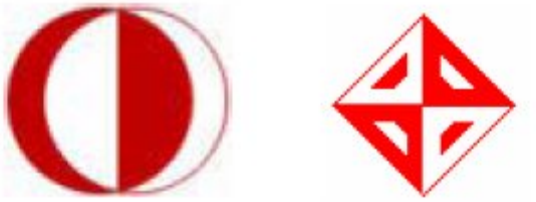

MIDDLE EAST TECHNICAL UNIVERSITY

ENGINEERING FACULTY

DEPARTMENT OF COMPUTER ENGINEERING

REQIREMENT and ANALYSIS REPORT

"ISKOLIK"

BY

AIVA

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1. INTRODUCTION

1.1Motivation

Internet became a vital part of daily life; we can get rid of many things to be done via our computers and internet. This includes banking, getting reservations, shopping and many more.

Searching for a job or an employee are also issues that can be handled by means of internet. There are lots of web sites that aim the confrontation of the people who seek job and human resources departments of the companies. But these people have to do a lot of search and have to register many web sites in order to reach the best result. If there existed a web portal which is in contact with many web sites then the job seekers and HR institutions would much more easily reach their goals by means of this service.

1.2 Project Title

Our Project title is “Iskolik”.

1.3 Project Definition

In this project we aim to build “a gateway portal for HR companies & institutions to provide service to job seekers and employers”. In other words we want to develop a web portal to be the single entry point to both job seekers and employers.

Our Web portal will be above all the job-seeking web sites and the job seeker won’t be obliged to submit his/her CV to all these web sites. When he/she creates a CV in our web portal, it will be sent to all the job-seeking web sites and also he/she will be able to see all the job announcements from all of the job-seeking web sites. Also our portal will be very helpful to the employers because he/she will be able to see appropriate job-seekers from all over the job-seeking web sites and also he/she will be able to create a job announcement when he pay a certain amount of money. It is obvious that by means

of the services that our system will provide both job-seekers and HR institutions will be relieved.

1.4 Project Scope

Our portal will have four modules which are job-seeker, employer, administrator and operator. Each module will have some components. Here are some general features that will be in our portal. All of the roles (job-seeker, employer, administrator) will have to login to our portal to have the functionalities which our portal provide.

- There will be a component which supplies an interface for the registered job-seeker to create a relevant CV. This component is the first component under the job-seeker module

- A component will be an interface for the registered job-seeker to search job opportunities. This component is the second component under the job-seeker module.

- The last component for the job-seeker is a notification system that will bring some job announcements to the job-seeker's profile page if desired This component is the third component under the job-seeker module

- There will be a component for the employer is that he/she will be able to form job announcement after the payment of certain amount of money. This is the first component under the employer module.

- Another component for the employer will be an interface to search for the relevant job-seekers. This is the second component under the employer module.

- The last component for the employer is a notification system that will bring some job-seekers' CV information to the employer's profile page if desired. This is the third component under the employer module.

- There will be a component for the administrator that will be an interface to manage the users among the system. This is the first component under the administrator module.

- The other component for the administrator will be an interface to manage the announcements. This is the second component under the administrator module.

- There will be a component for the operator which will provide an interface for the operator to control the money transactions and change the payment status of the job announcement.

- There will be also some extra functionalities like informing the users about “how to write CV”, “how to behave and speak in an interview”,”showing statistical data about the existing users and announcements” etc.

2. TEAM ORGANIZATION

So far we have advanced our project under the coordination of our leader. Our leader has assigned tasks to group members and each member took the responsibility of that subtask. We have made the decisions at our weekly meetings altogether. Therefore we have unconsciously adopted the Controlled Decentralized team structure (CD).

3. PROCESS MODEL

In our project we will develop our work by analyzing, designing, making implementation, and testing. So it is obvious that we will develop our project in a step by step manner.

We made research about all process models and considered which is best for our project. We know that the project phases are distinct. The requirements are well defined and understood. But there is a possibility that in some phases we may do mistakes and we may need to return to a specific phase and make changes. So during the project we need feedback mechanism. By the help of this information as a team we decided to adopt “waterfall model with feedback” in our project.
“Waterfall model with feedback” suits our aim best, because the steps are distinct as we needed. Also the feedback loops between phases provide us the opportunity to make modifications easily.

4. MARKET RESEARCH

In order to optimize the design of our system, we made a detailed research to learn the ideas and the conventions used in existing job seeking sites. To be inspired from and to learn the working principle of other web portals we examined other web portals in a detailed manner. And we also made a lot of research about the technologies we may use in order to have an idea about the capabilities the technologies will supply us.

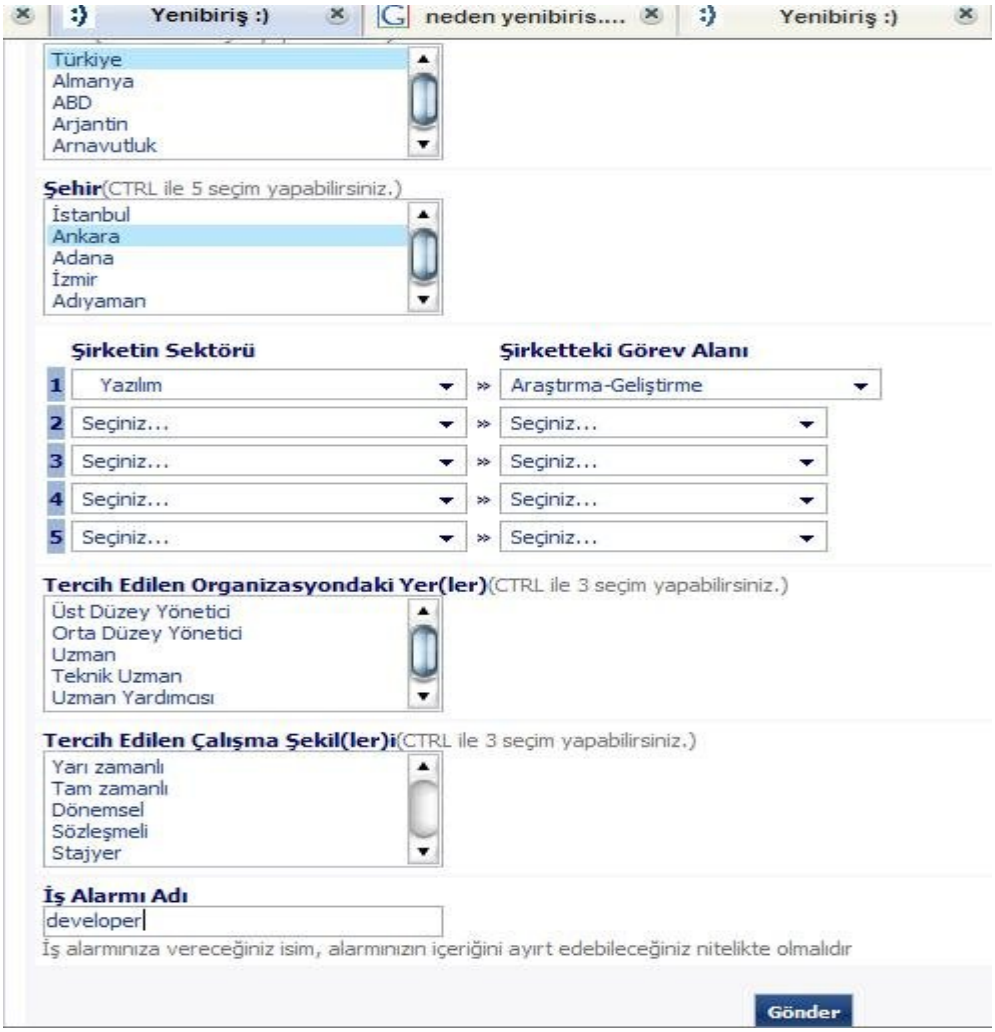
4.1 Web based Job Seeking Sites

We examined these sites in a detailed way to comprehend how these things work conceptually. We registered to the popular job seeking sites as job seeker and employer. Mainly all these web sites provide an interface to the job seekers to form and submit a CV and an interface to the employers to publish job announcements. Each of them has added a different concept to their systems.

First example to these web sites is “www.kariyer.net”. This is the most popular web based job seeking site in Turkey. This site provides its users some interesting features. It gives job seekers the opportunity of seeing job announcements relevant to the users

CV and it presents the employers all the CVs in same format. It also provides the interface to reply all the applicants of an announcement once.

Our next example is “yenibiris.com”. This is another very famous web based job seeking site in Turkey. In addition to the interfaces allowing the users forming a CV and publish announcements, this site lets the user to watch an announcement via an alarm mechanism.

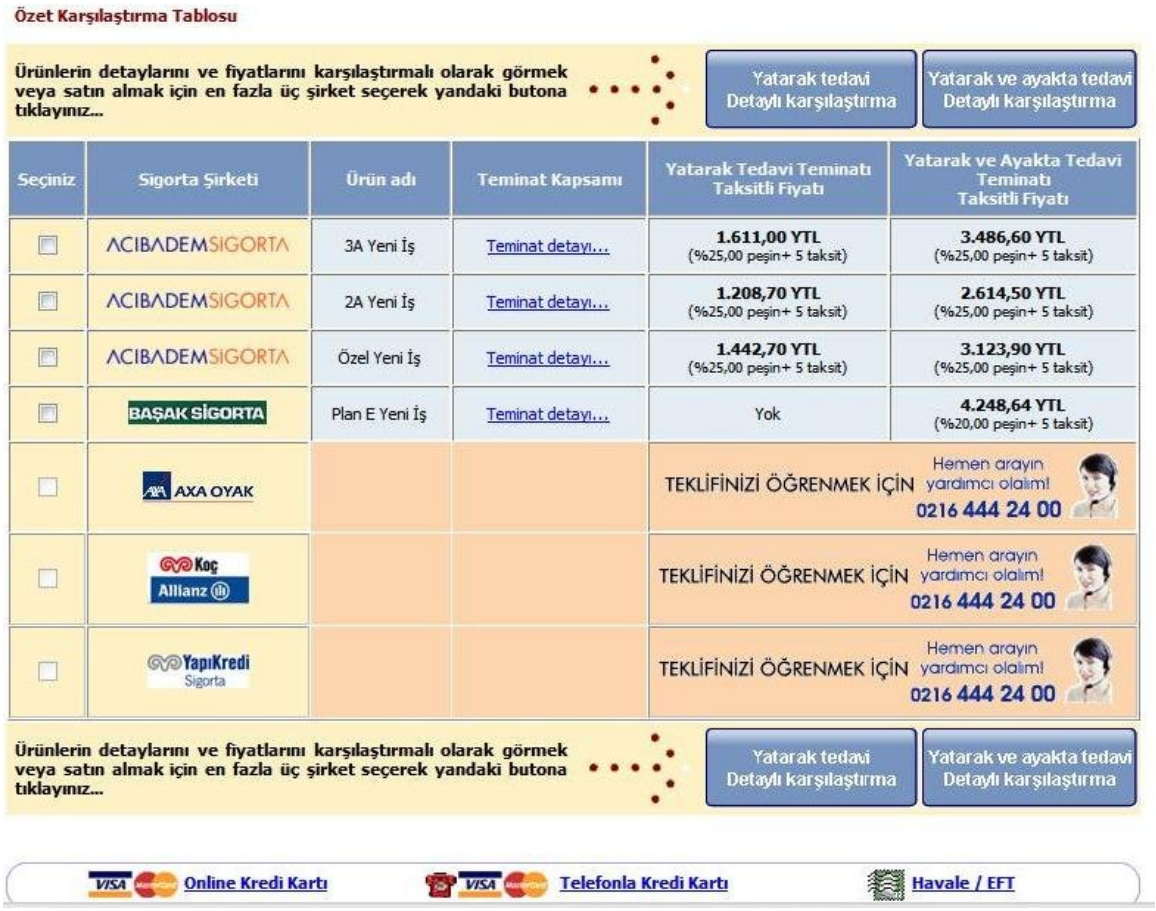


Another example we took under consideration is Turkiye Is Kurumu which is the governmental job seeking company. Turkiye Is Kurumu has a web site which is also a web based job seeking site.

4.2Similar web portals

To examine the working principle of the portals, we registered ourselves to some web based aim specific famous portals like “sigortam.net”, “hangikredi.com” and “cember.net”.

The first web based portal we made research is “sigortam.net”. This portal serves its users by first taking the kind of insurance they deserve, listing all the possible insurance companies and their offers, and mailing these lists to the users. The following is a sample list that is produced by this system.



The next web based portal we examined is “hangikredi.com”. This portal serves its users after taking what kind of credit they wish, the amount of the credit and other specific details by listing the companies and the proposals they suggest. A sample can be seen below.

6 ay vadeli 6,000 YTL Sıfır km Taşıt Kredisi için 36 adet kredi seçeneği bulunmaktadır.

Kurum adına göre sırala

Tekrar Ara

	Kurum Adı	Faiz Oranı	Cevap Süresi	Taksit	Teminat	Açıklama		
☐	Akbank	1.50	-	1.063,94	Araç rehini		Detay	
☐	Akbank	1.45	-	1.061,78	Araç rehini	bankamızdan kaskolu	Detay	
☐	Albarakatürk	1.59	-	1.067,83	Araç rehini		Detay	
☐	Anadolubank	1.49	24	1.063,50	Araç rehini	Bankamızdan kaskolu	Detay	
☐	Anadolubank	1.54	24	1.065,67	Araç rehini		Detay	
☐	Bank Asya	1.55	-	1.066,10	Araç rehini	Bankamızdan kaskolu	Detay	
☐	Bank Asya	1.80	-	1.076,95	Araç rehini	Ticari taşıt	Detay	
☐	Bank Asya	1.59	-	1.067,83	Araç rehini		Detay	
☐	Bankpozitif	1.60	-	1.068,26	Araç rehini		Detay	
☐	Denizbank	1.55	24	1.066,10	Araç rehini		Detay	
☐	Denizbank	1.55	24	1.066,10	Araç rehini	ticari taşıt	Detay	
☐	Finansbank	1.49	24	1.063,50	Araç rehini	bankamızdan kaskolu	Detay	Başvur

We also examined last other portal www.cember.net which is a web site for sharing information between professionals.

4.3 Research about the technologies

To clarify how to develop each functionality and we needed to research about the possible technologies to be used. We probed into details of ESB, Web 2.0, Ajax, Web Services, Java, Java Servlet, XML and UML.

For better understanding and the communication we used UML. It is a standardized specification convention for object modeling. We used this convention to gather requirements of our system. Yet we have modeled the requirements by forming the use-case diagrams and activity diagrams.

Web Services are critical in our project. Basically they will be used in interface implementation with other sites.

We are going to use Java language as implementation language. By using Java Servlet API we will add dynamic content to our web pages.

For data communication we will use XML, which is nowadays a common standard for data communication.

ESB is a very important technology for our project because we will need this technology when we use the web-services of the other job-seeking web-sites.

We will also use Web 2.0 technology in our project. It contains especially AJAX technology.

4.4 Interviews

In order to specify the requirements of our system precisely, we needed to be informed by someone experienced in the technologies which we will make use of during the development of this project. Therefore we decided to interview with Efe AKMAN who works as software manager at SoftwareAG. When we told him our intent, he had a positive attitude towards us and we had a meeting with him on 12.10.2007. Before the meeting, we prepared some questions and the meeting proceeded according to our questions. Below, we explained the subjects which we have discussed:

- Firstly we asked him about the technologies which we will use. He explained us about the technologies which SoftwareAG company supply for us. He especially told us about ESB (Enterprise Service Bus) technology. It is the technology which will provide us to use the web services of the job-seeker web sites which we agreed. We obviously understood that ESB is a very important technology which we will use.

- He suggested us that we should build two web sites which work as job-seeker web sites. Because when we building our portal we will not be able to study on the web services of the job-seeker web sites on the Internet. So these two web sites, which will be prepared by us, will serve us web services. We will use ESB on their web services. Also we want to mention about why the number of the web sites is two we will implement. Because our system should be compatible with all the web sites' database and web services which we agreed.

- We wanted him to take information about SOA (Service Oriented Architecture) technologies. He told us the benefits and use areas of the SOA technology. SOA is the underlying structure supporting communications between services. In this context, a service is defined as a unit of work to be performed on behalf of some computing entity, such as a human user or another program. SOA defines how two computing entities, such as programs, interact in such a way as to enable one entity to perform a unit of work on behalf of another entity. We became very impressed of the efficiency of this technology. Like ESB, SOA is a very important for our portal.

- We mentioned him about our plans for our web portal. We told him about the modules we want to build for the web portal in a detailed way. He appreciated our plans and told about how we can do all of this stuff.

After the interview, we have found answers to most of our questions and our design decisions became clearer. Also the concepts like ESB, SOA became clearer on our minds. One of the benefits of this interview was that we decided to build two job-seeking web-sites, but these web sites will be very small and quick-designed web-sites, because we will use these web sites only to test our work. Also we decided to build our web portal as we planned. But we will add some features like "controlling TC Identification Number" by the advice of Efe AKMAN.

4.5 Questionnaire

Questionnaire is one of the most significant techniques for the analysis of specification of user needs on a system that will be developed. Since questionnaire involves ideas of large number of people, analysis of the gained data will provide us the chance to see the missing points of the design of our system and revision of our design according to potential user needs. Therefore we decided to take a poll addressing the students and the newly graduated people.

There were 25 people who attended to the questionnaire. The questions and the results are below:

1. **Hangi bölüm ögrencisisiniz / Mezun musunuz?**

   Results;

   - Computer Engineering senior students : 40 %
   - Computer Engineering master students : 28 %
   - Industrial Engineering senior students : 16 %
   - Graduated Civil Engineers : 8 %
   - Graduated Architects : 8 %

2. **İs arama sürecinde kariyer sitelerini kullanıyor musunuz?**

   a) Hiç kullanmadım.

   b) Çok az sefer kullandım.

   c) Sık sık kullanıyorum.

   Results;

   - Choice “a” was preferred by the % 8 of the participants.
   - Choice “b” was preferred by the % 20 of the participants.
   - Choice “c” was preferred by the % 72 of the participants.

3. **Her kariyer sitesinde ayrı bir özgeçmiş olusturmak size sıkıcı ve yorucu geliyor mu?**

   a) Evet

   b) Hayır

   Results;

   - “a” choice was chosen by the % 84 of the participants.

- “b” choice was chosen by the % 8 of the participants.
- This question was not answered by the % 8 of the participants.

4. **Tek bir sitede özgeçmiş oluşturarak özgeçmişinizin istediğiniz bütün sitelere bu site tarafından gönderilmesini ister miydiniz?**

   a) Evet

   b) Hayır

Results;

- “a” choice was chosen by the % 84 of the participants.
- “b” choice was chosen by the % 8 of the participants.
- This question was not answered by the % 8 of the participants.

5. **Kariyer sitenizde birtakım ek bilgi verici bölümler olmasını ister miydiniz? Bunlardan hangilerinin olmasını isterdiniz?**

   a) Özgeçmiş oluşturmayla alakalı bilgilendirme bulunsun isterdim.

   b) İş görüşmesinde dikkat edilecek hususlar hakkında bilgilendirme bulunsun isterdim.

   c) Yukarıdakilerin ikisinin de bulunmasını isterdim.

   d) Hiçbirinin bulunmasını istemezdim.

Results;

- “a” choice was chosen by the % 12 of the participants.
- “b” choice was chosen by the % 16 of the participants.
- “c” choice was chosen by the % 64 of the participants.
- “d” choice was chosen by the % 0 of the participants.
- This question was not answered by the % 8 of the participants.

6. **üyesi bulunduğunuz kariyer sitesinin size uygun is fırsatlarını o site üzerindeki size ait sayfada otomatik olarak bildirmesini ister miydiniz?**

   a) Evet

   b) Hayır

Results;

- “a” choice was chosen by the % 92 of the participants.

- “b” choice was chosen by the % 0 of the participants.
- This question was not answered by the % 8 of the participants.

7. **Sizin için bir kariyer sitesinde aşağıdakilerden hangisi en önemlidir?**

   a) Sitenin tasarımı

   b) Sitenin arama yapabilme kapasitesi

   c) Kullanım kolaylığı

Results;

- “a” choice was chosen by the % 16 of the participants.
- “b” choice was chosen by the % 44 of the participants.
- “c” choice was chosen by the % 32 of the participants.
- This question was not answered by the % 8 of the participants.

5 PROJECT REQIREMENTS

5.1Nonfunctional Requirements

Our product will be written in Java language so this will ensure that the it will be platform independent, which is a very important feature of any software product. During development we are going to use tools provided to us by SoftwareAG namely Application Composer, Applinx, Sentrasite, Entirex, Information Integration, Service Orchestrator. Since the product will run on server and users will use it from browser, all users will need in order to use it is a decent web-browser and internet connection. Thus we plan to make the product browser-independent too. Of course the server and database will be needed too.

During the development of the project we will make much documentation related to the project: various diagrams charts, reports etc. There will be plenty of documentation for the project.

The system will not be totally autonomous and will require an administrator and a people who will manage money transactions. This is necessary for payment operations of employers posting announcement.

The product is intended to be highly scalable. We have made our design with this goal in mind from the beginning. In particular we plan to make it possible for our system to run on several servers having multiple databases.

We also pay special attention to the reliability and safety of our product. These are very important issues, since if our product will not be reliable and safe people will not use it much. In the design of the system we try to consider possible faults, and correct them as early as possible. On the other hand database and server are also very important for reliability. In particular we are planning to use ORACLE as a database management system.

High level of security is necessary for our system too. Because there will be many users using our system. It is evident that in order to be successful security is a must.
At this point we can not make much precise assessment of the cost of our product. Cost consists of development and putting it to activity. At this point our estimates are 30000$. This figure may surely vary with time, and in case there are extra things to do.

5.2Functional Requirements

5.2.1 Overview

Our system will provide a common gateway to variety of job-seeking websites like kariyer.net, yenibiris.com. The idea is that it will be very convenient to both job-seekers and employers, since they will be able to benefit from services provided by those sites from one site, and besides they will benefit from additional functionalities of our product.

Basically we distinguish between two types of users of our system: job-seekers and employers. This is more conceptual distinction since once logged in a person recorded

to the system will be able to do both job-seeking and employee seeking, this distinction is necessary because services provided to each are different. Besides ordinary users there will be administrators and/or operators.

5.2.2 Logging to the system and registration

In order to make use of the services provided by our product one needs to be a registered user. For that one will fill the registration form, after that an email with activation link, the account will be activated upon clicking on it.
Once logged in there will be two interfaces provided to him. One will provide a job-seeker services the other will provide employer interface.

5.2.3 Job-seeker functionalities

Job-seeker services will enable user to search for job-announcements, post CV on preferred sites, besides job-seekers will be notified of job-opportunities posted by other users of the system.

In order to submit the CV the job-seeker will be required to fill a CV form, at the end of which he will be able to specify which sites he wishes to send his/her CV to. The CV form will be detailed enough to encompass all necessary data. Completed CV will be viewable and downloadable in pdf format. At the same time employers registered to our system will be notified of CV sending. This is part of our extra feature the details of which we will describe below.

The job-seeker will be able to search for job-opportunities at sites specified by him. The feedback to the search query from those sites will not be displayed to job-seeker as it is. It will be sorted accordingly, taking into account the job-seeker information the system has, so that to present the result in convenient way.

At the same time there will be a notification for job-seekers of the job announcements made by other users of our system. Again the list of notifications will also be sorted by relevance. This is a part of our extra feature. There is analogous one for employer too.

5.2.4 Employer functionalities

Employer will be able to search for posted CVs, make job-announcement, and besides they will be notified of CV postings made by users of the system.

To activate employer profile users will be required to make payment. In order to submit job-announcement employer will be required to fill an announcement form, at the end of which he will be able to specify sites to which he wishes to post his/her announcement. The announcement form will be detailed enough to encompass all necessary data. Filling the form is not enough to post an announcement – specified payment will be necessary. Once the payment is made and approved by operators, the actual posting of the job announcement will actually take place. At the same time job-seekers registered to our system will be notified of announcement posting. This is part of our extra feature the details of which we will describe below.

The employer will be able to search for CVs at sites specified by him. The feedback to the search query from those sites will not be displayed to employer as it is, instead it will be sorted accordingly, taking into account the employer information the system has, so that to present the result in convenient way.

There will be a notification system for employer too notifying of CV posting made by the system users. Again the list of notifications will also be sorted by relevance. This is the other part of our extra feature.

5.2.5 Notification system

While making our design we wanted to add something extra so that our product would be distinct from other analogs. We wanted something that would even further enhance the chances of job-seekers to find job and employers to find employees. The idea behind our notification system is that users would like to be informed of current opportunities even if they are not searching for a job or an employee and if there is a good opportunity they would make use of it. Those notifications as mentioned above will be presented in sorted way. In case users do not want to benefit of notification system they will be able to switch it off, this will give even more flexibility to the user.

5.2.6 Administrator functionalities

As with every web-based system in our system there will be adminitrator. Administrator will be responsible for managing the system, ensuring that everything works properly. This requires that administrator has much control over the system.

Administrators will login to the system from the same interface as ordinary users, but once logged in the interface provided will be very different. Through that interface the administrator will be able to see the actions performed by all users, all events such as posting CV or announcement. If needed administrator will be able to ban users, send them messages. Similarly administrator will have control over notification system. These things are needed because however well we design our system, it is still necessary that human interaction takes place, now that the system will provide services to people.

The information provided to administrator will be presented to him in clear way.

5.2.7 Operator functionalities

Our payment system is not completely autonomous that is why we felt need for operators. The role of operators in our system is management of money transactions.

There will be payment for job-announcements, and in fact for employer account activation too. Once the employer wants to post a job-announcement he will need to make a specified payment to a specific account. Similarly in order to activate employer profile payment will be required. Any payment requiring operation will be suspended until payment is made.

The operators will check the account/s for money transactions, like what amount form whom for what purpose was received. After that they will login to the system and approve operations for which payment was made, after that approval is made those operations will be actually performed.

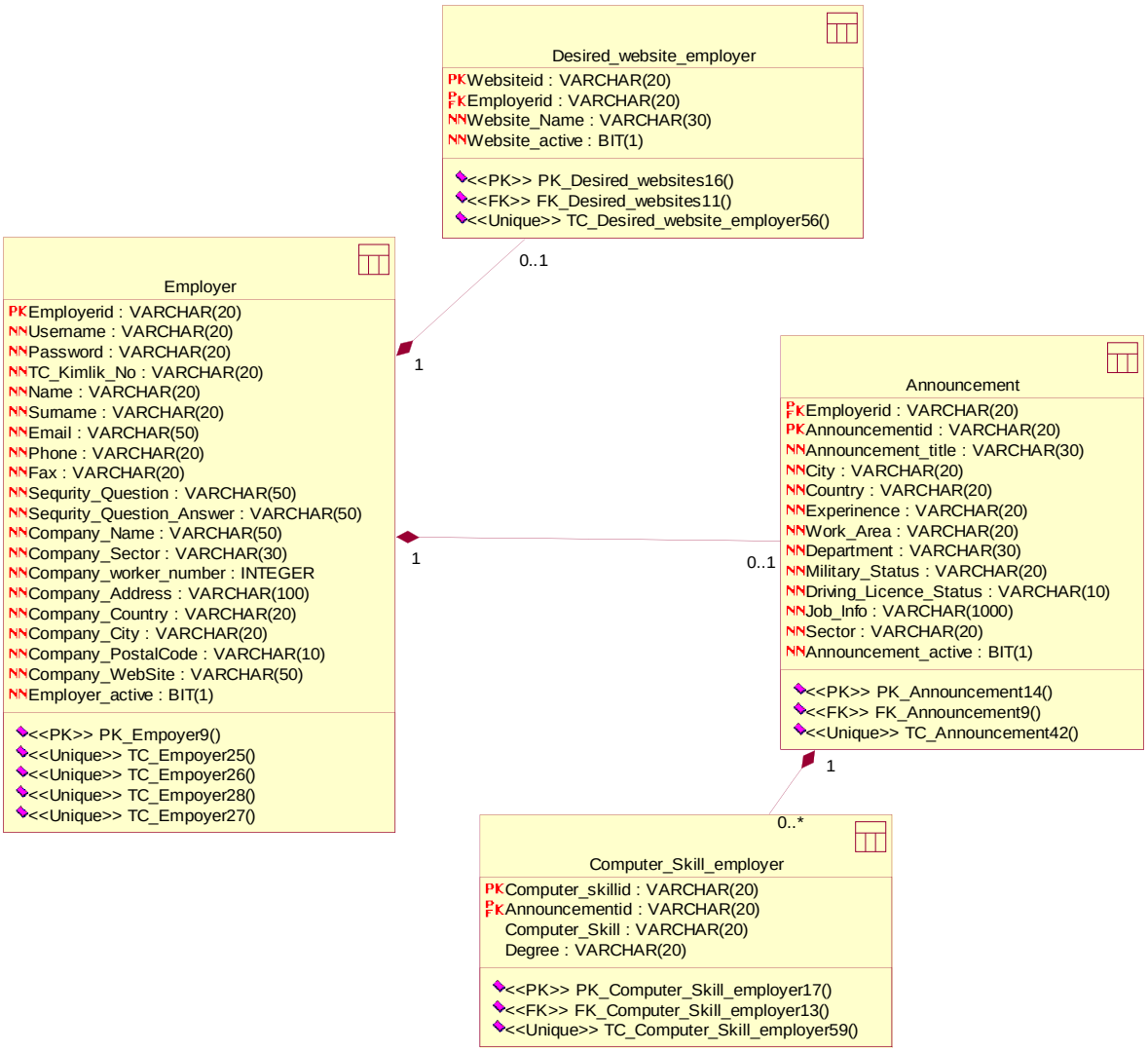
Basically, the interface of the operator will consist of pending(unpaid) operations table. Through that table the operators will be able to approve those operations.

5.3Functional Modeling

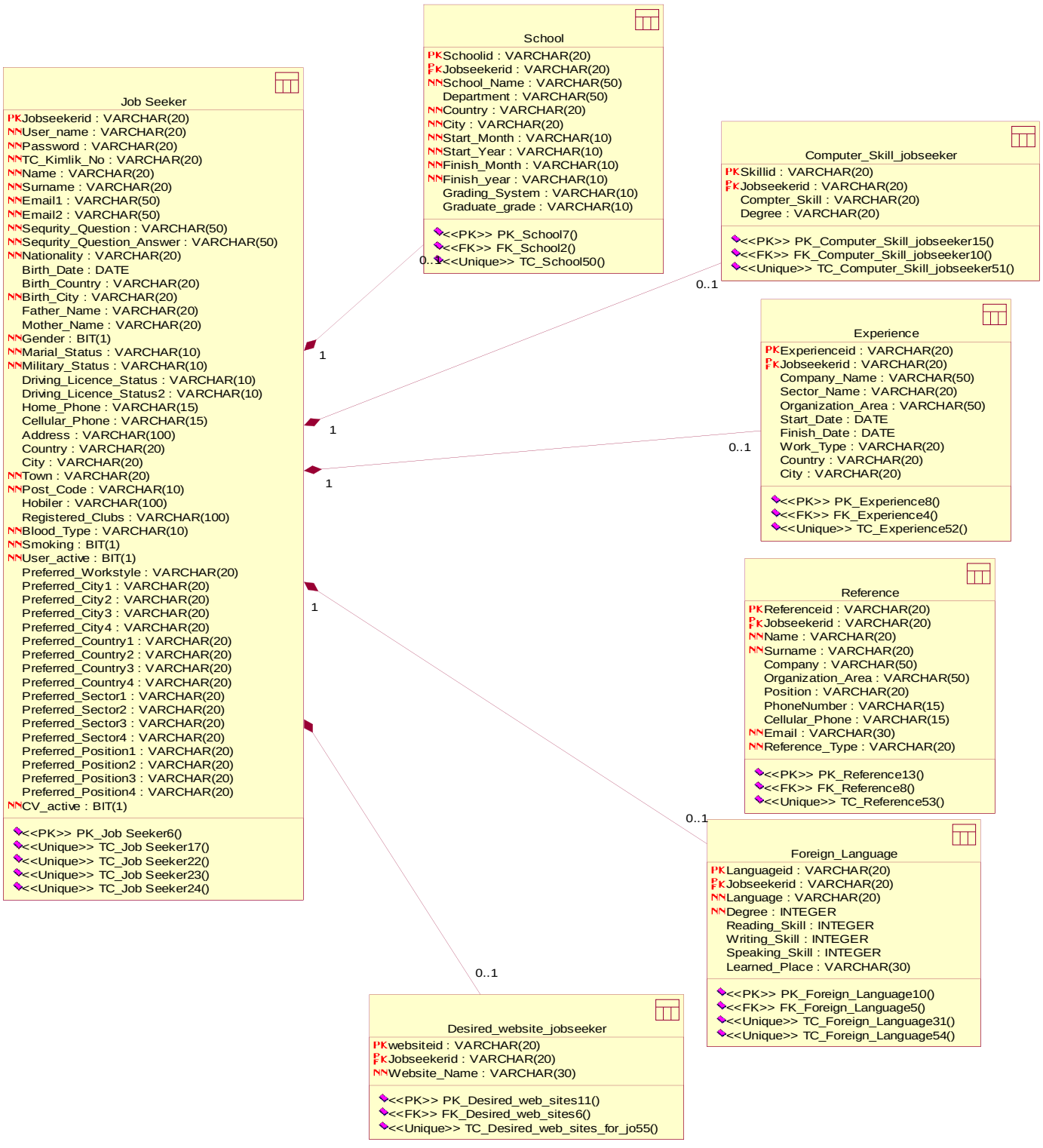
5.3.1 Data Modeling

The database of our system is divided into two parts. That is why we made two entity-relationship diagrams. First diagram is for employer module. The second is for job-seeker module.

5.3.1.1 Entity Relationship Diagrams



Employer Module Entity Relationship Diagram



Job-Seeker Module Entity Relationship Diagram

5.3.1.2 Data Descriptions

Name	Employer
Where/How Used	Registeration Announcement Listing
Description	This table will hold company and related person information of users that registered as Employer *Field Names:* *Employererid* *Employer_active:* It shows whether registeration of this employer is approved or not. *User_name:* username selected by user *Password:* username selected by user *TC_kimlik_no* *Name:* Name of employer *Surname:* Surname of employer *Email:* E-mail address of employer *Phone:* Phone number of employer *Fax:* Fax number of employer *Sequrity_Question* *Sequrity_Question_Answer* *Company_name* *Company_sector* *Company_worker_number* *Company_address* *Company_country:* Country where the company is located *Company_city:* City where company is located *Company_website*

Name	Announcement
Where/How Used	Used in announcement listing page
Description	This table hold announcement information of employers *Field name:* *Announcement id* *Announcement_active:* It shows whether that announcement can be viewed in announcement searches. It will change by preference of employer. *Employer id:* Employer_id attribute from Employer table. It determines which employer send related announcement. *Announcement title* *City:* Working Place (City) *Country:* Working Place (Country) *Experience:* Experiences required from applicants *Work Area* *Department* *Military status* *Driving license status* *Job-info:* Detailed information of job *Sector*

Name	Desired web-sites for employer
Where/How Used	Job announcement form page Job announcement viewing page
Description	This table holds selected web-sites by employer to send his announcement, this table is important for payment of selected web-sites. *Field names:* *Websiteid* *Employerid:* Employer_id attribute from Employer table. It determines which employer select the related web-site. *Website_Name* *Website_active:* it shows whether employer pay for the announcement cost of related web-site

Name	Computer_skill_employer
Where/How Used	Job announcement form page Job announcement viewing page
Description	This table holds wanted computer skills by employer in an announcement. *Field names:* *Computer_skill_id* *Announcement_id:* Related announcement's id from announcement table. *Computer_skill:* Name of computer skill *Degree:* Knowledge level of computer skill

Name	Job Seeker
Where/How Used	Registeration CV viewing
Description	This table will hold personal information of users that registered for job-seeking *Field Names:* *Jobseekerid* *User_name:* username selected by user *Password:* username selected by user *TC_kimlik_no* *Name* *Surname* *Email1/Email2* *Sequrity_Question* *Sequrity_Question_Answer* *Nationalty* *Birth_date* *Birth_country* *Birth_city* *Father_name* *Mother_name* *Gender* *Marial_status* *Military_status* *Driving_Licence_Status1/ Driving_Licence_Status2* *Home_phone* *Cellular_phone* *Address* *Country:* Country name where user reside *City:* City name where user reside *Town:* Town name where user reside

	Post_code *Hobiler:* Hobbies of user *Registered_clubs:* Social clubs which user is member of *Blood_type* *Smoking:* State whether user smoke or not *User_active:* Show whether user is activated by admin or not *Preferred_workstyle:* Work style (part-time,full-time,etc.) *Preferred_city:* City where user prefers to work *Preferred_country:* Country where user prefers to work *Preferred_sector:* Sector in which user prefers to work *Preferred_position:* Job Position (manager,engineer,etc.) *CV_active:* State whether CV can be viewed by employers or not

Name	School
Where/How Used	Presenting education information
Description	This table will hold education information of Job-Seekers, table filled when forming CV *Field Names:* *school_id* *Job seeker id:* Job-seeker's id from job seeker table determines which user submitted this school information. *School name* *Department* *Country:* Country where school is located *City:* City where school is located *Start month:* Start month of school *Start year:* Start year of school *Finish month:* Finish month of school *Finish year:* Finish year of school *Grading system:* Gradng system used in that school (5,4,10,etc.) *Graduate grade*

Name	Computer_Skill_jobseeker
Where/How Used	CV form page CV viewing page
Description	This table holds computer skill information of job-seeker *Field name:* *Skillid* *Jobseekerid:* Job-seeker's id from job seeker table. It determines which user has the related computer skill *Computer_skill:* Skill name *Degree:* Knowledge level of skills

Name	Experience
Where/How Used	CV form page CV viewing page
Description	This table holds work experiences information of job-seekers *Field name:* *Experience_id* *Jobseekerid:* Job-seeker's id from job seeker table. It determines who has related experience *Company_name* *Organization Area* *Start Date* *Finish Date* *Work type:* Work type (part-time,full-time,etc.) *Country:* Work place of work-experience (country) *City:* Work place of work-experience (city)

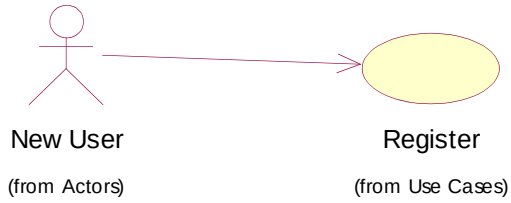
Name	Reference:
Where/How Used	CV form page CV viewing page
Description	This table reference information of job-seekers *Field names:* *Referenceid* *Jobseeker id:* Job-seeker's id from job seeker table. It determines which user selects related reference *Name:* Name of reference *Surname:* Surname of reference *Company:* Company in which related reference work *Organization Area:* Organization area which related reference work *Position:* Position of reference person in his company *Phone number:* Phone number of reference person *Cell phone:* Cellular phone number of reference person *Email:* E-mail address of reference person *Reference type:* Professional, personal, etc.

Name	Foreign language
Where/How Used	CV form page CV viewing page
Description	Holds information about foreign language skills of job-seeker *<u>Field names:</u>* *Languageid* *Job-seeker id:* Job-seeker's id from job seeker table. It determines which user selects related reference *Language:* Language name *Writing skill:* Knowledge level of writing skills *Reading skill:* Knowledge level of reading skills *Speaking skill:* Knowledge level of speaking skills *Learned place:* Place where related language learned

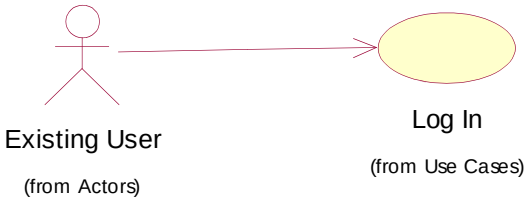
Name	Desired web-sites for job-seeker
Where/How Used	CV form page CV viewing page
Description	Job seekers will select web-sites that their CV will be sent and this table holds selected web-sites' information. *<u>Field names:</u>* *Websiteid* *Jobseekerid:* Job-seeker's id from job seeker table. It determines which user selected the related web-site *Website_Name*

5.3.2 Functional Modeling

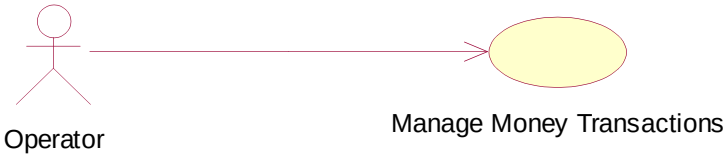
5.3.2.1 Use Case Diagrams



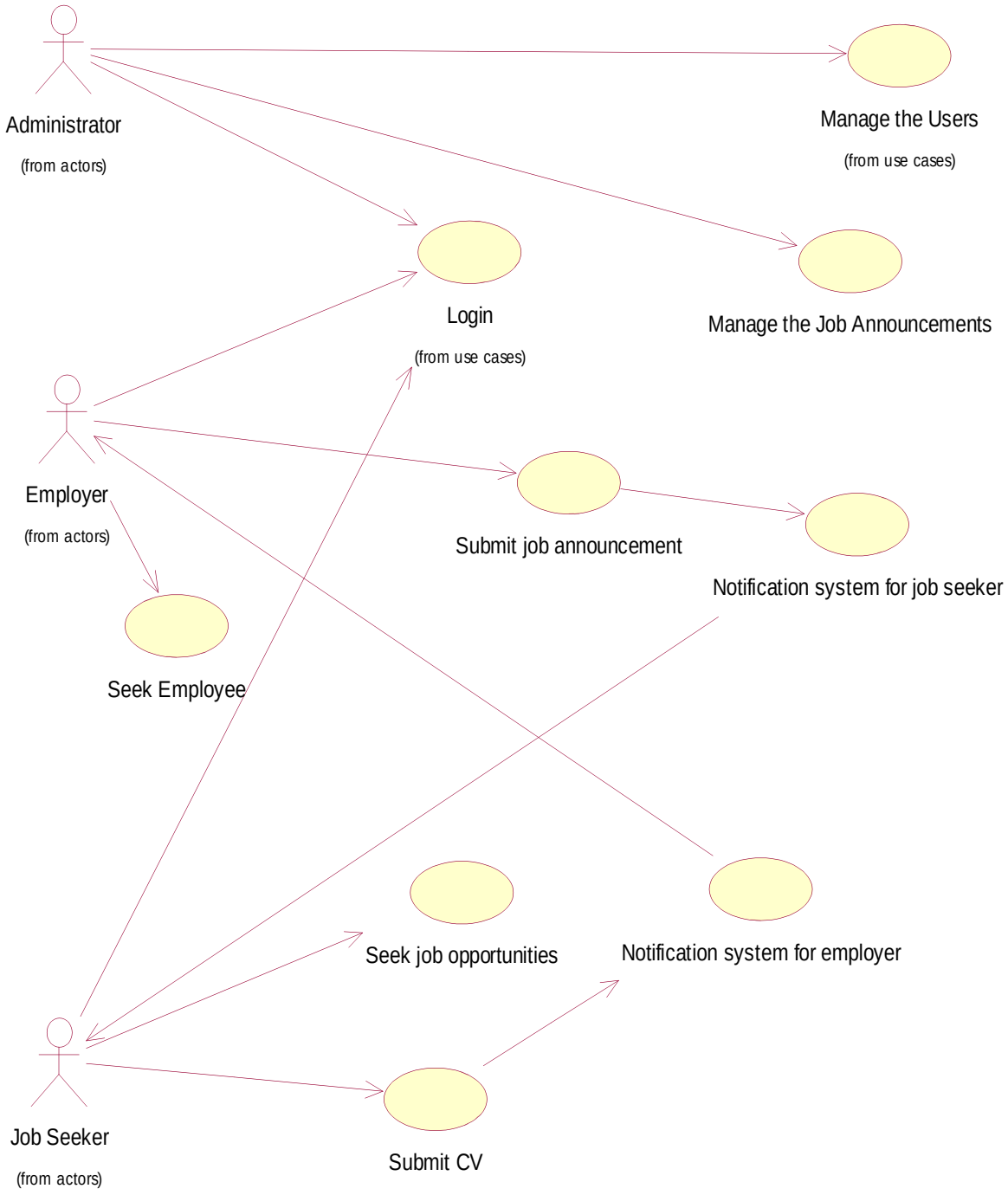
Registration module Use-Case Diagram



Login module Use-Case Diagram

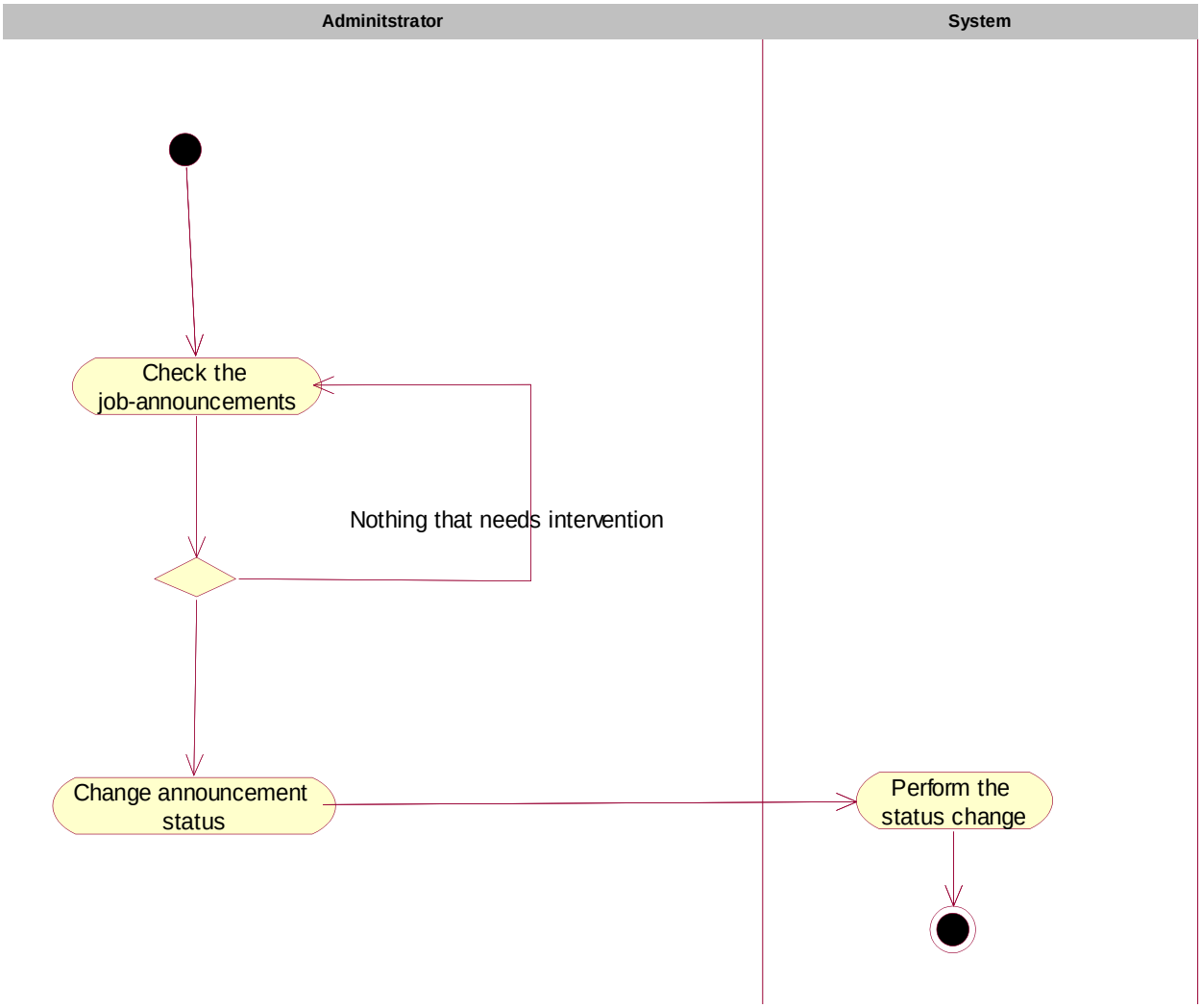


Operator module Use-Case Diagram

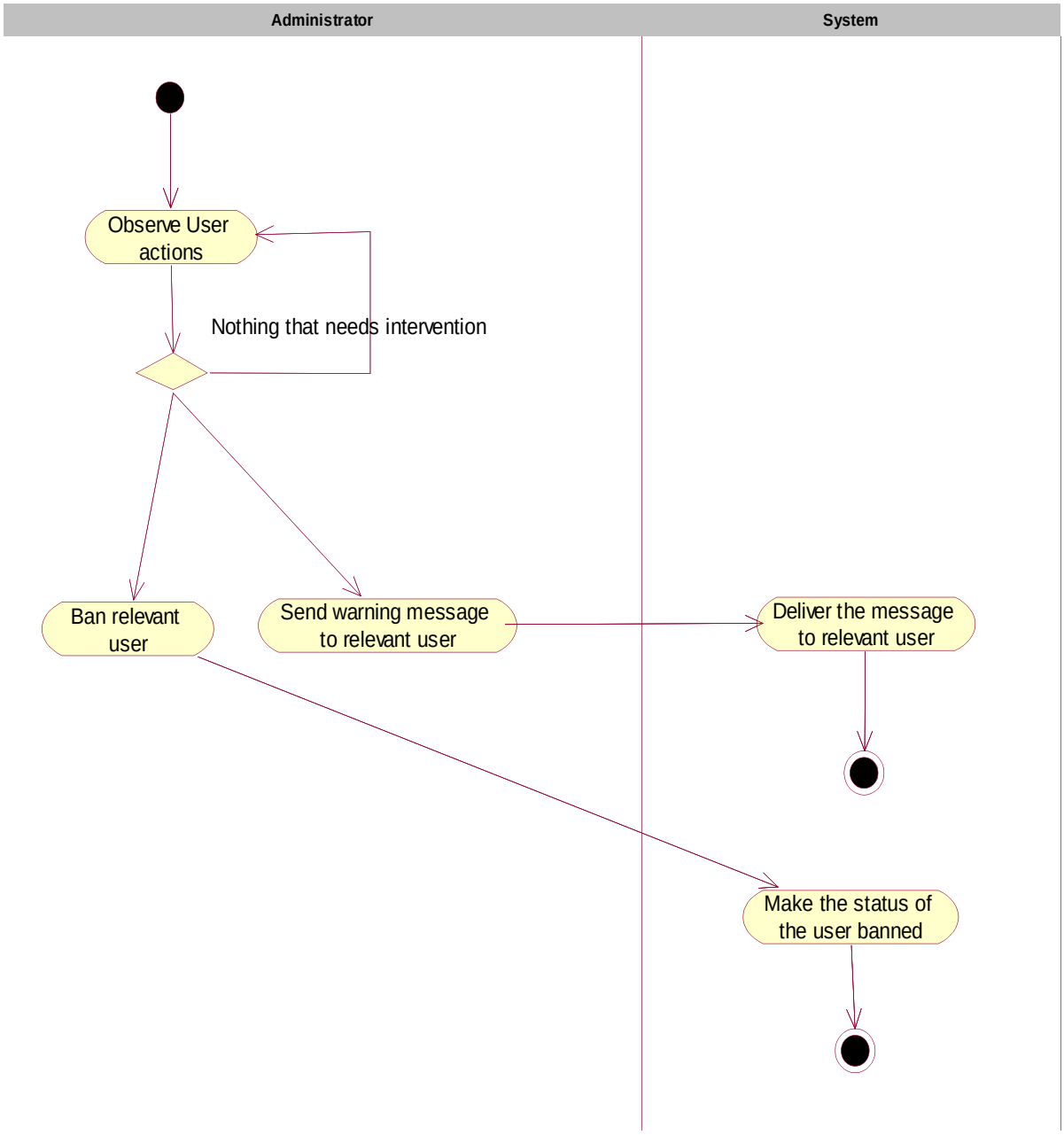


Administrator, Job-seeker and Employer Module Use Case Diagram

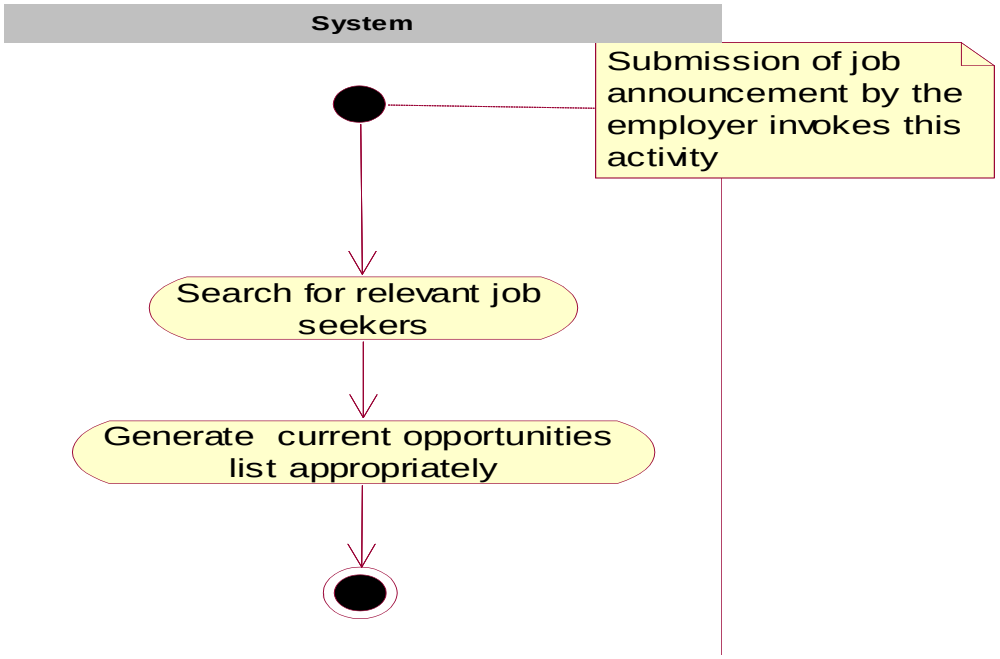
5.3.2.2 Activity Diagrams



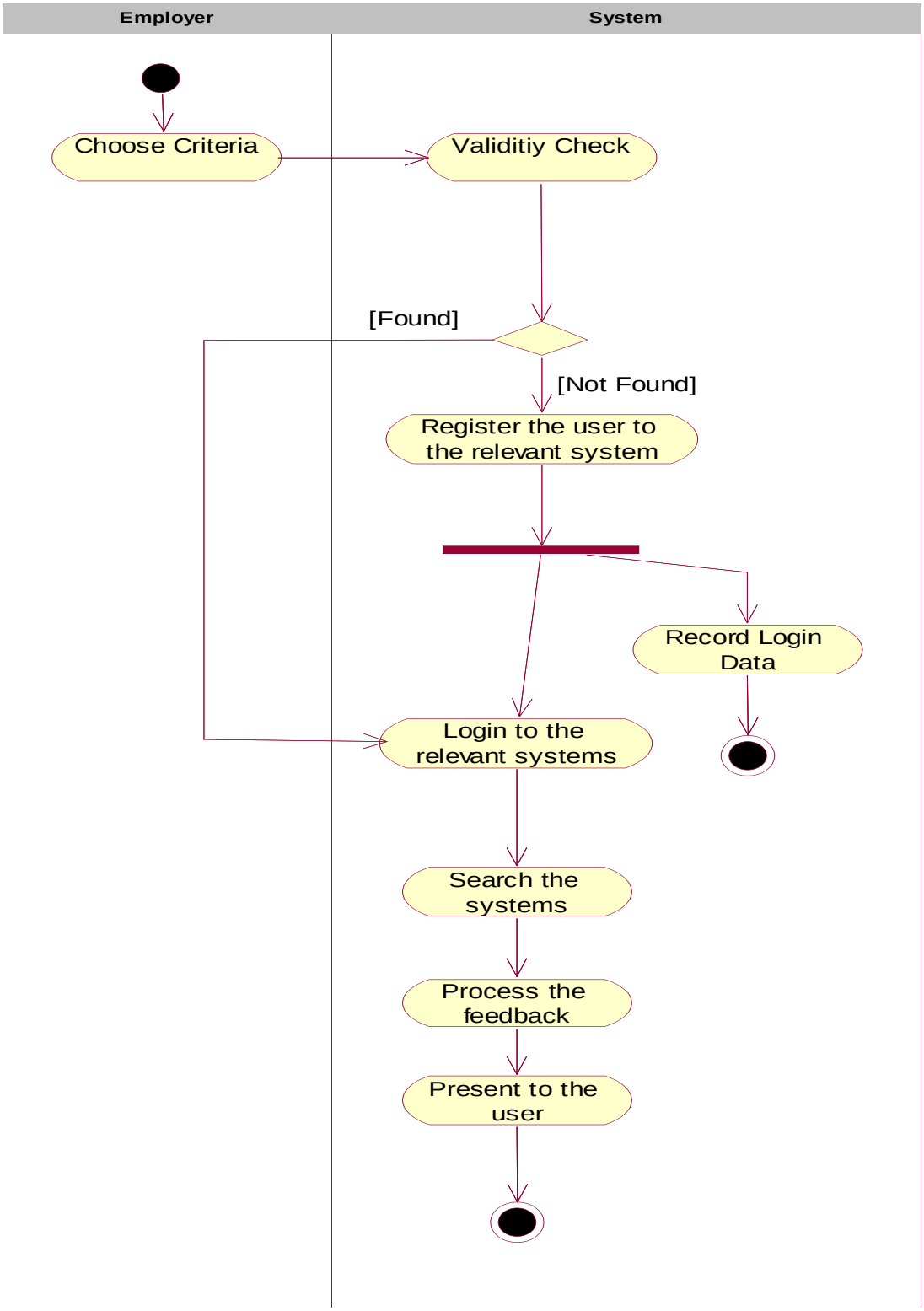
Job Announcement Management Component Activity Diagram



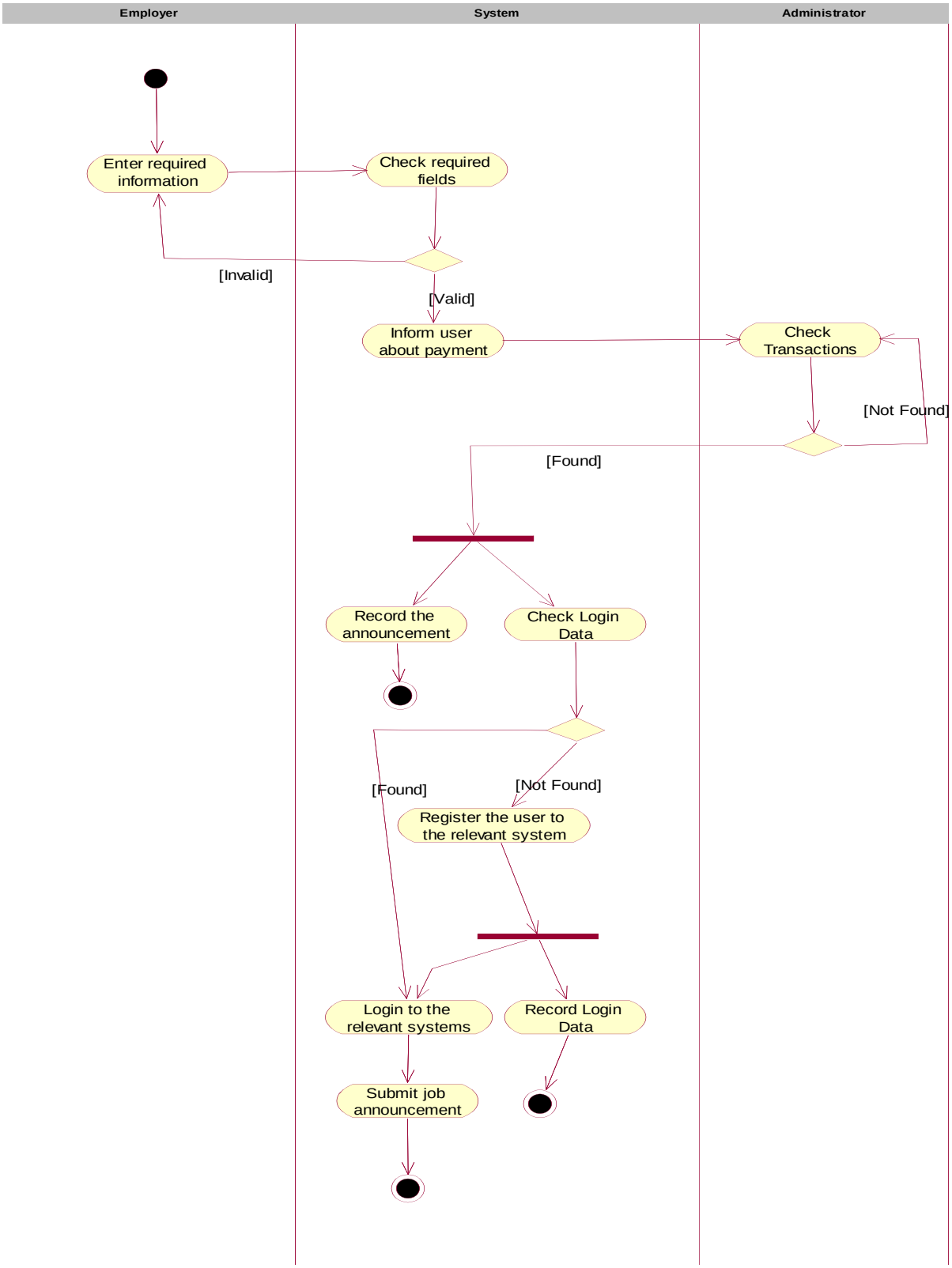
User Management Component Activity Diagram



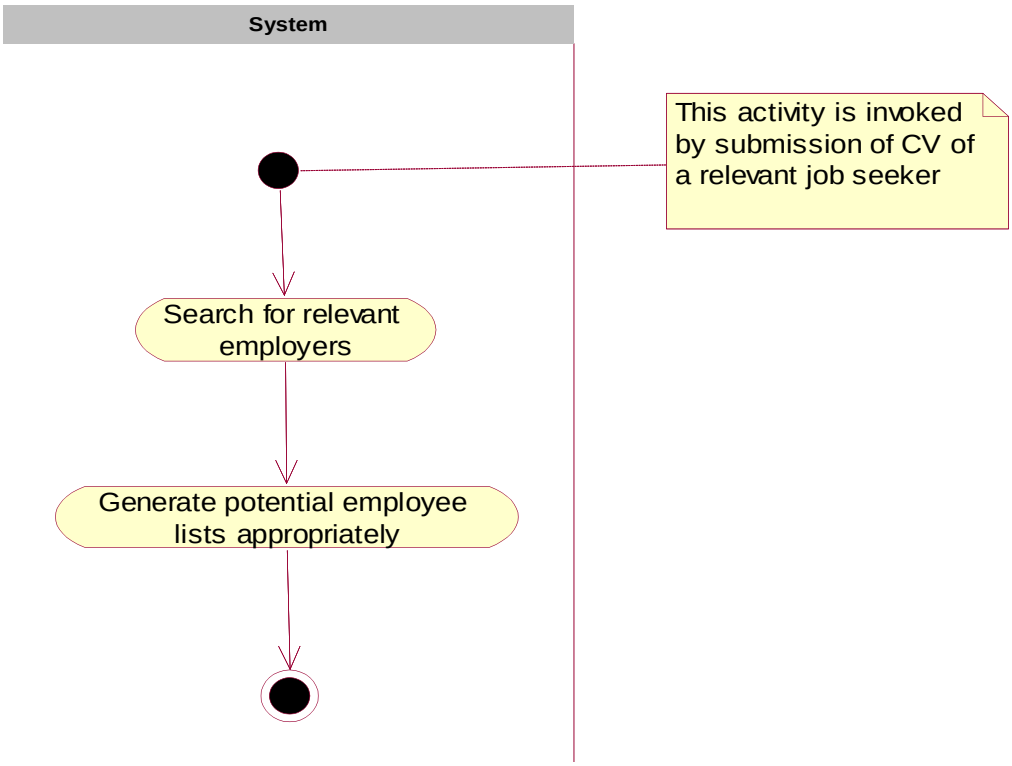
Job-seeker notification component Activity Diagram



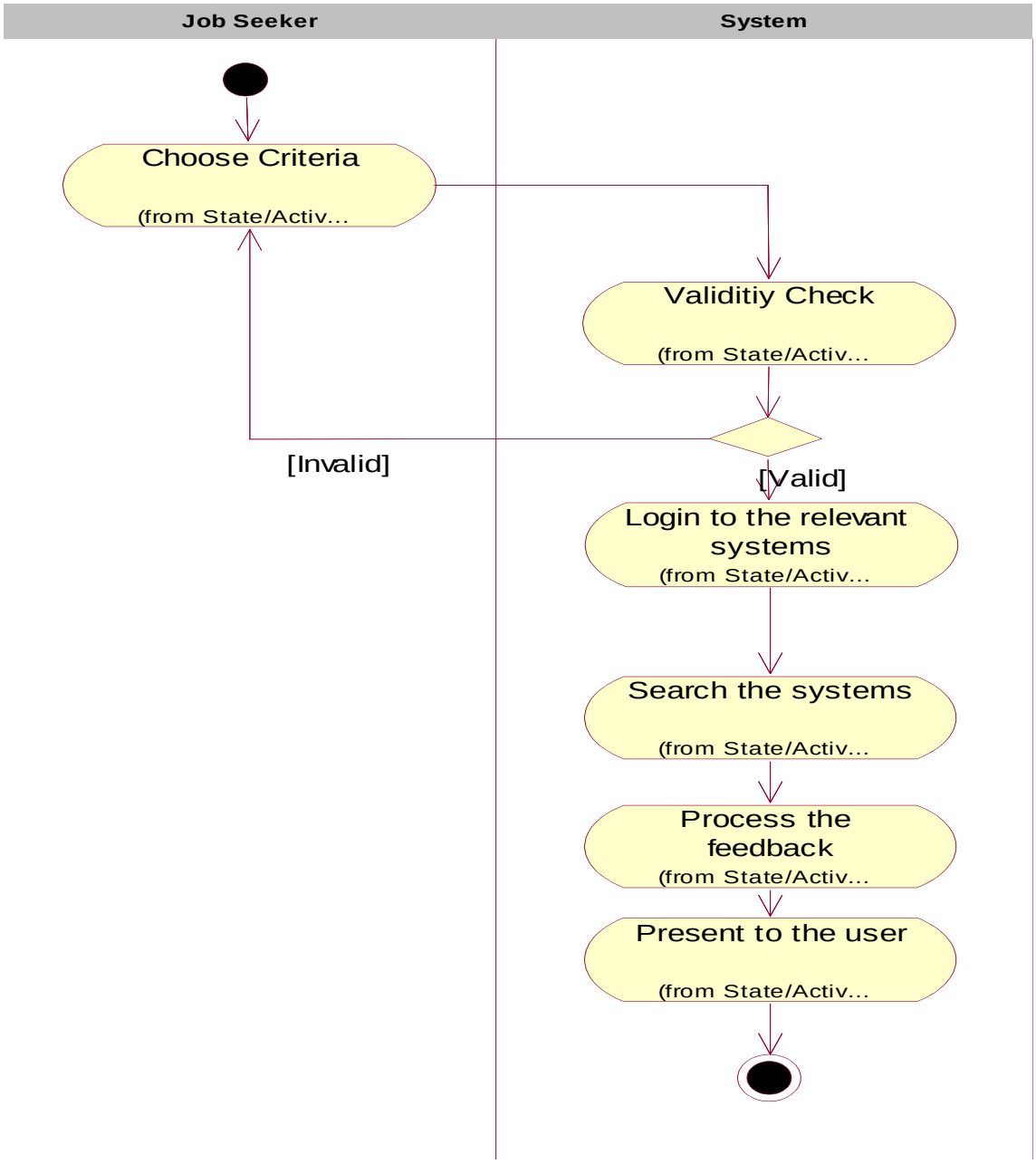
Employee Seeking Component Activity Diagram



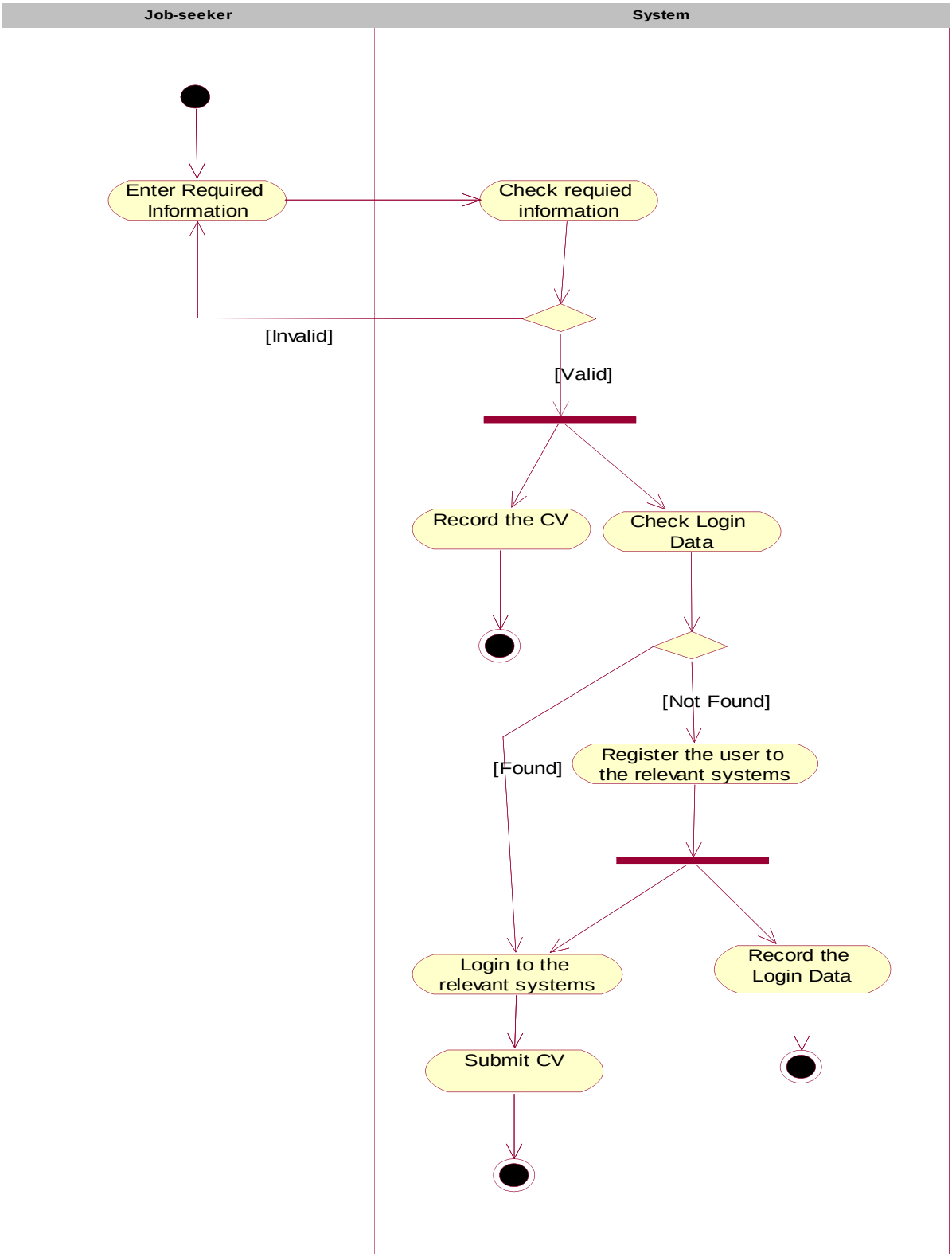
Job Announcement Component Activity Diagram



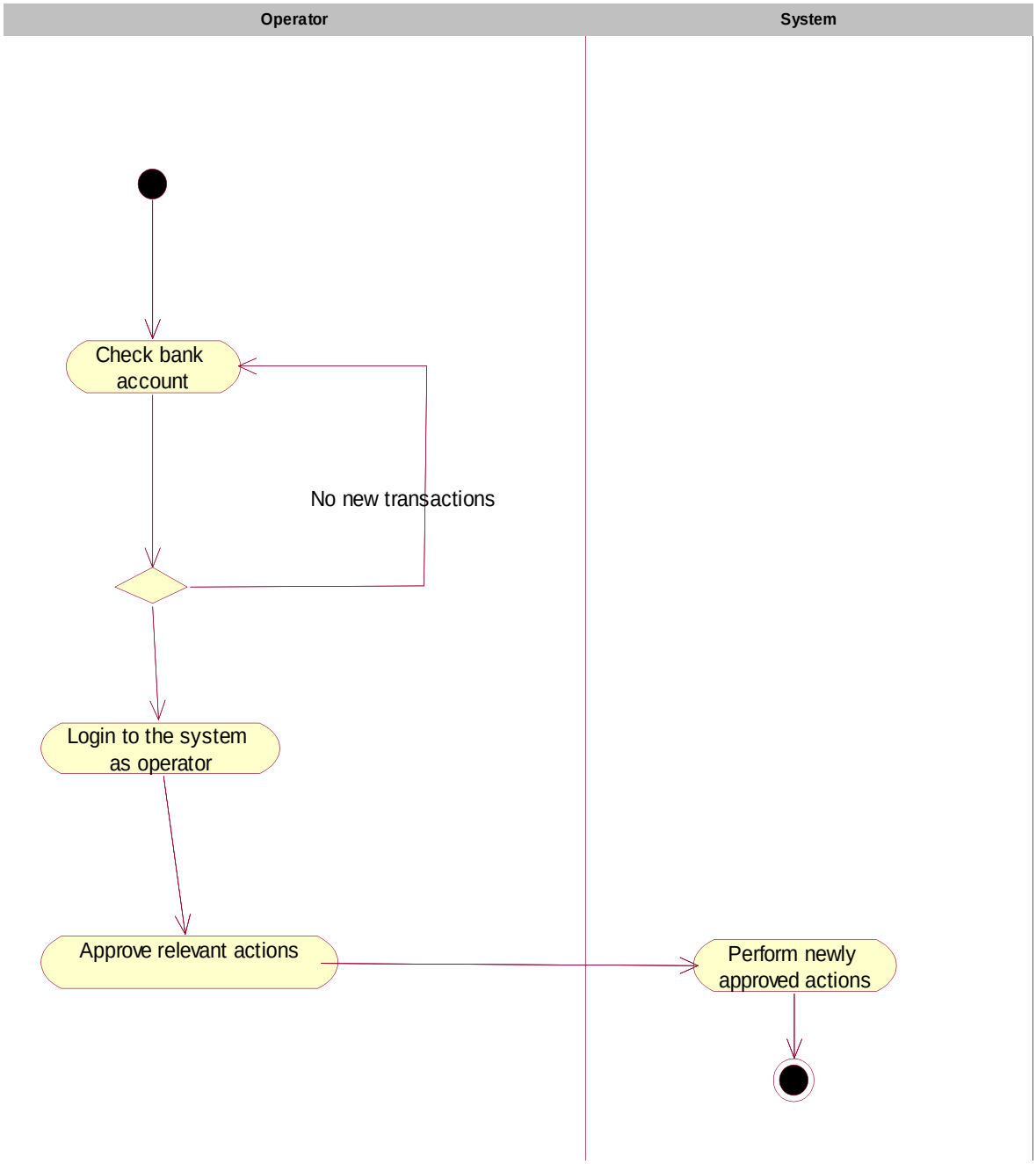
Employer Notification Component Activity Diagram



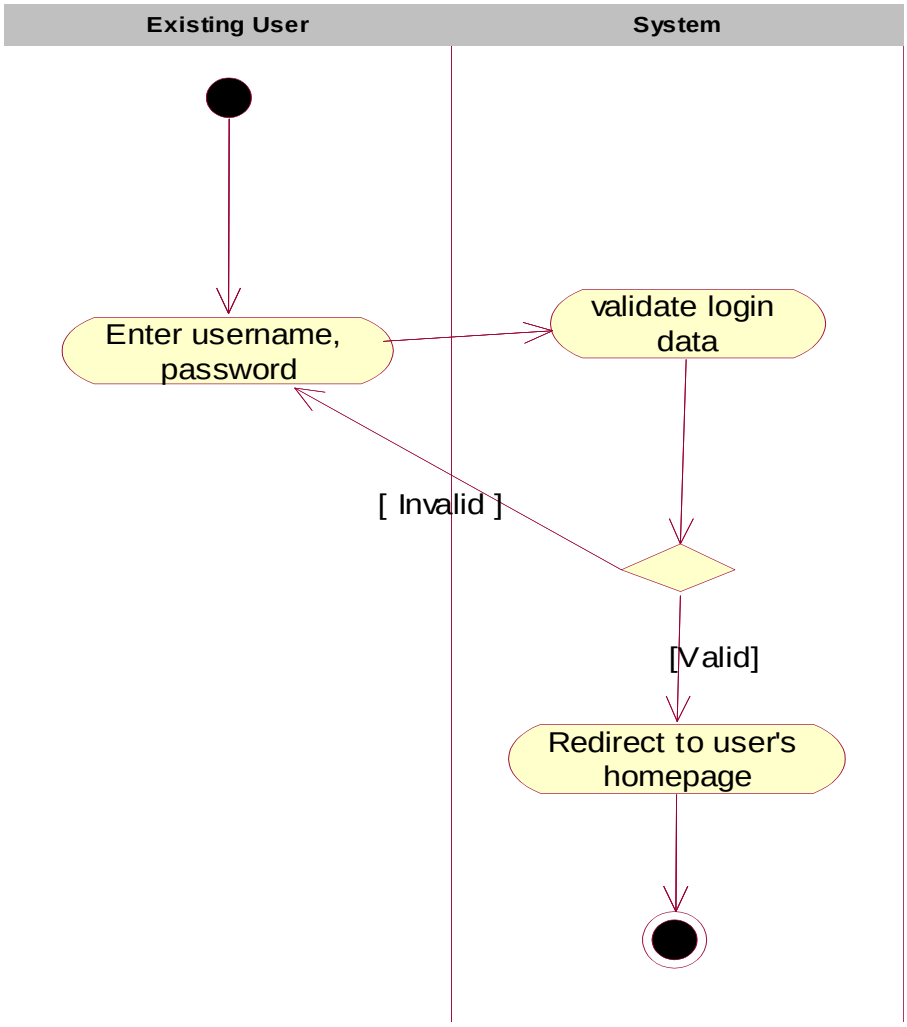
Job Seeking Component Activity Diagram



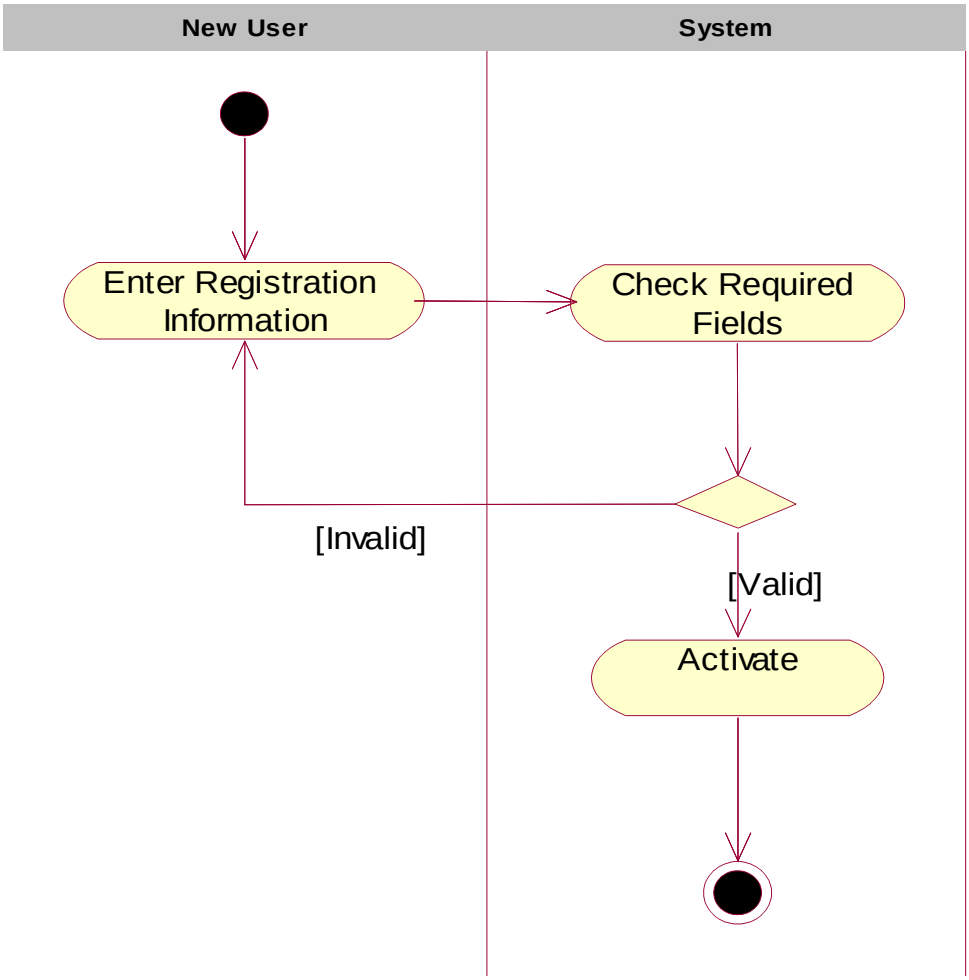
CV Submission Component Activity Diagram



Money Transaction Management Component Activity Diagram



User Login Component Activity Diagram



User Registration Component Activity Diagram

6 RISK MANAGEMENT PLAN

6.1 Definition of Project Risks

In our Project, we may face with some problems which can cause the latency, lack of some part of project and failure. Therefore we have to make a risk plan in order to prevent or decrease the risks and know what to do when we face with a problem. Below are our potential risks in project:

Technology Risks:

- Wrong selected development tools: We had a plan about the tools we will use in our project but in time we may notice that a tool can not fit our project how we expected. This may cause to change our design.
- Using unfamiliar tools: Trying to get familiar with unfamiliar tools will lead to latency.

People Risks:

- Unclear roles and responsibilities: Due to not being professionals, some members may not meet what expected from them.
- Absence of a team member: Some health problems, dense course timetable may lead absence.
- Withdraw of a team member: This is one of the biggest risks that we will have. When team member goes partition of the work must be done again and workload will increase for other group members.
- Disagreement among team members: Our project topic is flexible, so we have discussions on some issues to get best solution. While developing our design some disagreements may happen in discussion.

Organizational Risks:

- Lack of communication: The group is not much crowded and there are a lot of communication tools, but there is still a probability to have communication problems.
- Falling behind schedule: Generally, the reason of this problem is organization failure or failure of an individual causes latency in whole project development.

Project management risks:

- Inadequate project definition: We are not professional programmer and we may not understand some aspects clearly or we may miss some details while making definitions.

6.2Risk Table

Risks	Probability	Impact	Points
Wrong selected development tools	35%	4	1.40
Using unfamiliar tools	60%	2	1.20
Unclear roles and responsibilities	65%	2	1.30
Absence of a team member	70%	3	2.10
Withdraw of a team member	15%	4	0.60
Disagreement among team members	50%	3	1.50
Lack of communication	30%	3	0.90
Falling behind schedule	60%	4	2.40
Inadequate project definition	45%	4	1.80

Impact values:

1 – negligible

2 – marginal

3 – critical

4 – catastrophic

6.3Risk Mitigation, Monitoring and Management Plan

Risks	**Mitigation**	**Monitoring**	**Management**
Wrong selected development tools	Throughly research on and carefully select development tools		Replace development tools and make a new plan
Using unfamiliar tools	Try to select most familiar and most convenient tools for our project		Make detailed search about new concepts
Unclear roles and responsibilities	Make regular meetings, make job distribution table	Check job distribution table regularly	Punishment and designing new or modifying existing job distribution table
Absence of a team member	Carefully selecting team members	Take every members' advice for every meeting time	Warning and if necessary punishment
Withdraw of a team member	Carefully selecting team members	Give equal importance to every member	Try to find a new member
Disagreement among team members	Make some rules for relationships in group	Make regular meetings	Try to find most suitable solution
Lack of communication	Making sure that each of us has others' telephone number, msn etc.		Finding new ways of communication
Falling behind schedule	Desingning clear Gantt chart, putting milestones	Checking whether we are on schedule	Making a new Gantt chart, based on more dense schedule
Inadequate project definition	Clearly understand the project,make detailed research	Check for relevancy of our design	Start over or make modifications on design

7 DATA DICTIONARY

Name	Administrator
Where and how used	Manages the system, has significantly more prividges than any other users
Description	User who is responsible of management of the system

Name	Announcement form
Where and how used	Used in posting announcement, forms the announcement. Critical feature of employer module
Description	A form for announcement creation filled by employer before posting announcement

Name	CV-form
Where and how used	Used in CV sending, forms the CV. Critical feature of job-seeker module
Description	A form filled before sending CV

Name	Employer
Where and how used	Employers benefit from CV-seeking services of external as well as internal system services, post announcement to external systems, make search, and have access to employer notification system
Description	User who uses the system for posting announcements looking for CVs

Name	Employer notification system
Where and how used	It is used by employers, employers are notified of CV sendings by job-seeker users of our system through it
Description	Module which notifies employers of the CVs sent by job-seekers users of our system

Name	Events
Where and how used	Look at Job-announcement postings, CV-sendings
Description	Job-announcement postings and CV-sendings

Name	External systems
Where and how used	User in external interface design and implementation. These sites will provide interface and associated web-services to our system. In design and implementation of our system external systems' interface and web-services are to be taken as reference
Description	Job-seeking sites to which we provide a gateway

Name	Job-seeker
Where and how used	Job-seekers benefit from job-seeking services of external as well as internal system services, send CV to external systems, make search, and have access to job-seeker notification system
Description	User who uses our system for posting CV, looking for job-announcements

Name	Job-seeker notification system
Where and how used	It is used by job-seelers, job-seekers are notified of job-announcement postings by employer users of our system through it
Description	Module which notifies job-seekers of job-announcements posted by employer users of our system

Name	Notification system
Where and how used	Look Employer notification system and Job-seeker notification system
Description	Extra feature added to the design, consists of two parts, look Employer notification system and Job-seeker notification system

Name	Operator
Where and how used	Used for checking system account for money transactions, if those are made he approves the relevant pending operations
Description	User who is responsible for money transaction management

Name	Pending operations table
Where and how used	Some operations may require extra actions such as payment. These operations are suspended and information about those to be made.
Description	Table containing information about operations that are to take place after some event occurs and/or they are approved

Name	Login module
Where and how used	Logging in and authentication to the system is handled by this module.
Description	Module for logging in and authentication to the system

Name	Registration System
Where and how used	New users register to the system through this module. It may include for instance email based approval component.
Description	Module for registration of new users

Name	User management component
Where and how used	Used by the administrator for managing users, setting their status, sending messages, banning etc.
Description	Component for user management

Name	Main interface
Where and how used	Users entering our system will first see this interface, it will contain various information, such as About Us Contact Info etc. It will also contain register and login options
Description	Interface for unregistered/nonlogged users

Name	Operator interface
Where and how used	Operators will work through this interface. It will provide access to pending operations table and enable them to modify it.
Description	Interface for operators

Name	Employer interface
Where and how used	Employer services will be accessed through this interface. Posting job-announcement, searching for CVs, employer notification system services will all be available through it.
Description	Interface for employers

Name	Job-seeker interface
Where and how used	Job-seeker services will be accessed through this interface. Sending Cv, searching for job-announcements, job-seeker notification system services will all be available through it.
Description	Interface for job-seekers

Name	Web-services
Where and how used	They will constiture base of our implementation. Interaction with external systems will also be made using web-services
Description	Software system designed to support interoperable Machine to Machine interaction over a network.

Name	CV –seeking component
Where and how used	It is used by employers for seeking CV from external systems. Result is presented in properly-sorted format
Description	Component handling CV search from external systems

Name	Job-seeking module
Where and how used	It is used by job-seekers for seeking job-announcements from external systems. Result is presented in properly-sorted format
Description	Component handling job-announcement search from external systems

Name	Money transactions
Where and how used	These are managed by the operators, who monitor those. Payment-requiring operations require money transactions
Description	Money transaction to our system's bank account/s

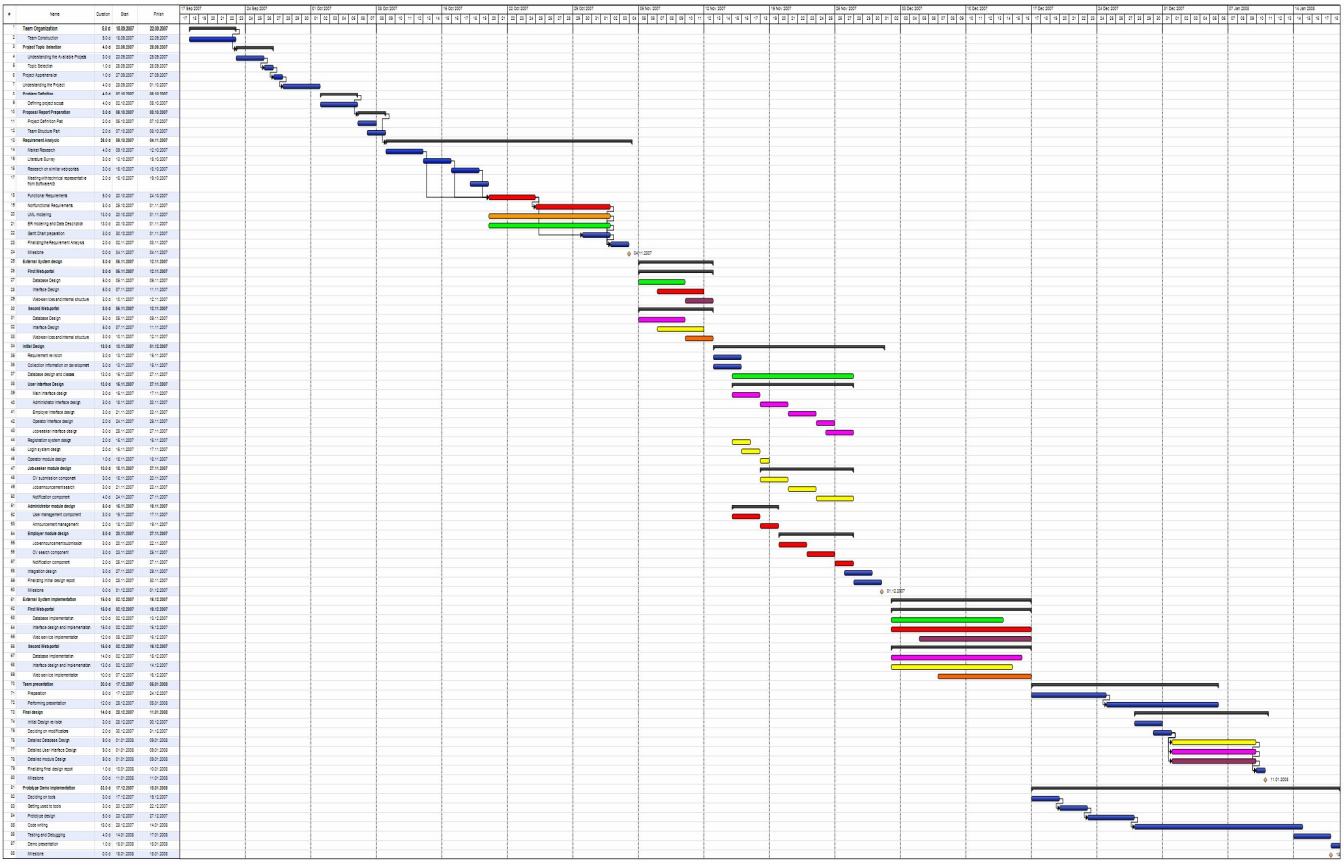
Name	Job-announcement
Where and how used	Used by employers for making job-announcement
Description	-

Name	CV
Where and how used	Used by job-seekers for keeping personal and professinal information
Description	-

Name	Database module
Where and how used	Used for storing retrieving and modifyind all data, such as user-data, CVs, announcements etc
Description	-

8. GANTT CHART

Gantt Chart : Gantt Chart : Project



Phase Deadline Link

Task Milestone

Responsibility Distribution Coloring:

Blue: All Members	**Pink: Fatma**	**Green: Emrah**	
Red: Damir	**Yellow: Derya**	**Purple: Damir& Emrah**	**Orange: Fatma & Derya**

9. CONCLUSION

Preparing analysis report has been very useful for us. It required us to make significant amount of research. The outcomes of research we made had been really useful both in sense of better understanding our project, and in sense that there we got new ideas, which we plan to include in our project.

The project we are developing will be distinct from all other systems in today's job-seeking sites' market. Nowadays there are many job-seeking sites on the web, so people get confused which to use, and the idea that it can be possible to benefit from services all those sites provide using just one system seems really brilliant. From user's point of view such system would be really very convenient. There are no working analogues of our project. In this sense we are going to be pioneers. We believe that this project will be a successful product.