname
END
GO

SET ANSI_NULLS ON
```

```sql
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Message_Mst_select_By_CNAME]
@cname as nvarchar(256)
As
BEGIN
        select * from Message_Mst where cname=@cname
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Message_Mst_select]

As
BEGIN
        select * from Message_Mst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Message_Mst_insert]
@janme as nvarchar(256),
@cname as nvarchar(256),
@message as nvarchar(256)

As
BEGIN
        insert into Message_Mst values (@janme,@cname,@message,getdate())
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Message_Mst_delete]
@mid as int
As
BEGIN
        delete from Message_Mst where MID=@mid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Login_Mst_update_pass]
@uid as int,
@password as nvarchar(256)
```

```sql
As
BEGIN
      update Login_Mst set Password=@password where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Login_Mst_update]
@lid as int,
@emailid as nvarchar(256),
@password as nvarchar(256)

As
BEGIN
      update Login_Mst set EmailId=@emailid,Password=@password where LID=@lid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Login_Mst_selectforlogin]
@emailid as nvarchar(256),
@password as nvarchar(256)

As
BEGIN
      select * from Login_Mst where EmailId=@emailid and Password=@password
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Login_Mst_select_by_UID]

@uid as int
As
BEGIN
      select * from Login_Mst where uid=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Login_Mst_select]

As
BEGIN
      select * from Login_Mst
END
```

```sql
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Login_Mst_insert]
@uid as int,
@emailid as nvarchar(256),
@password as nvarchar(256)

As
BEGIN
        insert into Login_Mst values(@uid,@emailid,@password)
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Login_Mst_delete]
@lid as int
As
BEGIN
        delete from Login_Mst where LID=@Lid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_update_prifile]
@uid as int,
@fname as nvarchar(256),
@lname as nvarchar(256),
@city as nvarchar(256),
@mobileno as nvarchar(256)

As
BEGIN
        update JobSheeker_Mst set FName=@fname,LName=@lname,City=@city,MobileNo=@mobileno
where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_update]
@uid as int,
@fname as nvarchar(256),
@lname as nvarchar(256),
@city as nvarchar(256),
@address as nvarchar(256),
@personalno as nvarchar(100),
```

```sql
@mobileno as nvarchar(256),
@degree as nvarchar(256),
@skill as nvarchar(256),
@detail as nvarchar(256),
@pyear as nvarchar(256),
@exp as nvarchar(256)
As
BEGIN
        update                              JobSheeker_Mst                                    set
FName=@fname,LName=@lname,City=@city,Address=@address,PersonalNo=@personalno,MobileNo=@mo
bileno,
    degree=@degree,skill=@skill,paasyear=@pyear,experience=@exp where UID=@uid
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_select_maxID]
AS
BEGIN
        select max (UID) as uid from JobSheeker_Mst
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[JobSheeker_Mst_select_HOME]
AS
BEGIN
        select  skill, count(skill) as sk from JobSheeker_Mst group by skill
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[JobSheeker_Mst_select_FOR_LOGIN]
@email as nvarchar(256),
@pass as nvarchar(256)
AS
BEGIN
        select * from JobSheeker_Mst where email=@email and password=@pass
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[JobSheeker_Mst_select_FOR_FPASS]
@city as nvarchar(256),
@pin as nvarchar(256),
@mob as  nvarchar(256)
```

```sql
AS
BEGIN
      select * from JobSheeker_Mst where city=@city and personalno=@pin and mobileNo=@mob
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[jobsheeker_Mst_select_Favirate_people]
@CID as int

As
BEGIN

SELECT * FROM jobsheeker_mst WHERE UID IN(SELECT UID FROM FAVOURITE_MST WHERE
                                               CID=@cid)

END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_select_ById]
@uid as int
AS
BEGIN
      select * from JobSheeker_Mst where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_select_by_email]
@email as nvarchaR(256)
AS
BEGIN
      select * from JobSheeker_Mst where email=@email
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[jobsheeker_Mst_select_applyPeople]
@cid as int
As
BEGIN
select * from jobsheeker_mst where UID in(select UID from Apply_Mst where CID=@cid)

END
GO
```

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_select]
AS
BEGIN
      select * from JobSheeker_Mst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[JobSheeker_Mst_search_LOGIN]
@jname as nvarchar(256),
@degree as nvarchar(256),
@skill as nvarchar(256)
AS
BEGIN
      select * from JobSheeker_Mst where fname like @jname and  degree=@degree and
skill=@skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_MAtch_Profile]

@degree as nvarchar(256),
@exp as nvarchar(256),
@skill as nvarchar(256)
AS


BEGIN
select * from company_mst where degree=@degree and experience=@exp and skill=@skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_insert]
@fname as nvarchar(256),
@lname as nvarchar(256),
@city as nvarchar(256),
@address as nvarchar(256),
@personalno as nvarchar(100),
@mobileno as nvarchar(256),
@gender as nvarchar(100),
@birthdate as datetime,
@photo as nvarchar(256),
```

```sql
@degree as nvarchar(256),
@skill as nvarchar(256),
@detail as nvarchar(256),
@pass as nvarchar(256),
@exp as nvarchar(256),
@email as nvarchar(256),
@password as nvarchar(256)
As
BEGIN
	insert				into				JobSheeker_Mst
values(@fname,@lname,@city,@address,@personalno,@mobileno,@gender,@birthdate,@photo,@degr
ee,@skill,@detail,@pass,@exp,@email,@password,getdate())
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_IMAGE_UPDATE]
@uid as int,
@PHOTO as nvarchar(256)


As
BEGIN
	update JobSheeker_Mst set Photo=@PHOTO where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSheeker_Mst_delete]
@uid as int
As
BEGIN
	delete from JobSheeker_Mst where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[JobSheeker_Mst_CHANGE_PASS]
@uid as int,
@pass as nvarchar(256)

As
BEGIN
	update JobSheeker_Mst set password=@pass where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
```

```sql
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[jobseeker_search]

@city as nvarchar(256),
@degree as nvarchar(256)
As
BEGIN

select * from jobsheeker_mst where city=@city and uid in(select uid from education_mst
where degree=@degree)


END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[JobSeeeker_Mst_SEARCH_HOME]

@degree as nvarchar(256),
@skill as nvarchar(256)

As
BEGIN
        select * from Jobsheeker_MSt where degree=@degree and skill=@skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[ContactUsMst_update]
@cid as int,
@fromname as nvarchar(256),
@mobileno as nvarchar(256),
@emailid as nvarchar(50),
@message as nvarchar(100)

As
BEGIN
        update                              ContactUsMst                                    set
FromName=@fromname,MobileNo=@mobileno,EmailId=@emailid,Message=@message where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[ContactUsMst_select]


As
BEGIN
```

```sql
        select * from ContactUsMst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[ContactUsMst_insert]
@fromname as nvarchar(256),
@mobileno as nvarchar(256),
@emailid as nvarchar(100),
@message as nvarchar(256)

As
BEGIN
        insert into ContactUsMst values(@fromname,@mobileno,@emailid,@message)
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[ContactUsMst_delete]
@cid as int
As
BEGIN
        delete from ContactUsMst where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_UPDATE]
@CNAME AS NVARCHAR(256),
@ADD AS NVARCHAR(256),
@CITY AS NVARCHAR(256),
@PIN AS NVARCHAR(256),
@PERSON AS NVARCHAR(256),
@MOB AS NVARCHAR(256),
@DETAIL AS NVARCHAR(256),
@TYPE AS NVARCHAR(256),
@EMIL AS NVARCHAR(256)
As
BEGIN
     UPDATE                    COMAPNYMST                    SET                    ADDRESS=
@ADD,CITY=@CITY,PINCODE=@PIN,CONTACTPERSON=@PERSON,CONTACTNO=@MOB,DETAIL=@DETAIL,TYPE=@TY
PE WHERE EMAIL=@EMIL
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
```

```sql
CREATE PROCEDURE[dbo].[COMPANYMst_select_FOR_FPASS]

@city as nvarchar(256),
@pin as nvarchar(256),
@mob as nvarchar(256)

As
BEGIN
      select * from ComapnyMst where city=@city and personalno=@pin and ContactNo=@mob
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_SELECT_BY_EMAIL]
@EMAIL AS NVARCHAR(256)

As
BEGIN
      select * from COMAPNYMST WHERE Email=@EMAIL
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_SELECT_BY_CNAME]
@CNAME AS NVARCHAR(256)

As
BEGIN
      select * from COMAPNYMST WHERE CompanyName=@CNAME
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_SELECT_BY_CID]
@cid as int

As
BEGIN
      select * from COMAPNYMST WHERE CID=@CID
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_SELECT]
```

```sql
As
BEGIN
      select * from COMAPNYMST
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_INSERT]
@CNAME AS NVARCHAR(256),
@ADD AS NVARCHAR(256),
@CITY AS NVARCHAR(256),
@PIN AS NVARCHAR(256),
@PERSON AS NVARCHAR(256),
@MOB AS NVARCHAR(256),
@DETAIL AS NVARCHAR(256),
@TYPE AS NVARCHAR(256),
@EMIL AS NVARCHAR(256),
@PASS AS NVARCHAR(256)
As
BEGIN
      INSERT                              INTO                              COMAPNYMST
VALUES(@CNAME,@ADD,@CITY,@PIN,@PERSON,@MOB,@DETAIL,@TYPE,@EMIL,@PASS,GETDATE())
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_DELETE]

@CID AS INT
As
BEGIN
      DELETE FROM COMAPNYMST WHERE CID=@CID
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[COMPANYMST_CHANGE_PASS]

@EMAIL  AS NVARCHAR(256),
@PASS AS NVARCHAR(256)
As
BEGIN
      UPDATE COMAPNYMST SET Pass=@PASS WHERE Email=@EMAIL
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
```

```sql
GO
create PROCEDURE[dbo].[Company_Mst_update_profile]
@cid as int,
@jobtitle as nvarchar(256),
@city as nvarchar(256),
@mobileno as nvarchar(256),
@salary as nvarchar(256)
As
BEGIN
        update                          Company_Mst                         set
JobTitle=@jobtitle,City=@city,MobileNo=@mobileno,Salary=@salary where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_update_pass]
@cid as int,
@password as nvarchar(50)
As
BEGIN
        update Company_Mst set Password=@password where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_update]
@cid as int,
@cname as nvarchar(256),
@jobtitle as nvarchar(256),
@city as nvarchar(256),
@address as nvarchar(256),
@personalno as nvarchar(256),
@mobileno as nvarchar(256),
@gender as nvarchar(256),
@degree as nvarchar(256),
@skill as nvarchar(256),
@salary as nvarchar(256),
@experience as nvarchar(256),
@emailid as nvarchar(50),
@password as nvarchar(50)
As
BEGIN
        update                          Company_Mst                         set
CName=@cname,JobTitle=@jobtitle,City=@city,Address=@address,PersonalNo=@personalno,Mobile
No=@mobileno,Gender=@gender,Degree=@degree,skill=@skill,Salary=@salary,Experience=@experi
ence,Email_Id=@emailid,Password=@password where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
```

```sql
GO
CREATE PROCEDURE[dbo].[Company_Mst_selectforlogin]
@emailid as nvarchar(50),
@password as nvarchar(50)


As
BEGIN
      select * from Company_Mst where Email_Id=@emailid and Password=@password
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_select_JOB_Serach]
@city as nvarchar(20),
@degree as nvarchar(50),
@salary as nvarchar(50)

As
BEGIN
      select * from Company_Mst where City=@city and Degree=@degree and Salary=@salary
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_select_HOME]


As
BEGIN
      select skill, count(skill) as sk from Company_Mst group by skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_select_For_JOB_Serach]

@job as nvarchar(256)

As
BEGIN
      select * from Company_Mst where jobtitle like @job
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
```

```sql
create PROCEDURE[dbo].[Company_Mst_select_FOR_FPASS]

@city as nvarchar(256),
@pin as nvarchar(256),
@mob as nvarchar(256)

As
BEGIN
      select * from Company_Mst where city=@city and personalno=@pin and mobileno=@mob
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_select_Favirate_JOB]
@UID as int

As
BEGIN

SELECT * FROM COMPANY_mst WHERE CID IN(SELECT CID FROM FAVOURITE_MST WHERE
                                                    UID=@uid)

END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_select_byid]
@cid as int

As
BEGIN
      select * from Company_Mst where CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_select_BY_CNAME]

@cname as nvarchar(256)
As
BEGIN
      select * from Company_Mst  where cname=@cname
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
```

```sql
CREATE PROCEDURE[dbo].[Company_Mst_select_Applied_JOB]
@UID as int

As
BEGIN

SELECT * FROM COMPANY_mst WHERE CID IN(SELECT CID FROM APPLY_MST WHERE
                                               UID=@uid AND STATUS='apply')

END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_select]


As
BEGIN
      select * from Company_Mst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_SEARCH_LOGIN]
@cname as nvarchar(256),
@degree as nvarchar(256),
@skill as nvarchar(256)

As
BEGIN
      select * from Company_Mst   where cname like @cname and  degree=@degree and
skill=@skill
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_SEARCH_HOME]

@degree as nvarchar(256),
@skill as nvarchar(256)

As
BEGIN
      select * from Company_Mst where degree=@degree and skill=@skill
END
GO

SET ANSI_NULLS ON
GO
```

```sql
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[company_Mst_MAtch_People]

@degree as nvarchar(256),
@exp as nvarchar(256)
AS


BEGIN

select j.* from jobsheeker_mst as j , education_mst as e
where e.uid=j.uid and e.degree=@degree and e.experience=@exp

END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Company_Mst_LOGIN]
@emailid as nvarchar(50),
@password as nvarchar(50)


As
BEGIN
      select * from ComapnyMst where Email=@emailid and Pass=@password
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_insert]
@cname as nvarchar(256),
@jobtitle as nvarchar(256),
@city as nvarchar(256),
@address as nvarchar(256),
@personalno as nvarchar(256),
@mobileno as nvarchar(256),
@gender as nvarchar(100),
@degree as nvarchar(100),
@skill as nvarchar(256),
@salary as nvarchar(256),
@experience as nvarchar(100),
@emailid as nvarchar(50),
@password as nvarchar(50)
As
BEGIN
      insert                        into                        Company_Mst
values(@cname,@jobtitle,@city,@address,@personalno,@mobileno,@gender,@degree,@skill,@sala
ry,@experience,@emailid,@password)
END
GO
```

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Company_Mst_delete]
@cid as int

As
BEGIN
        delete from Company_Mst where CID=@cid
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_select_ByMessage]
@cname as nvarchar(256)
As
BEGIN

select  j.fname + ' ' + j.lname  as  JName,  c.Cname  as  CName,  c.message  as  msg  from
jobsheeker_mst as j, Message_mst as c
where c.CName=@cname and c.uid=j.uid

END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_select_ByCid]
@cname as nvarchar(256)
As
BEGIN
        select * from cMessage_Mst where CName=@cname
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_select_By_MID]
@mid as int
As
BEGIN
        select * from cMessage_Mst where mid=@mid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_select_By_JNAME_and_CNAME]
```

```sql
@Jname as nvarchar(256),
@cname as nvarchar(256)
As
BEGIN
        select * from cMessage_Mst where JName=@Jname and cname=@cname
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_select_By_JNAME]
@Jname as nvarchar(256)
As
BEGIN
        select * from cMessage_Mst where JName=@Jname
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_select_By_CNAME]
@cname as nvarchar(256)
As
BEGIN
        select * from cMessage_Mst where CName=@cname
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[CMessage_Mst_select]

As
BEGIN
        select * from CMessage_Mst
END
GO


SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_insert]
@cname as nvarchar(256),
@uname as nvarchar(256),
@message as nvarchar(256)
As
BEGIN
        insert into CMessage_Mst values(@cname,@uname,@message,getdate())
END
GO
```

```
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[CMessage_Mst_delete]
@cmid as int

As
BEGIN
        delete from CMessage_Mst where MID=@cmid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[CFavourite_Mst_update]
@cfid as int,
@cid as int,
@uid as int,
@status as nvarchar(256)

As
BEGIN
        update CFavourite_Mst set CID=@cid,UID=@uid,Status=@status where CFID=@cfid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[CFavourite_Mst_select]

As
BEGIN
        select * from CFavourite_Mst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[CFavourite_Mst_insert]
@cid as int,
@uid as int,
@status as nvarchar(256)

As
BEGIN
        insert into CFavourite_Mst values(@cid,@uid,@status)
END
GO

SET ANSI_NULLS ON
GO
```

```
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[CFavourite_Mst_delete_Byid]
@cid as int,
@uid as int

As
BEGIN
       delete from CFavourite_Mst where CID=@cid and UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[CFavourite_Mst_delete]
@cfid as int

As
BEGIN
       delete from CFavourite_Mst where CFID=@cfid
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_select_ByUid]
@uid as int
As
BEGIN
       select * from Apply_Mst where UID=@uid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_select_Byid]
@uid as int,
@cid as int
As
BEGIN
       select * from Apply_Mst where UID=@uid and CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Apply_Mst_select_ByCid]
@cid as int
As
BEGIN
       select * from Apply_Mst where CID=@cid
```

```
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Apply_Mst_select_BY_AID]

@aid as int
As
BEGIN
      select * from Apply_Mst where aid=@aid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_select]


As
BEGIN
      select * from Apply_Mst
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_MY_APPLIED_COMPANY]

@cname as nvarchar(256)
As
BEGIN

select  a.*,j.*  from  jobsheeker_mst  as  j,Apply_mst  as  a  where  a.jname=j.email  and
a.cname=@cname
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_MY_APPLIED]

@jname as nvarchar(256)
As
BEGIN

select a.*,c.* from company_mst as c,Apply_mst as a where c.cname=a.cname and a.jname=@jname
END
GO
```

```sql
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_insert]
@jname as nvarchar(256),
@cname as nvarchar(256)
As
BEGIN
    insert into Apply_Mst values(@jname,@cname,0,getdate())
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_delete_Byid]
@uid as int,
@cid as int

As
BEGIN
    delete from Apply_Mst where UID=@uid and CID=@cid
END
GO

SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
CREATE PROCEDURE[dbo].[Apply_Mst_delete]
@aid as int

As
BEGIN
    delete from Apply_Mst where AID=@aid
END
GO
SET ANSI_NULLS ON
GO
SET QUOTED_IDENTIFIER ON
GO
create PROCEDURE[dbo].[Apply_Mst_Check_FOr_APPLY]

@jname as nvarchar(256),
@cname as nvarchar(256)
As
BEGIN
    select * from Apply_Mst where jname=@jname and cname=@cname
END
GO
```

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