A PROJECT REPORT
ON

"Enterprise Resource Information System"
(ERIS)
Submitted in partial fulfillment of the requirements
for the award of the degree of

Bachelor of Technology
in
Computer Science & Engineering
By

Srishti Sukhralia
(Roll. No. 2K10-MRCE-CSE-113)

being carried out at
Tech Mahindra Ltd.

Under the Guidance of
(Mr. Gyanendra Singh Yadav)

(Sr. Trainer Technical)

Department of Computer Science & Engineering
Manav Rachna College of Engineering, Faridabad
Affiliated to

Maharishi Dayanand University (MDU)

Rohtak (Haryana)

Month, Year (May, 2014)

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Tech Mahindra

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DT: 8th May 2014

TO WHOMSOEVER IT MAY CONCERN

This is to certify that Ms **SRISHTI SUKHRALIA**, pursuing her B. Tech, 8th semester at Manav Rachna College of Engineering, Faridabad is pursuing her internship from **27-Jan-14** to **16-Jun-14** with Tech Mahindra Ltd. She is working on a software development project – Enterprise Resource Information System(ERIS).

Srishthi has been a sincere, hardworking & punctual intern and is a quick learner. She has been working very well during her tenure with the team.

We wish her all the best for her future endeavours.

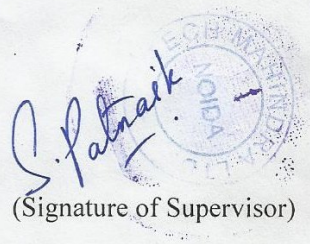
Thanks and Regards,

TECH MAHINDRA LTD. NOIDA

Authorized Signatory

CERTIFICATE

This is to certify that the Project report entitled **Enterprise Resource Information System** as submitted by Ms Srishti Sukhralia(2K10-MRCE-CSE-113) in partial fulfillment of the requirements of B.TECH (CSE) degree of MDU, embodies bonafide work done by her under my supervision.



(Signature of Supervisor)

Place: NOIDA
Date: 9-May-2014

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ACKNOWLEDGEMENT

We are particularly indebted to the **MANAV RACHNA COLLEGE OF ENGINEERING, FARIDABAD, MDU** which inculcated in me at most respect for human values and groomed me up in the field of Software Technology to take on the challenges of competitive corporate world.

With profound gratitude, I want to thank **Tech Mahindra Ltd.** for giving me the permission to commence this project. I am highly indebted to my **Project Guide, Mr. Gyanendra Singh Yadav** for approving, assisting and guiding me throughout this project.

I would like to extend my sincere thanks to **Mr. Sushant Patnaik, Assistant Manager- Training, Tech Mahindra Ltd.** for his valuable assistance without which the project would not have been a success.
My thanks and appreciations also go to my colleague in developing the project and people who have willingly helped me out with their abilities.

(Signature of Student)

Srishti Sukhralia

ABSTRACT

ENTERPRISE RESOURCE INFORMATION SYSTEM (ERIS) is a computerized solution for recruiting agencies and software consultants. This application maintains electronic database comprising of job applicants, Recruiters and administrator. User of this system can create and access details of all the information using advanced GUI screens.

This is an application, which is used by a consultant to maintain his clients and employees status and schedule interviews for applicants and display results.

In this system, the major role is played by the administrator, applicant, and recruiter.

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Chapter 1 Introduction

1.1 Objective(s) of the Proposed System

About ERIS is a web application built in JSP. It provides the applicants, ability to register to this application and search for jobs, manage their accounts. Each applicant will have an account with their own home page. On the other hand, Recruiters those are willing to publish the jobs for their company to applicants, can register to the ERIS and get their own account created and can post jobs to portal's database. Registered Employers can add or remove jobs and these jobs can be seen by various applicants and they can apply for the job. Main aim of this web application is to make an user friendly platform where, applicant can search jobs easily and is accessible to everyone who are interested. The Purpose of the application is to provide Job portal for Job Seekers, to submit their CV and apply for job, where Recruiter can select best Employees from available candidate profile.

1.2 Scope of the Proposed System

The scopes which are taken in our project are:

- Registration ,Login and Logout.
- Adding, viewing, updating applicant profile.
- Searching and applying for job.
- Viewing applicant interview list and result.
- Adding new vacancy, interview results by recruiter.
- Viewing all interview list and vacancy list by recruiter.
- Viewing job applied to portal and vacancy.
- Adding interview by administrator
- Send mail, Viewing interview result and Client details by administrator.

1.3 Present System Description

The present system requires applicants to search through print and visual media for job opportunities. Applicants need to apply for jobs using conventional methods and appear for interview on a specified date at a specified location. . In the current manual system jobseekers had to send resumes and cover letters by mail, deliver them in person or fax them, and then wait for an interview request. Employers need to advertise the vacancies and sort all applicant details, conduct selection procedures and complete the formalities. The job application process took quite some time. This approach is tedious and requires much effort and resources. This process was equally frustrating for recruiters, as it often took some time to fill positions with qualified candidates. ERIS speeds up and makes the process much more efficient.

-Non availability of data when required.
-Resume sent manually, it is a waste of papers and consumes a lot of time.
-No database/system to keep track of resume of candidate
-Difficulty to search for required job vacancy.
- It takes a long time for job seeker.
-Inviting applications through post takes a lot of time.

1.4 Problem definition of the Proposed System

Software consultants and recruiting agencies conduct a test to the candidates applying for the job. They, then select the candidates who passed the test and make arrangements after their interviews; fix the date and other formalities. This is then informed to the candidates. Interview is conducted and the candidates passing the interview are recruited as employees in their own firm.

The organization maintains data about the recruited employees; their personal details, skills, experience etc., it also maintains information about the firms outsourcing the recruitment. It maintains all the details about the vacancies in firms and their requirements.

The organization then matches the requirements of the firms with that of the skills of its employees and assigns them to the concerned firms. It still maintains the details of the assigned employees; because these are the hired employees directly under the control of the organization, and it is the organization who pays salaries to them.
The organization does all these manually. It writes down the data about the applicants, employees and clients in the records. All this is a very tedious job requiring everything to be done manually.

Enterprise Resource Information System addresses all these by automating many of the tasks of the organization. It relieves the employees by letting them do all the tedious jobs electronically.
The proposed system is a web based application which allows applicants and employers to register their details. Applicants can browse through the vacancy details that are posted and can apply for the jobs online. Employers can browse through the posted resumes and select suitable candidates.

1.5 Hardware and Software Requirements

Software Requirement Specification:

A set of programs associated with the operation of a computer is called software. Software is the part of the computer system, which enables the user to interact with several physical hardware devices.
The minimum software requirement specifications for developing this project are as follows:

Operating System	:	Window XP,7,8
Front End	:	Netbeans 7.4.1
Client Side Scripting	:	Java Script
Web based Technologies	:	Java Server Pages, HTML ,CSS
Programming Language	:	Java
Database	:	My SQL
Server	:	GlassFish Server
Browser	:	Google Chrome(Testing)/Mozilla
Documentation Tool	:	Ms Office

Hardware Requirement Specification:

The collection of internal electronic circuits and external physical devices used in building a computer is called the Hardware. The minimum hardware requirement specifications for developing this project are as follows:

Processor	: Standard processor with a speed of 1.6 GHz or more
RAM	: 256 MB RAM or more
Hard Disk	: 20 GB or more
Monitor	: Standard color monitor

Chapter 2 Requirements Elicitation and Analysis

In requirements engineering, requirements elicitation is the practice of collecting the requirements of a system from users, customers and other stakeholders. The practice is also sometimes referred to as requirements gathering.
The term elicitation is used in books and research to raise the fact that good requirements cannot just be collected from the customer, as would be indicated by the name requirements gathering. Requirements elicitation is non-trivial because you can never be sure you get all requirements from the user and customer by just asking them what the system should do. Requirements elicitation practices include interviews, questionnaires, user observation, workshops, brainstorming, use cases, role playing and prototyping.
Before requirements can be analyzed, modeled, or specified they must be gathered through an elicitation process. Requirements elicitation is a part of the requirements engineering process, usually followed by analysis and specification of the requirements.
Commonly used elicitation processes are the stakeholder meetings or interviews. For example, an important first meeting could be between software engineers and customers where they discuss their perspective of the requirements.

2.1 Feasibility Study

A feasibility study is carried out to select the best system that meets performance requirements. Feasibility is the determination of whether or not a project is worth doing. The process followed in making this determination is called a feasibility study. This type of study determines if a project can and should be taken. Since the feasibility study may lead to the commitment of large resources, it becomes necessary that it should be conducted competently and that no fundamental errors of judgment are made. Depending on the results of the initial investigation, the survey is expanded to a more detailed feasibility study. Feasibility study is a test of system proposal according to its workability, impact on the organization, ability to meet user needs, and effective use of resources.
The objective of the feasibility study is not to solve the problem but to acquire a sense of its scope . During the study, the problem definition is crystallized and aspects of the problem to be included in the system are determined. Consequently, costs & benefits are described with greater accuracy at this stage.
It consists of the following:

1. Statement of the problem: A carefully worded statement of the problem that led to analysis.

2. Summary of finding and recommendations: A list of the major findings and recommendations of the study. It is ideal for the user who requires quick access to the results of the analysis of the system under study. Conclusions are stated, followed by a list of the recommendation and a justification for them.

3. Details of findings : An outline of the methods and procedures under-taken by the existing system, followed by coverage of the objectives and procedures of the candidate system. Included are also discussions of output reports, file structures, and costs and benefits of the candidate system.

4. Recommendations and conclusions: Specific recommendations regarding the candidate system, including personnel assignments, costs, project schedules, and target dates.

Three key considerations involved in the feasibility analysis are:

- Economic Feasibility
- Technical Feasibility
- Behavioral Feasibility

2.1.1 Economic Feasibility

Economic analysis is the most frequently used method for evaluating the effectiveness of a system. More commonly known as cost/benefit analysis, the procedure is to determine the benefits and savings that are expected from a system and compare them with cost.
Earlier in Comp Craft the work has been done manually which takes lot of time as well as man power which is more economical. Now the same work is computerized which is more effective and efficient, less time consuming, reduces man power which in turn proves to be less economical.

2.1.2 Technical Feasibility

Technical Feasibility centers on the existing computer system (hardware/ software) and also it can support the modification. In manual processing there are more chance of errors are there, creating lot of complications, less technical or logical. Through proposed system we can set this process in a very systematic pattern, which is more technical, full proof, authentic, safe and reliable.

2.1.3 Behavioral Feasibility

Our proposed system works to minimize the human errors, take less time, easy interaction with user, bug free. This project/software is further expanded by connecting various interrelated departments and by installing an extension part of this software.

- System level goals and requirements.
- Cost estimation for development process and work product.
- Solution strategy development.
- Outlines of the several solutions strategies.
- Recommendation of solutions strategy.
- Feasibility and study of each strategy.
- List of priorities for management.

System Level Goals

- Data security.
- The application should be error free.
- Data integrity should be maintained.
- Certain data control methods should be tracked.
- Easy understanding of the working of the Institution.

Cost estimation for development process and work

Cost driver factors of the project depends upon the product attributes, computer and the project. The effort adjustment factor is calculated depending upon these attributes.

- Solution strategy development.
- Outline of several solution strategy.
- Feasibility and studies of each strategy.
- Recommendation of a solution strategy.
- List of priorities for product characteristics.

2.2 Software Requirements Specification

2.2.1. Introduction

A **Software requirements specification** (SRS), a requirements specification for a software system, is a description of the behavior of a system to be developed and may include a set of use cases that describe interactions the users will have with the software. In addition it also contains non-functional requirements. Non-functional requirements impose constraints on the design or implementation (such as performance engineering requirements, quality standards, or design constraints) .
Software requirements specification establishes the basis for agreement between customers and contractors or suppliers (in market-driven projects, these roles may be played by the marketing and development divisions) on what the software product is to do as well as what it is not expected to do. Software requirements specification permits a rigorous assessment of requirements before design can begin and reduces later redesign. It should also provide a realistic basis for estimating product costs, risks, and schedules.
The software requirements specification document enlists enough and necessary requirements that are required for the project development .To derive the requirements we need to have clear and thorough understanding of the products to be developed or being developed. This is achieved and refined with detailed and continuous communications with the project team and customer till the completion of the software.

2.2.1.1 Purpose

The purpose of this document is to describe the functionality of the Enterprise Resource Information System (ERIS) for the 2013-2014 Manav Rachna College of Engineering Final Year Project.

Enterprise Resource Information System is a web based application which can be used by applicants, recruiters. For applicant, they can search and apply for jobs and can view their interview list and result. For recruiters, they can add new vacancies and schedule interviews. Administrator can provide information of vacancies to applicants and give the interview list to the recruiter and send mail to both recruiter and applicant.

2.2.1.2 Scope

The Scope for the system can be as follows:-

- Applicant and recruiter can register and login for this application and administrator can login.
- Applicant can add, update, view profile.
- He can search and apply for job .and can also view his/her interview list and result.
- Recruiter can add jobs , add interview results and view interview result and vacancies.
- Administrator has the facility of viewing job applied list, add interview, view vacancy list ,interview result and view client and applicant detail and send mail

The application comprises of major 3 modules-
1. Applicant
2. Recruiter
3. Administrator

Applicant- The applicant can add, view, update his/her profile and search and apply for jobs and view his/her interview list and result.

Recruiter- The recruiter can add vacancy and interview results, view vacancy and interview list.

Administrator- The administrator can view job applied, add interview , view vacancy, interview result, client details and mail to applicant and recruiter.

2.2.1.3 Definitions, Acronyms and Abbreviations

Definitions

1. Administrator : The authorized person who controls all the network
2. Recruiter : Who creates vacancies
3. Applicants : The person who applies for job

Acronyms/Abbreviations

JS-JavaScript
HTML:- HyperText Markup Language
JSP:-Java Server Pages
CSS:-Cascaded style sheets
SQL:-Structured Query Language
ERIS:-Enterprise Resource Information System
JDBC:-Java Database Connectivity

2.2.1.4 References

There are various consultant systems such as naukri.com, Timesjob.com etc. that can be referred to get the idea for user interface and functionality of the project.

2.2.1.5 Technologies to be used

The system should be developed using a web technology and should be developed as such that deployment of the system is east and effortless. Also, the technology used should be as such that interactions for the customers are very easy and user friendly.
I had plenty of options to select the technology and tools. The selection criteria I had set are as detailed below:

1. The technology should be widely accepted in the industry. This makes the maintenance and upgrading the system very easy and less costly.
2. The platform should be easy to develop and allow rapid development.
3. The technology selected should be platform independent.
4. The language should be easy and robust; making is simpler to learn for the newer members.
5. The application must be browser independent.

With all these details in mind, I selected JSP (Java Server Pages) as it stands out on all the points mentioned above.

JDBC
There are many classifications of databases available as Hierarchal databases, Network databases Relational databases, object databases and so on. Due their flexibility Relational database management systems are most successful bread of databases in the history of computing. Example: ORACLE, IBMdb2, MICROSOFT SQL SERVER.
A technology that enables JSP based engines is called Java Database connectivity and is an integral part of Java platform. JDBC/JSP based web application especially accesses the database through a finite number of database connections. These connections must be managed carefully by the application especially if a large number of concurrent users may be accessing them. To make this performance optimization JDBC uses a mechanism called connection pooling. The evaluation of this open database access technology has led to a of driver architecture

TYPE1 DRIVERS

JDBC ODBC BRIDGE DRIVERS - The J2SE & J2EE JDK's include this Type1 Driver as a part of their distribution. By definition they are not 100% Java drivers.

TYPE 2 DRIVERS

These are Veneers over the existing native code drivers from the database Vendors. They are quick & easy to implement. TYPE2 Drivers that uses the Vendors Own optimized data access protocol in the shortest amount of time without having to deal with any restrictions that may be imposed by ODBC bridging. By definition these are also not 100% pure Java.

TYPE 3 DRIVERS

These are really non drivers. They are front-end for database access servers & connectors. For example the proxy driver talks to the middle tier concentrator or access server. The concentrator or access servers in turn use ODBC or Vendor specific protocol to talk to the actual database. The requirement for collaborating middle tier server is often cumbersome and very expensive too.

TYPE 4 DRIVERS

These are true100% pure Java real JDBC drivers. All the mechanism of the client access is coded completely in Java. There are no calls out off or into the virtual machine and native code and there is no need for some costly server in the middle. Type 4 drivers are different for different RDBMS and are available for almost all major RDBMS vendors.

Interaction of JSP with JDBC

Here the browser using the web application is not required to support Java at all. The JSP has full control over how many JDBC connections are made to the server. This client never makes direct JDBC connection to the server. This solution can work readily through a firewall, only standard Http is used between the web server and the client. As a bonus this solution lends itself to easily secured information. Simply by adding secured socket layer support to the web server. Because of this separation of the presentation from the business logic which is separated from the database. Logic, this sort of system is often called three tiers of the system, although the application server and database server can also run on the same server machine.

There is still one minor problem with this scenario. Project personal accessing the JSP page containing the embedded JDBC code can easily and inadvertently modify the database access code and this may result in an erroneous application or even corrupted database. There are 2 solutions for this.

1. Create Java beans or Java classes that encapsulate all the JDBC operations. This is significantly better solution. But instantiation, initialization and parameterization of the Java class or the beans can still represent a significant amount of embedded Java code within the JSP.
2. Create a tag extension set to 'pushdown' all the database access logic. The data access logic programmers write the set of custom tags. The JSP application logic designers will then use the set of custom tags to create their application.

Web Design Constraints

The following design constraints were kept in mind while designing the pages for the whole application.

1. The pages should be consistent and easy to operate.
2. It should be designed in such a way that an average user who does not have much idea about Java and related technology can still be able to access the information needed.
3. The Navigation should be easy and stepwise.
4. A user has only a single user id and password.
5. The administrator should have access to all the pages of the application while the other users have only limited rights to view pages.

2.2.2. Description

The system starts with the home page prompting the user to establish his authentication. The user can be applicant, recruiter , administrator .It provide registration, sign in facility to all users.
The user can edit his profile details and change password using forget password option.

2.2.2.1 Product Description

This project is handled with the help of client and server architectural concept. In this portal, we will deal with the consultancy services. It uses Internet services, which is one of the most important parts of Information Technology. This portal is extensively used to perform the job seeker services such as search , apply for jobs , etc .This portal is extensively used to perform recruiter services such as add jobs and conduct interviews etc. .

2.2.2.2 Product Functions

FUNCTIONAL DESCRIPTION
Home page: It comprises of tabs such as Home page, about us, login, services, contact us.

Login tab: After clicking on this tab, login page will be displayed which consists of registration and sign in facility and based on login details the user can be subdivided into three :

Administrator: This module provides functions for the Administrator. It has following sub-modules:

1. Job applied-This is used to view the applicants who have applied to this consultancy and view their resumes.
2. Vacancy list-This is used to view the list of vacancies by different recruiters.
3. Add interview- This is used to add interview for applicants who have applied for the job.
4. Send mail-This is used to send notifications via mail to recruiter or applicant.
5. Interview result- This is used to view the interview result list of applicants.
6. Client Details-This is used to view the recruiters details.
7. Applicant-This is used to view the applicant details.
8. Logout This is used to log out from the account.

Recruiter:- This module provides functions for the Recruiter. It has following sub-modules:

1. Add vacancy-This is used to add new vacancies for applicants.
2. Add Result-This is used to add the result of the interview.
3. Interview list-This is to view the interview list.
4. Vacancy list-This is used to view the vacancy list.
5. Logout- This is used to log out from the account.

Applicant:- This module provides functions for the Applicant. It has following sub-modules

1. Add profile-This is used to enter the applicant details.

2. Update profile-This is used to update the details entered by applicant.
3. View profile-This is used to view profile in resume format.
4. Jobs-This is used to search and apply for jobs.
5. Interview –This is used to view applicants interview list.
6. Results-This is used to view results of applicant interview.
7. Logout -This is used to log out from the account.

NON FUNCTIONAL DESCRIPTION

Security:

Only the Correct email id and password makes a user to login as well as a new user should not be allowed to choose email id that already exists.

Database:

Integrity should be maintained and all the constraints should be satisfied.

Portability:

The web client system should work in both the windows and the Linux platform.

Session Management:

The user has to login again to perform action once the session has expired.

2.2.2.3 User Characteristics

The "ERIS" project meant for consultancy activities to provide environment to participate in the placement activities of different organizations. This project has to provide such facilities that it has more user interface and make it cover all the requirements of people who want to register for job and who want man power in their organization.

2.2.2.4 Constraints

- All email ids must be unique.
- Validation and verification of user detail at the time of login.
- Session Handling
- During registration, all fields should be filled.
- The Interface is provided only in English. So, the user should know English.
- There is no facility for guest user.
- Registered users only have the rights to access the facilities provided by the system.
- The user can access ERIS from any computer that has internet connection and internet browsing capabilities.

2.2.2.5 Assumptions and Dependencies

The application is developed by the developers by assuming the:

- The user have intermittent knowledge of computers and it interface.
- The computer has internet connection and internet browsing capabilities.
- The user knows English as GUI has been provided in English.
- Jobseeker should be from any fields. (We are using incremental model, So first we are making it only for jobseekers from IT fields.)

2.2.2.6 Limitations of the Project

- Resume files cannot be uploaded.
- Administrator has no rights to make his sub-admin users.
- We cannot print any reports.
- There is no option for data backup.
- There is no option to search job by keyword.

2.2.2.7 Future Work

- Resume files can be uploaded.
- Administrator has rights to make his sub-admin users.
- We can print any reports.
- There can be option for data backup.
- There can be option to search job by keyword.

2.2.3 Specific Requirements

This section of the SRS should contain all the details the software developer needs to create a design. This is typically the largest and most important part of the SRS.

(1) The details within it should be defined as individual specific requirements, following the guidelines for sound requirements (verifiable, unambiguous, etc.)
(2) Specific requirements should be organized in a logical and readable fashion.
(3) Each requirement should be stated such that its achievement can be objectively verified by a prescribed method.
(4) Sources of a requirement should be identified where that is useful in understanding the requirement.
(5) One way to classify the specific requirements is as follows:
(a) Functional Requirements
(b) Performance Requirements
(c) Design Constraints
(d) Attributes
(e) External Interface Requirements

The organization of this section of the SRS should be chosen with the goal of properly specifying the requirements in the most readable manner.

2.2.3.1 External Interface Requirements

External interface requirements specify hardware, software, or database elements with which a system or component must interface...." This section provides information to ensure that the system will communicate properly with external components. If different portions of the product have different external interfaces, incorporate an instance of this section within the detailed requirements for each such portion. The interface documentation could incorporate material from other documents by reference. For instance, it could point to a separate application programming interface (API) specification or to a hardware device manual that lists the error codes that the device could send to the software.

2.2.3.1.1 User Interfaces

Describe the logical characteristics of each user interface that the system needs. Some possible items to include are

•The design or layout of every form will be very clear and very interactive to the user.
•When the user open the software the homepage window will appear.
•In the login window the user can easily entered the desired password and email address.
•Then it will successfully login.
•From each and every window the user can easily go to any desired window that is there is will be a absolute and relative linking.
•There will be a proper collection of GUI interface, which will provide better look and feel.
•In the screen layout the background color is very light and the graphics and font style will be in proper manner and well organized.
•If the user will print any error statement then it will give the proper error message display.
•In each and every window there will be alert, confirm etc. message box for displaying message.
•In the opening of the software there will be a menu window where the overall table contents of the software will be present through which the user can move to any desired window &Mac.
•This will provide the better security data because the menu window will be displaying according to the login (admin or recruiter or applicant).

•User can easily save its data in to the database and keep track of the records of applicant profiles, recruiters and interviews etc.
•This software will be easily understandable and operable by the user.

2.2.3.1.2 Hardware Interfaces

Describe the characteristics of each interface between the software and hardware components of the system. This description might include the supported device types, the data and control interactions between the software and the hardware, and the communication protocols to be used.
In our project the Hardware Interfaces of the system are handled by the Windows 7 Operating System.

2.2.3.1.3 Software Interfaces

Describe the connections between this product and other software components (identified by name and version), including databases, operating systems, tools, libraries, and integrated commercial components. State the purpose of the messages, data, and control items exchanged between the software components. Describe the services needed by external software components and the nature of the intercomponent communications. Identify data that will be shared across software components. If the data-sharing mechanism must be implemented in a specific way, such as a global data area, specify this as a constraint.
In our project the Software interface is:-

- **Operating System**
    - The software is being designed to run on Windows 7.
- **Web Server**
    - The software is being designed to run on GlassfishServer.
- **Database**
    - The software will access the MYSQL database for the following features.
        - View the summary
        - Inserting the excel file containing email address and phone number.
        - Insert customer information
        - Updating the information of customer
        - Manually updating the records

2.2.3.1.4 Communications Interfaces

State the requirements for any communication functions the product will use, including e-mail, Web browser, network communications protocols, and electronic forms. Define any pertinent message formatting. Specify communication security or encryption issues, data transfer rates, and synchronization mechanisms.

2.2.3.2 Performance Requirements

Other Nonfunctional Requirements
•This software is not breakdown suddenly in any disaster like power failure.
•The development of the software will be based on the object oriented model.
•The timeline of this software must be in our mind.
•The performance of the functions and every module must be well.
•At every step the output of the one phase is the input of the other phase and it will be reliable and accurate.
•The risk factor must be taken at initial step for better performance of the software.
•For individual function the performance will be well.
•For login to the software password and email address will be matched to the password and email address saved in the database and thus only authenticated users are allowed to the login.
•There will be various ways of retrieving data and it takes less time.
•There will be ambiguity in the data and the record.
•The overall performance of the software will reliable and enable the users to work efficiently.

Security Requirements
•There will be proper security regarding to the accessing of data.
•The external security can be provided by given the login authentication.
•The data that are stored in the database must be private.
•There is also required a user authentication.
•There is also the facility that the admin can lock his private data that will not be accessed by anyone.
•The whole software is secure from the outside accessing.

Software Quality Attributes
Our software has many quality attribute that are given below-

Adaptability
This software is adaptable by any organization.
Availability-
The availability of the software is easy and for everyone.
Correctness-
The results of the function are pure and accurate.
Flexibility-
The operation may be flexible and reports can be presented in many ways.
Maintainability-
After the deployment of the project if any error occurs then it can be easily maintain by the software developer.
Portability-
The software can be deployed at any machine.
Reliability-
The performance of the software is better which will increase the reliability of the software.
Reusability-
The data and record that are saved in the database can be reused if needed.
Robustness-
If there is any error in any window or module then it does not affect the remaining part of the software.
Testability-

The software will be tested at every.
Alpha Testing
Beta Testing
Acceptance Testing

Usability-

To perform any operations and to understand the functioning of software is very easy.

Productivity-

This software will produce every desired result with accurately.

Timelines-

The time limit is very important. It will save much time and provide fast accessing.

Cost effective-

This software is less in cost and bearable by any organization.

2.2.3.3 Design Constraints

Software Language Used

The languages that shall be used for coding the ERIS are Java Server Pages(JSP), HTML, JavaScript, and CSS. For working on the coding phase of the ERIS, the Glassfish Server needs to be installed.

Development Tools

System will make use of the available Netbeans7.4. It will make use of the online references available for developing programs in JSP, HTML and JavaScript.

Class Libraries

It will make use of the existing Java libraries available for Netbeans7.4. Also we need to develop some new libraries for the web-based application. It also will develop new programs using JSP and scripting languages.

Chapter 3 Project Estimation and Implementation Plan

3.1 Cost and Benefit Analysis

Cost-benefit analysis (CBA), sometimes called benefit–cost analysis (BCA), is a systematic approach to estimating the strengths and weaknesses of alternatives that satisfy transactions, activities or functional requirements for a business. It is a technique that is used to determine options that provide the best approach for the adoption and practice in terms of benefits in labour, time and cost savings etc. (David, Ngulube and Dube, 2013). The CBA is also defined as a systematic process for calculating and comparing benefits and costs of a project, decision or government policy (hereafter, "project").

Broadly, CBA has two purposes:
1. To determine if it is a sound investment/decision (justification/feasibility),
2. To provide a basis for comparing projects. It involves comparing the total expected cost of each option against the total expected benefits, to see whether the benefits outweigh the costs, and by how much.

CBA is related to, but distinct from cost-effectiveness analysis. In CBA, benefits and costs are expressed in monetary terms, and are adjusted for the time value of money, so that all flows of benefits and flows of project costs over time (which tend to occur at different points in time) are expressed on a common basis in terms of their "net present value."

Closely related, but slightly different, formal techniques include cost-effectiveness analysis, cost–utility analysis, economic impact analysis, fiscal impact analysis, and Social return on investment (SROI) analysis.

Cost–benefit analysis is often used by governments and other organizations, such as private sector businesses, to appraise the desirability of a given policy. It is an analysis of the expected balance of benefits and costs, including an account of foregone alternatives and the *status quo*. CBA helps predict whether the benefits of a policy outweigh its costs, and by how much relative to other alternatives (i.e. one can rank alternate policies in terms of the cost–benefit ratio). Generally, accurate cost–benefit analysis identifies choices that increase welfare from autilitarian perspective. Assuming an accurate CBA, changing the status quo by implementing the alternative with the lowest cost–benefit ratio can improve Pareto efficiency. An analyst using CBA should recognize that perfect appraisal of all present and future costs and benefits is difficult, and while CBA can offer a well-educated estimate of the best alternative, perfection in terms of economic efficiency and social welfare are not guaranteed.

Process:
The following is a list of steps that comprise a generic cost–benefit analysis.

- List alternative projects/programs.
- List stakeholders.
- Select measurement(s) and measure all cost/benefit elements.
- Predict outcome of cost and benefits over relevant time period.
- Convert all costs and benefits into a common currency.

- Apply discount rate.
- Calculate net present value of project options.
- Perform sensitivity analysis.
- Adopt recommended choice.

There are as such no cost related to this project.
Only efforts and time are needed at present.

3.2 Schedule Estimate

In project management, a schedule is a listing of a project's milestones, activities, and deliverables, usually with intended start and finish dates. Those items are often estimated in terms of resource allocation, budget and duration, linked by dependencies and scheduled events. A schedule is commonly used in project planning and project portfolio management parts of project management. Elements on a schedule may be closely related to the work breakdown structure (WBS)terminal elements, the Statement of work, or a Contract Data Requirements List.

In many industries, such as engineering and construction, the development and maintenance of the project schedule is the responsibility of a full-time scheduler or team of schedulers, depending on the size of the project. Though the techniques of scheduling are well developed, they are inconsistently applied throughout industry. Standardization and promotion of scheduling best practices are being pursued by the Association for the Advancement of Cost Engineering (AACE), the Project Management Institute (PMI).

It should be noted that project management is not limited to industry; the average person can use it to organize their own life. Some examples are:

- Homeowner renovation project
- Keeping track of all the family activities
- Coaching a team
- Planning a vacation
- Planning a wedding

3.3 PERT Chart/ Gantt Chart

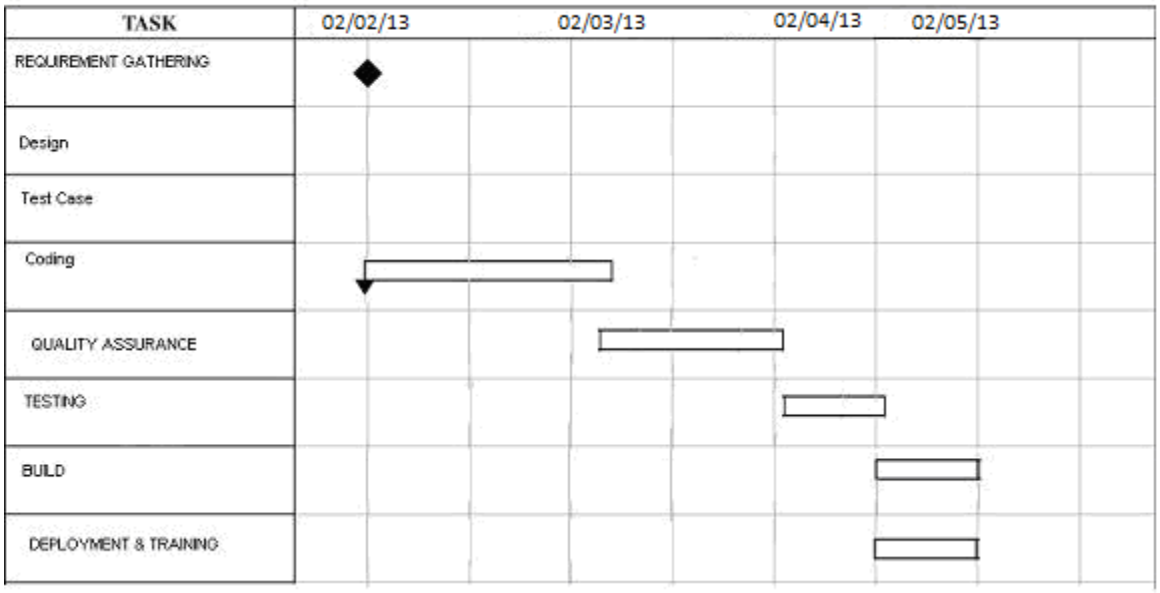
A Gantt chart is a particular style of bar chart that illustrates the scope of a project. A Gantt chart demonstrates elements of a project, such as the date work began and the amount of work performed as of the current date.A Gantt chart is a graphical representation of the duration of tasks against the progression of time.A Gantt chart is a useful tool for planning and scheduling projects.A Gantt chart is helpful when monitoring a project's progress.

TASKS	**FEB**	**MAR**	**APR**	**MAY**
REQUIREMENT GATHERING				
DESIGN				
TEST CASES				
CODING				
QUALITY ASSURANCE				
TESTING				
BUILD				
DEPLOYMENT & TRAINING				

PERT CHART

The Program (or Project) Evaluation and Review Technique, commonly abbreviated PERT, is a model for project management designed to analyze and represent the tasks involved in completing a given project.
PERT is a method to analyze the involved tasks in completing a given project, especially the time needed to complete each task, and identifying the minimum time needed to complete the total project.
A PERT chart is a tool that facilitates decision making. Pert is valuable to manage where multiple task are going simultaneously to reduce the redundancy.

Tasks in Creating a Project Schedule: Task Timeline View



Chapter 4 Design Specification

A design specification provides explicit information about the requirements for a product and how the product is to be put together. It is the most traditional kind of specification, having been used historically in public contracting for buildings, highways, and other public works, and represents the kind of thinking in which architects and engineers have been trained. Its use is called for where a structure or product has to be specially made to meet a unique need. For example, a design specification must include all necessary drawings, dimensions, environmental factors, ergonomic factors, aesthetic factors, cost, maintenance that will be needed, quality, safety, documentation and description. It also tells specific examples of how the design of the project should be executed, helping others work properly.

4.1 System Design

Systems design is the process of defining the architecture, components, modules, interfaces, and data for a system to satisfy specified requirements. Systems design could be seen as the application of systems theory to product development. There is some overlap with the disciplines of systems analysis, systems architecture and systems engineering. Design specification provides all the necessary information about a product and how the product can be made. Its use is mostly called for where a product has to be specially made to satisfy a unique need. It is most common among architects, engineers, etc.

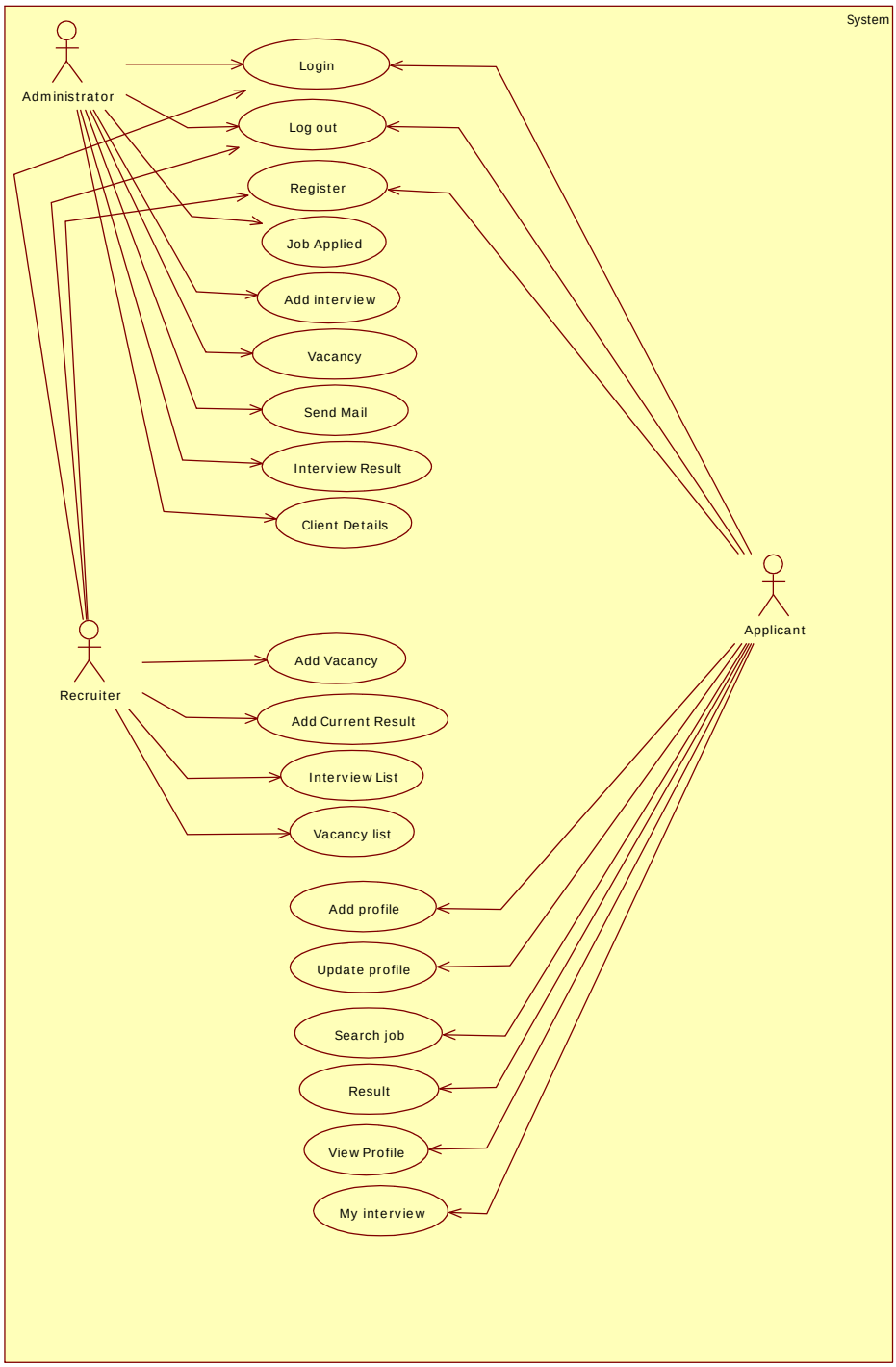
The most creative and challenging face of the system development is System Design. It provides the understanding and procedural details necessary for the logical and physical stages of development. In designing a new system, the system analyst must have a clear understanding of the objectives, which the design is aiming to fulfill. The first step is to determine how the output is to be produced and in what format. Second, input data and master files have to be designed to meet the requirements of the proposed output. The operational phases are handled through program construction and testing.

Design of the system can be defined as a process of applying various techniques and principles for the purpose of defining a device, a process or a system in sufficient detail to permit its physical realization. Thus system design is a solution to ¡§how to¡¨ approach to the creation of a new system. This important phase provides the understanding and the procedural details necessary for implementing the system recommended in the feasibility study. The design step provides a data design, architectural design, and a procedural design.

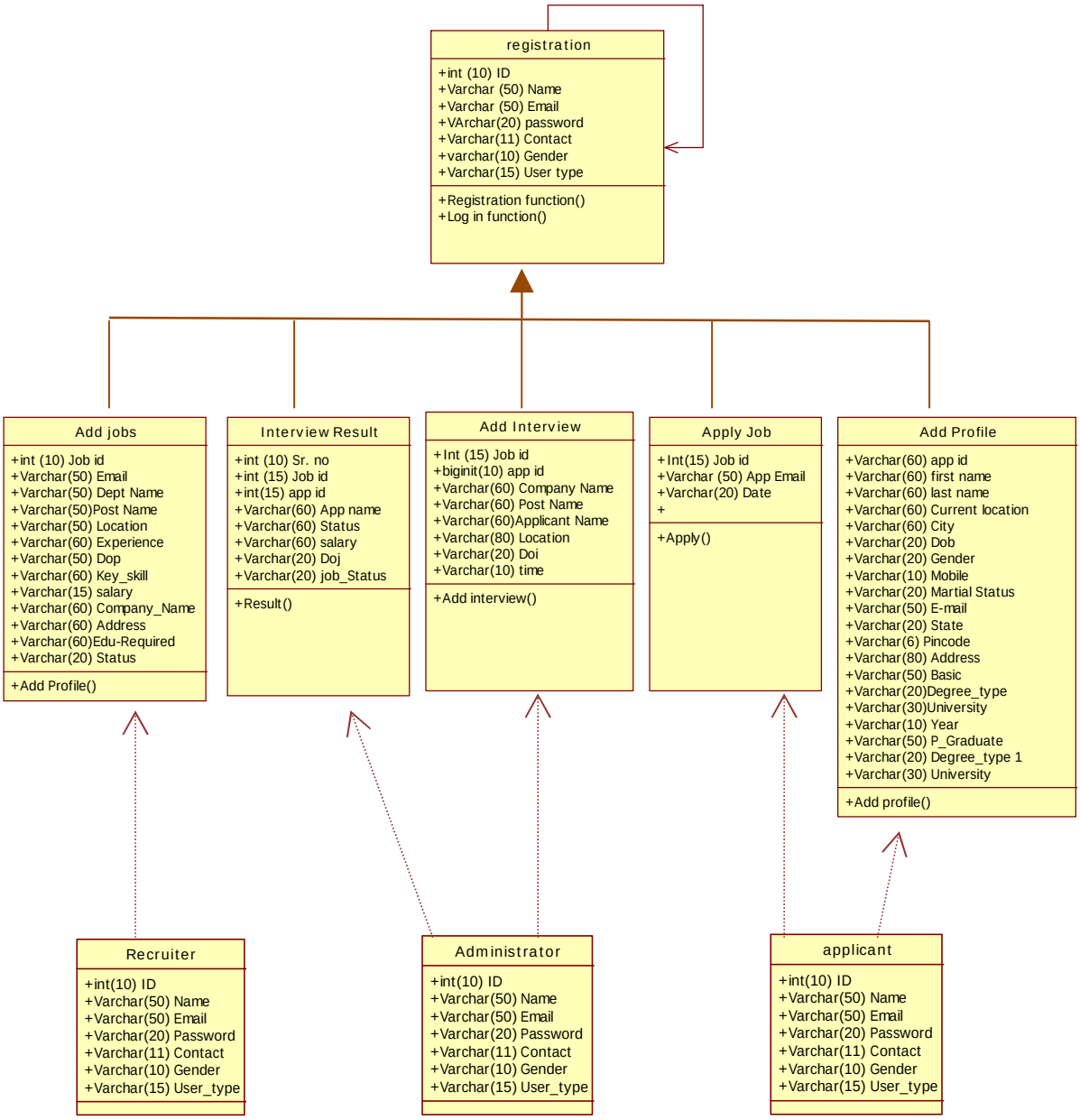
4.1.1 System Level Use Case Diagram

A use case diagram at its simplest is a representation of a user's interaction with the system and depicting the specifications of a use case. A use case diagram can portray the different types of users of a system and the various ways that they interact with the system. This type of diagram is typically used in conjunction with the textual use case and will often be accompanied by other types of diagrams as well.

Application:
While a use case itself might drill into a lot of detail about every possibility, a use-case diagram can help provide a higher-level view of the system. It has been said before that "Use case diagrams are the blueprints for your system". They provide the simplified and graphical representation of what the system must actually do.


System
Administrator
Login
Log out
Register
Job Applied
Add interview
Vacancy
Send Mail
Interview Result
Client Details
Applicant
Recruiter
Add Vacancy
Add Current Result
Interview List
Vacancy list
Add profile
Update profile
Search job
Result
View Profile
My interview

4.1.2 Class Diagram

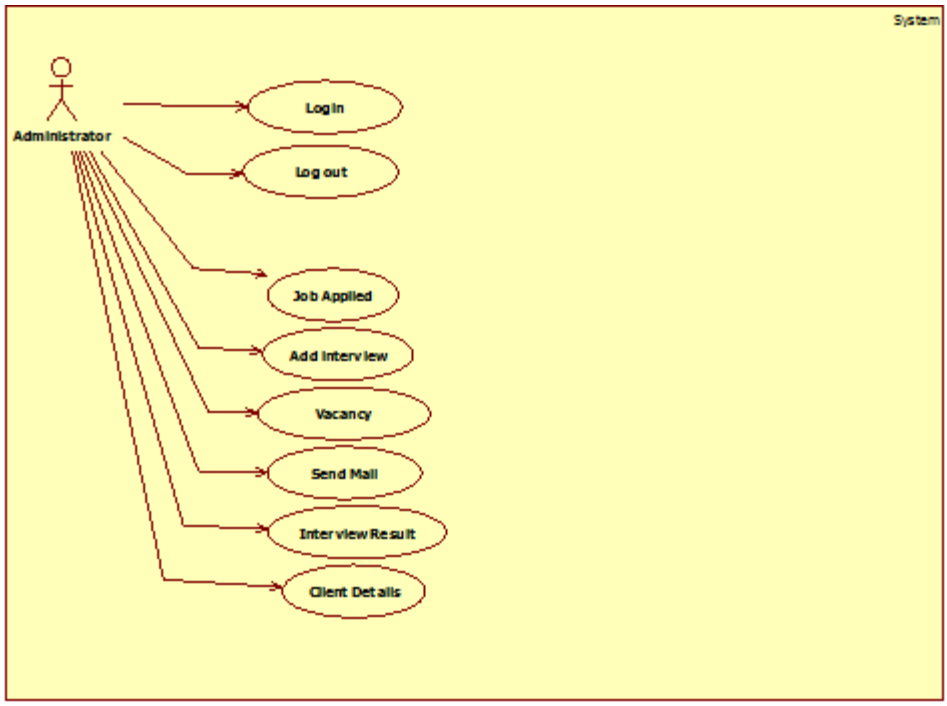


4.2 Module Design

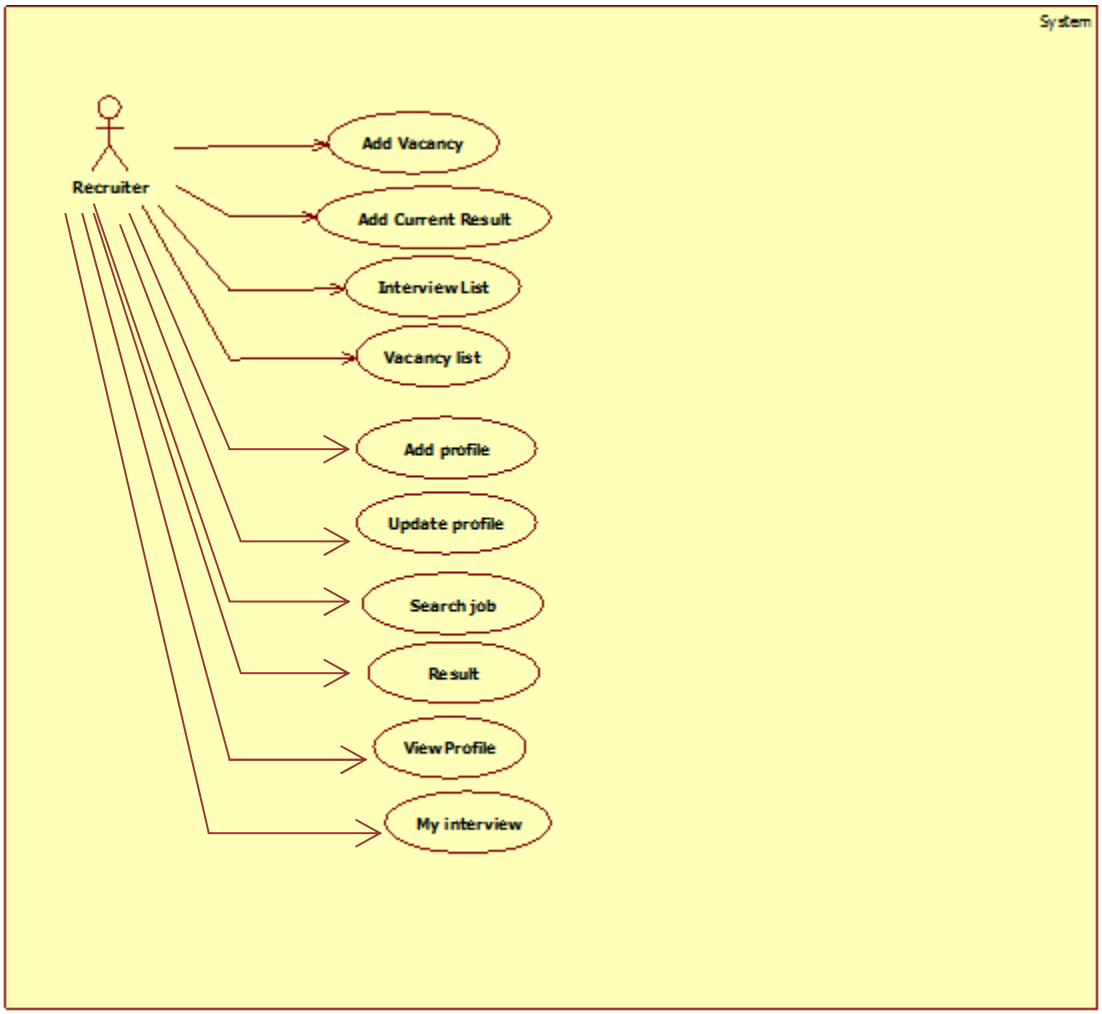
Module design which is also called "low level design" has to consider the programming language which shall be used for implementation. This will determine the kind of interfaces that the system will have.

4.2.1 Module Use Case Diagram

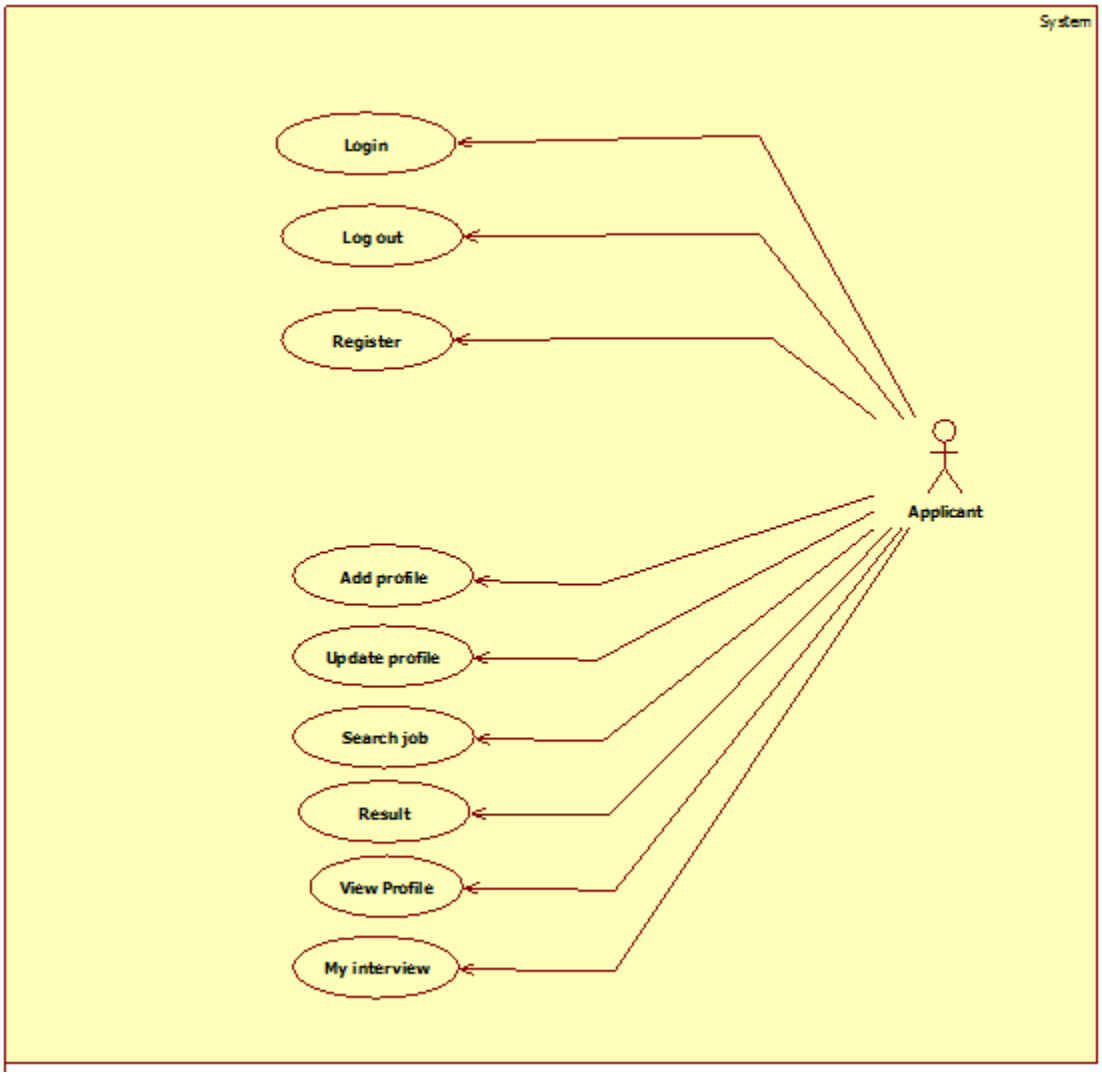
For administrator:



For recruiter:



For Applicant:



4.2.2 Module Use Case Description

Login tab: After clicking on this tab, login page will be displayed which consists of registration and sign in facility and based on login details the user can be subdivided into three :

Administrator: This module provides functions for the Administrator. It has following sub-modules:

1.Job applied-This is used to view the applicants who have applied to this consultancy and view their resumes.

2. Vacancy list-This is used to view the list of vacancies by different recruiters.

3.Add interview- This is used to add interview for applicants who have applied for the job.

4.Send mail-This is used to send notifications via mail to recruiter or applicant.

5.Interview result- This is used to view the interview result list of applicants.

6.Client Details-This is used to view the recruiters details.

7.Applicant-This is used to view the applicant details.

8.Logout- This is used to log out from the account.

9.Login- This is used to login in the account.

Recruiter:- This module provides functions for the Recruitor. It has following sub-modules:

1.Add vacancy-This is used to add new vacancies for applicants.

2.Add Result-This is used to add the result of the interview.

3.Interview list-This is to view the interview list.

4.Vacancy list-This is used to view the vacancy list.

5.Logout- This is used to log out from the account.

6.Login- This is used to login in the account.

Applicant:- This module provides functions for the Applicant. It has following sub-modules

1.Add profile-This is used to enter the applicant details.

2. Update profile-This is used to update the details entered by applicant.

3.View profile-This is used to view profile in resume format.

4.Jobs-This is used to search and apply for jobs.

5.My Interview –This is used to view applicants interview list.

6.Results-This is used to view results of applicant interview.

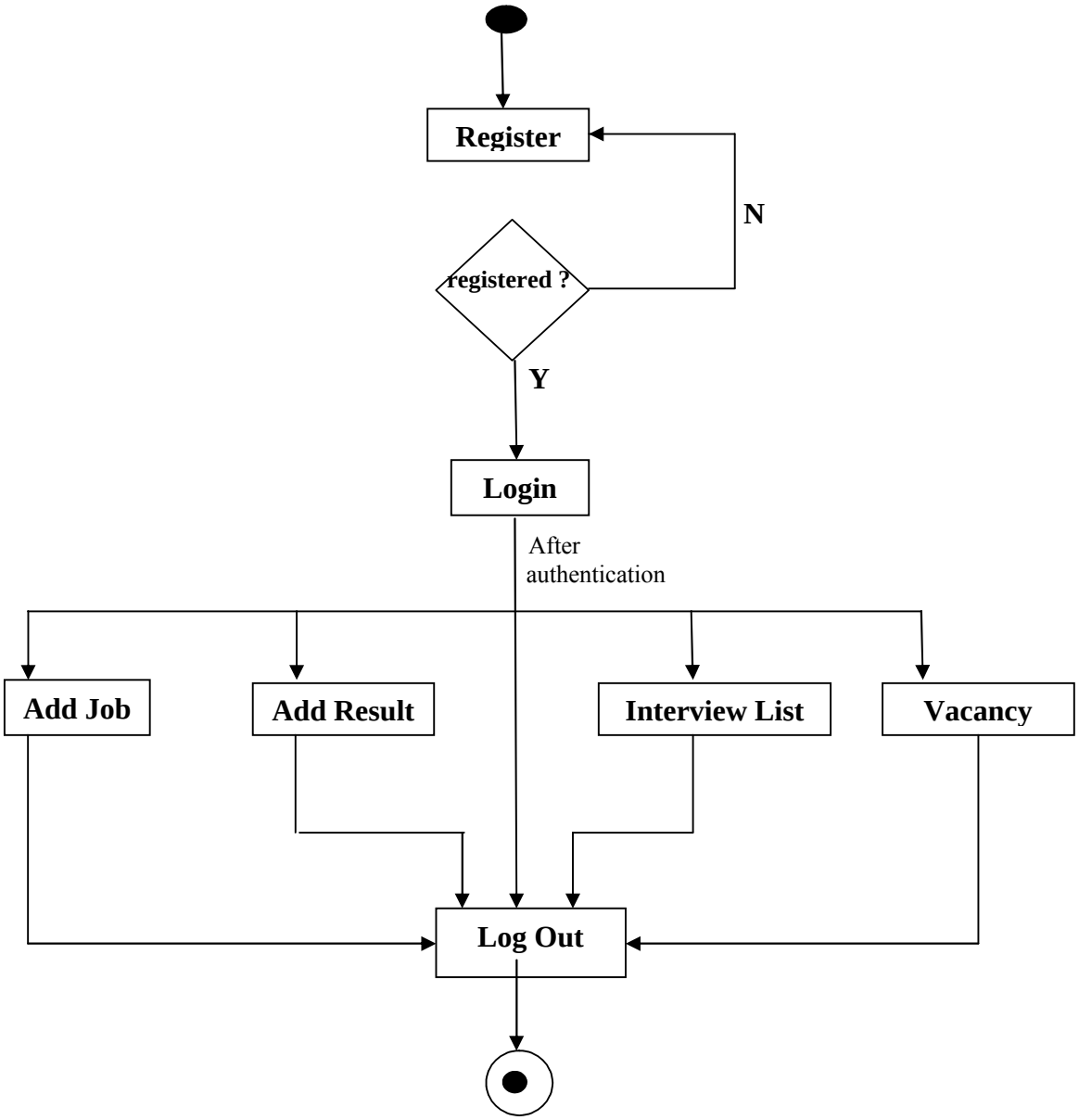
7.Logout -This is used to log out from the account

8.Login- This is used to login in the account.

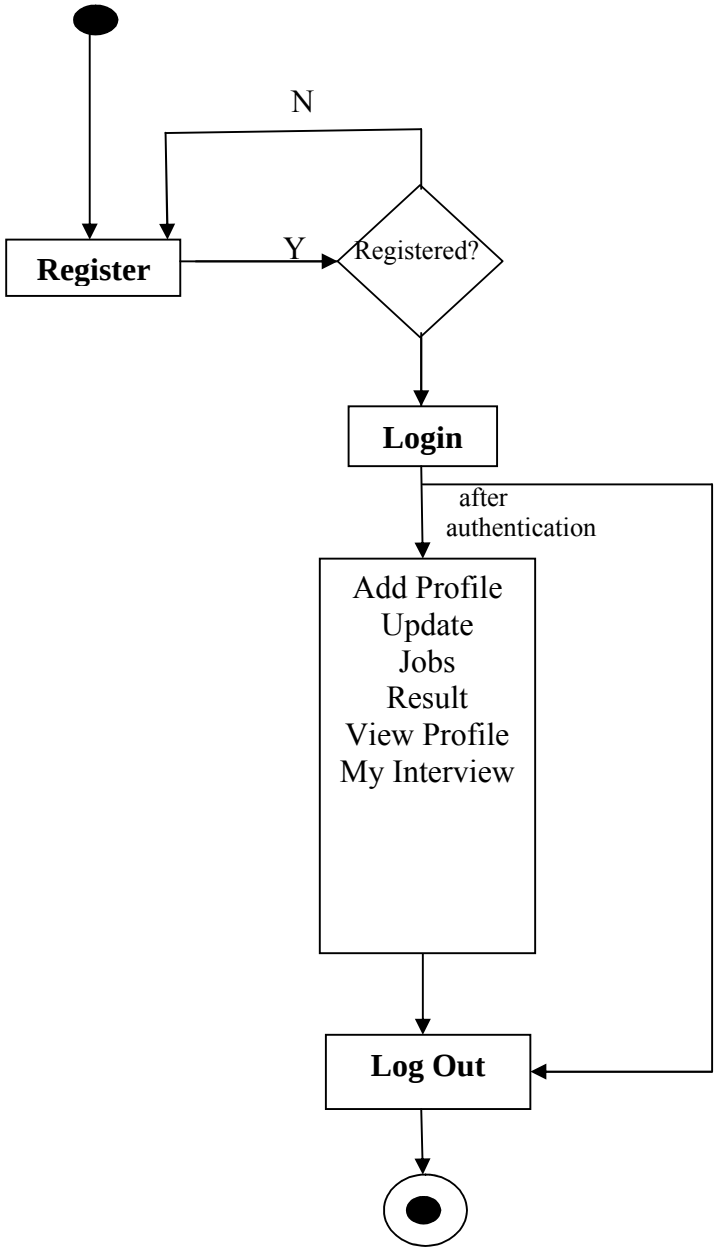
4.2.3 Module Collaboration Diagrams

4.2.4 Activity Diagram(s)

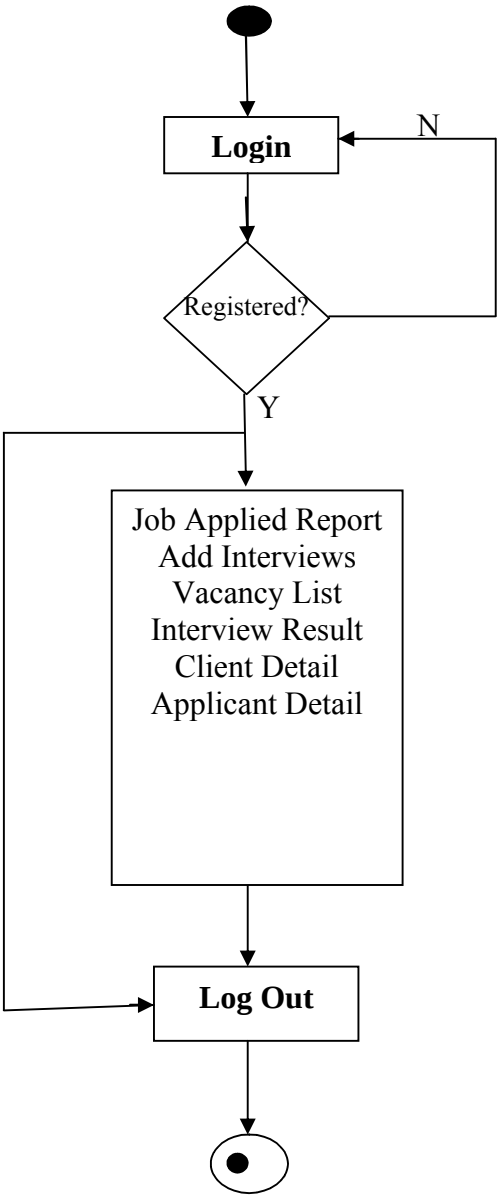
For Recruiter module:



For applicant module:

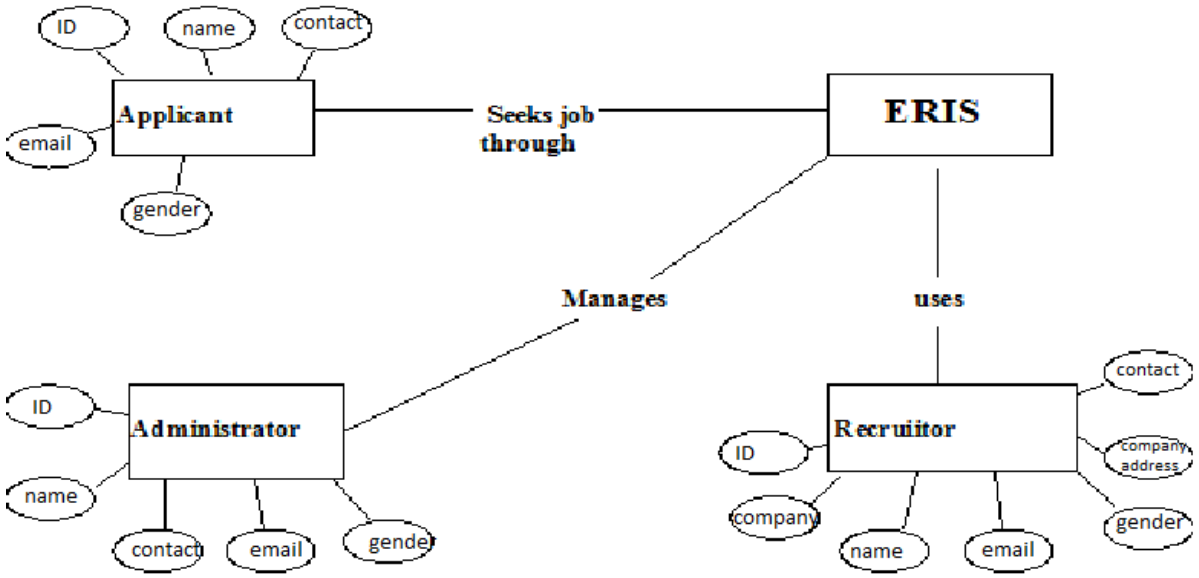


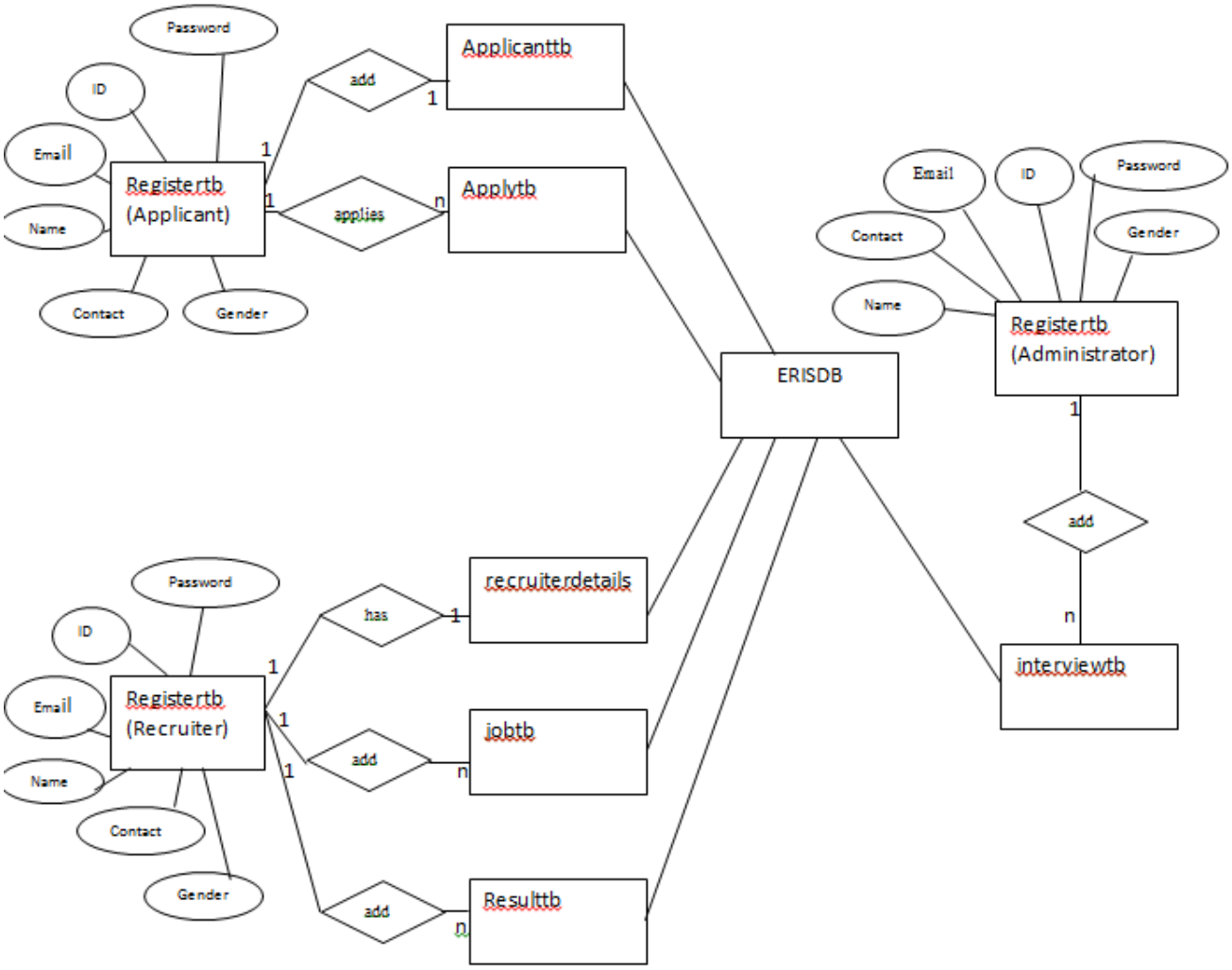
For administrator module:



4.3 Database design

4.3.1 Entity Relationship Diagram




Password
ID
Email
Registertb
(Applicant)
Name
Contact
Gender
add
1
1
Applicanttb
1
applies
n
Applytb
Email
ID
Password
Contact
Gender
Name
Registertb
(Administrator)
1
add
n
interviewtb
ERISDB
Password
ID
Email
Registertb
(Recruiter)
Name
Contact
Gender
1
has
1
recruiterdetails
1
add
n
jobtb
1
add
n
Resulttb

4.4 Data Dictionary

Table1 : Applicanttb

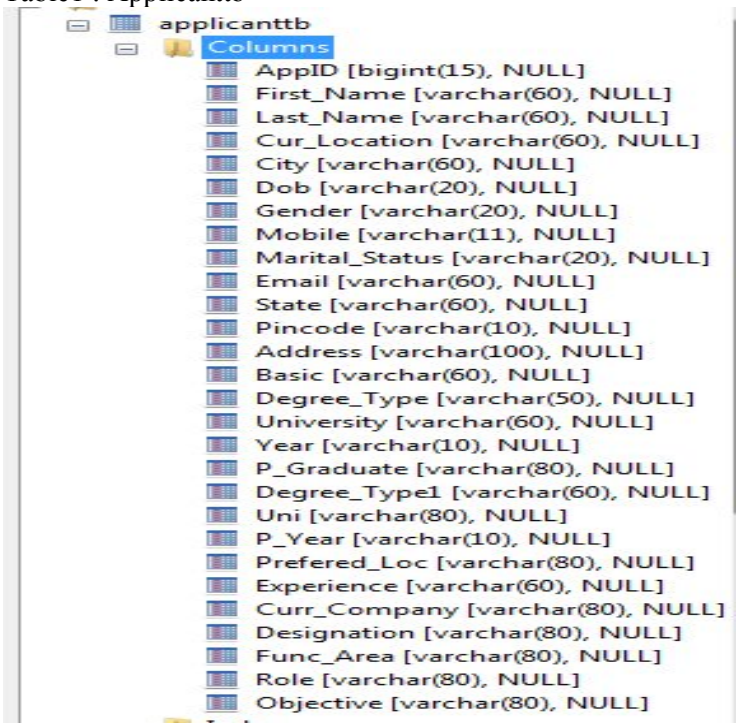


Table2: Applytb

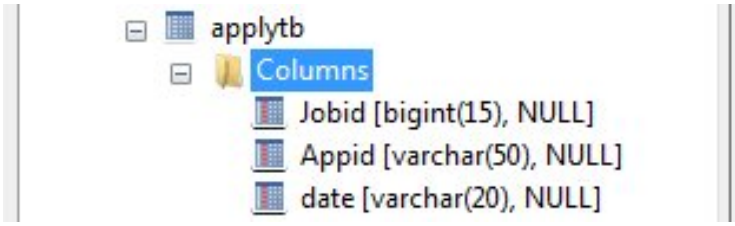


Table3 : Interviewtb

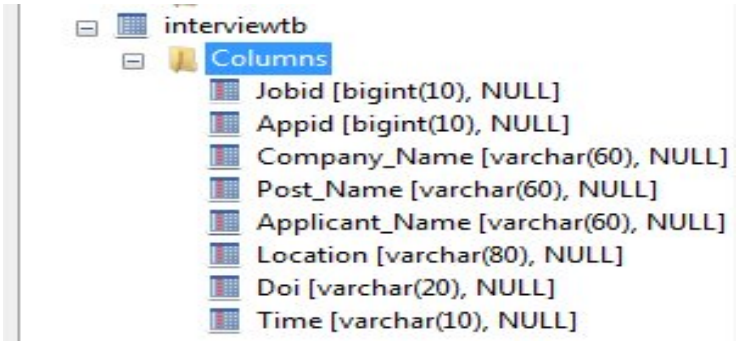


Table4 : jobtb

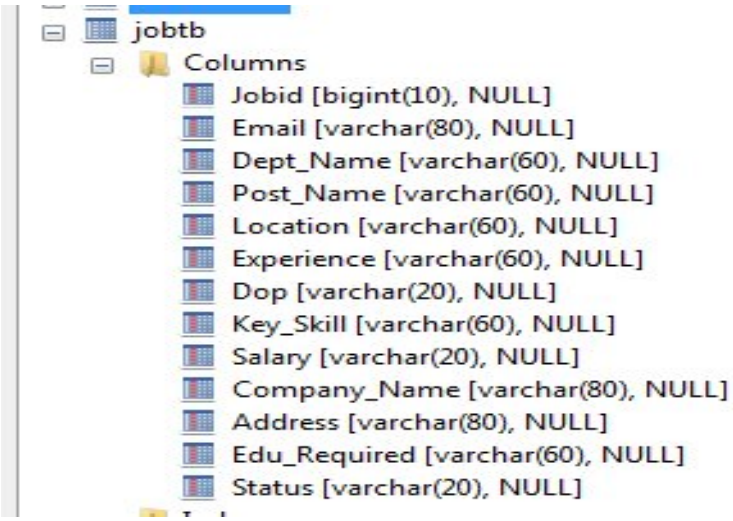


Table5: recruiterdetailtb

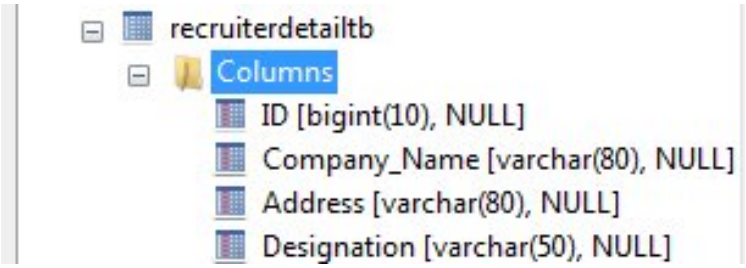


Table6 : registertb

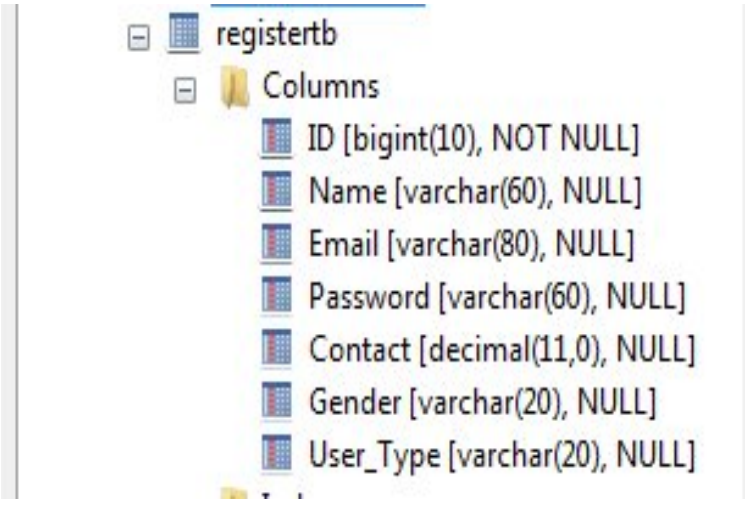
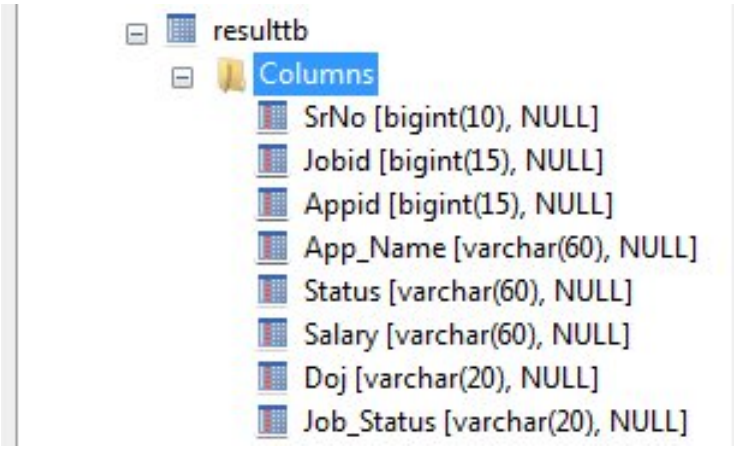


Table7 : resulttb



4.5 Normalized Database Tables Design

Table1 : Applicanttb

	Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
*	AppID	bigint	15		☑	☑	☐	☑	☐
	First_Name	varchar	60		☐	☐	☐	☐	☐
	Last_Name	varchar	60		☐	☐	☐	☐	☐
	Cur_Location	varchar	60		☐	☐	☐	☐	☐
	City	varchar	60		☐	☐	☐	☐	☐
	Dob	varchar	20		☐	☐	☐	☐	☐
	Gender	varchar	20		☐	☐	☐	☐	☐
	Mobile	varchar	11		☐	☐	☐	☐	☐
	Marital_Status	varchar	20		☐	☐	☐	☐	☐
	Email	varchar	60		☐	☐	☐	☐	☐
	State	varchar	60		☐	☐	☐	☐	☐
	Pincode	varchar	10		☐	☐	☐	☐	☐
	Address	varchar	100		☐	☐	☐	☐	☐
	Basic	varchar	60		☐	☐	☐	☐	☐
	Degree_Type	varchar	50		☐	☐	☐	☐	☐
	University	varchar	60		☐	☐	☐	☐	☐
	Year	varchar	10		☐	☐	☐	☐	☐
	P_Graduate	varchar	80		☐	☐	☐	☐	☐
	Degree_Type1	varchar	60		☐	☐	☐	☐	☐
	Uni	varchar	80		☐	☐	☐	☐	☐
	P_Year	varchar	10		☐	☐	☐	☐	☐
	Prefered_Loc	varchar	80		☐	☐	☐	☐	☐
	Experience	varchar	60		☐	☐	☐	☐	☐
	Curr_Company	varchar	80		☐	☐	☐	☐	☐
	Designation	varchar	80		☐	☐	☐	☐	☐
	Func_Area	varchar	80		☐	☐	☐	☐	☐
	Role	varchar	80		☐	☐	☐	☐	☐
	Objective	varchar	80		☐	☐	☐	☐	☐
					☐	☐	☐	☐	☐

Table2: Applytb

	Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
*	Jobid	bigint	15		☐	☐	☐	☐	☐
	Appid	varchar	50		☐	☐	☐	☐	☐
	date	varchar	20		☐	☐	☐	☐	☐
					☐	☐	☐	☐	☐

Table3 : Interviewtb

Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
* Jobid	bigint	10		☐	☐	☐	☐	☐
Appid	bigint	10		☐	☐	☐	☐	☐
Company_Name	varchar	60		☐	☐	☐	☐	☐
Post_Name	varchar	60		☐	☐	☐	☐	☐
Applicant_Name	varchar	60		☐	☐	☐	☐	☐
Location	varchar	80		☐	☐	☐	☐	☐
Doi	varchar	20		☐	☐	☐	☐	☐
Time	varchar	10		☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐

Table4 : jobtb

Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
* Jobid	bigint	10		☐	☐	☐	☐	☐
Email	varchar	80		☐	☐	☐	☐	☐
Dept_Name	varchar	60		☐	☐	☐	☐	☐
Post_Name	varchar	60		☐	☐	☐	☐	☐
Location	varchar	60		☐	☐	☐	☐	☐
Experience	varchar	60		☐	☐	☐	☐	☐
Dop	varchar	20		☐	☐	☐	☐	☐
Key_Skill	varchar	60		☐	☐	☐	☐	☐
Salary	varchar	20		☐	☐	☐	☐	☐
Company_Name	varchar	80		☐	☐	☐	☐	☐
Address	varchar	80		☐	☐	☐	☐	☐
Edu_Required	varchar	60		☐	☐	☐	☐	☐
Status	varchar	20		☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐

Table5: recruiterdetailtb

Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
* ID	bigint	10		☐	☐	☐	☐	☐
Company_Name	varchar	80		☐	☐	☐	☐	☐
Address	varchar	80		☐	☐	☐	☐	☐
Designation	varchar	50		☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐

Table6 : registertb

Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
* ID	bigint	10		☐	☑	☐	☐	☐
Name	varchar	60		☐	☐	☐	☐	☐
Email	varchar	80		☐	☐	☐	☐	☐
Password	varchar	60		☐	☐	☐	☐	☐
Contact	decimal	11,0		☐	☐	☐	☐	☐
Gender	varchar	20		☐	☐	☐	☐	☐
User_Type	varchar	20		☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐

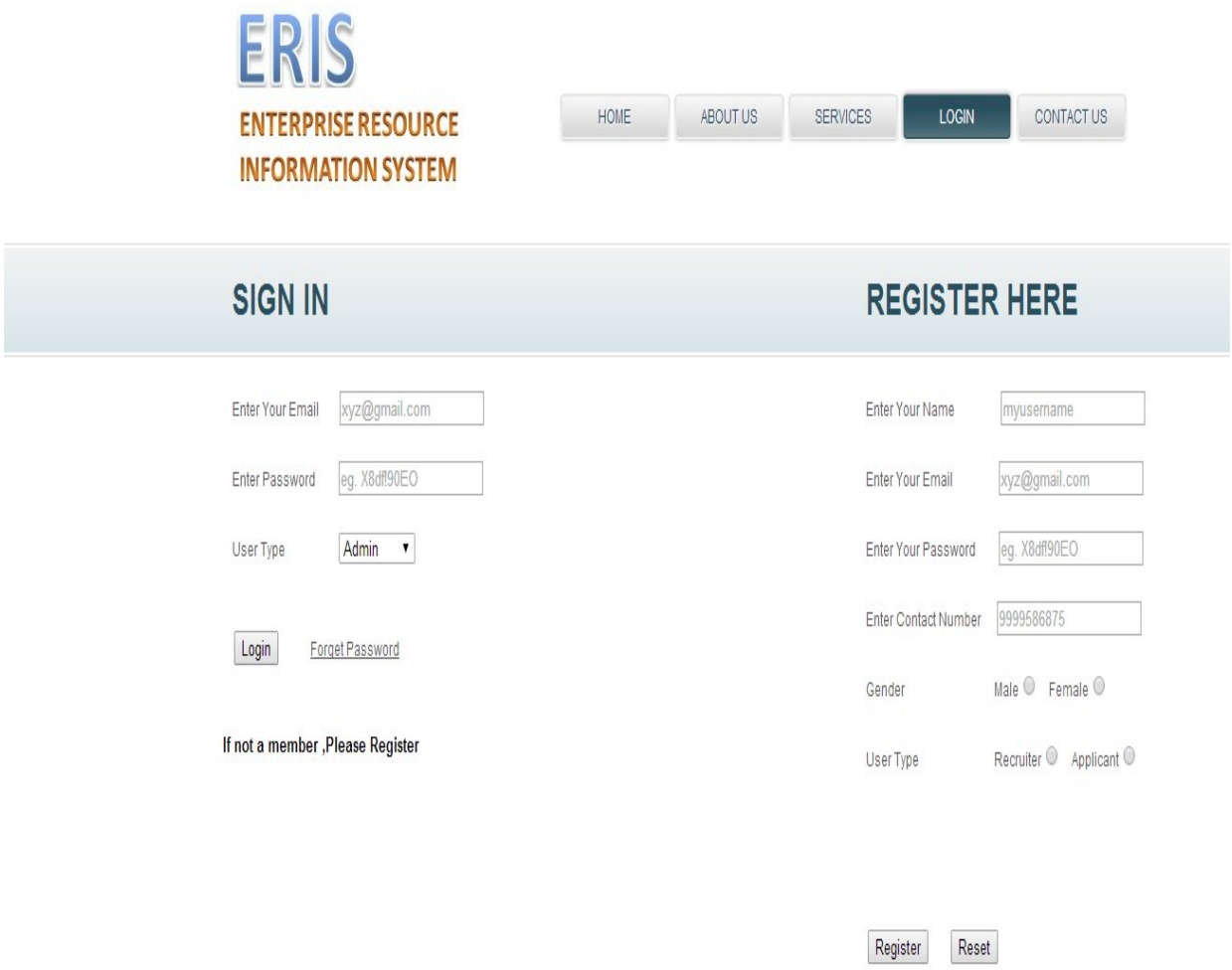
Table7 : resulttb

Field Name	Datatype	Len	Default	PK?	Not Null?	Unsigned?	Auto Incr?	Zerofill?
* SrNo	bigint	10		☐	☐	☐	☐	☐
Jobid	bigint	15		☐	☐	☐	☐	☐
Appid	bigint	15		☐	☐	☐	☐	☐
App_Name	varchar	60		☐	☐	☐	☐	☐
Status	varchar	60		☐	☐	☐	☐	☐
Salary	varchar	60		☐	☐	☐	☐	☐
Doj	varchar	20		☐	☐	☐	☐	☐
Job_Status	varchar	20		☐	☐	☐	☐	☐
				☐	☐	☐	☐	☐

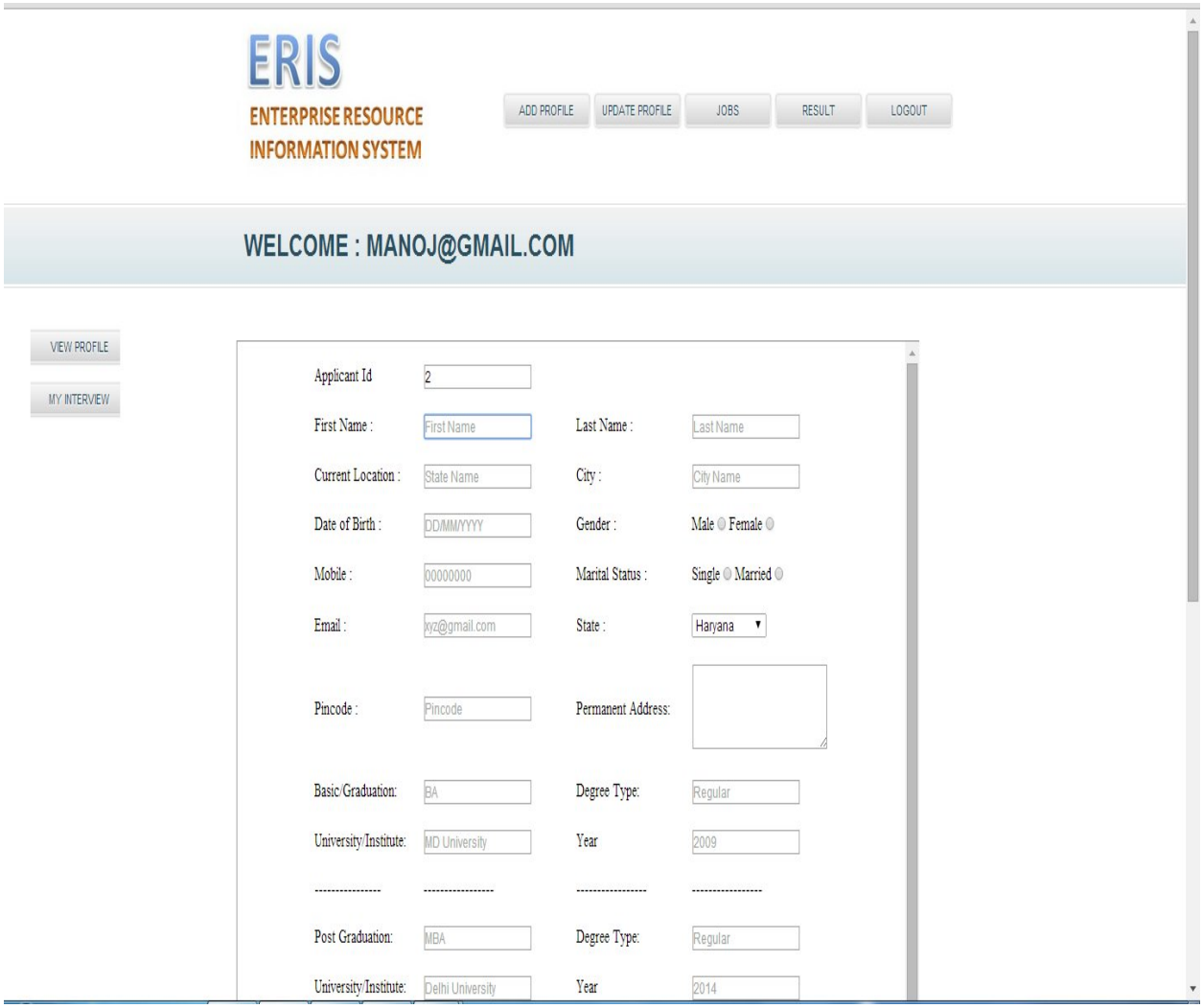
Chapter 5 User Interface Design Specification

5.1 Input Screen Design Preview

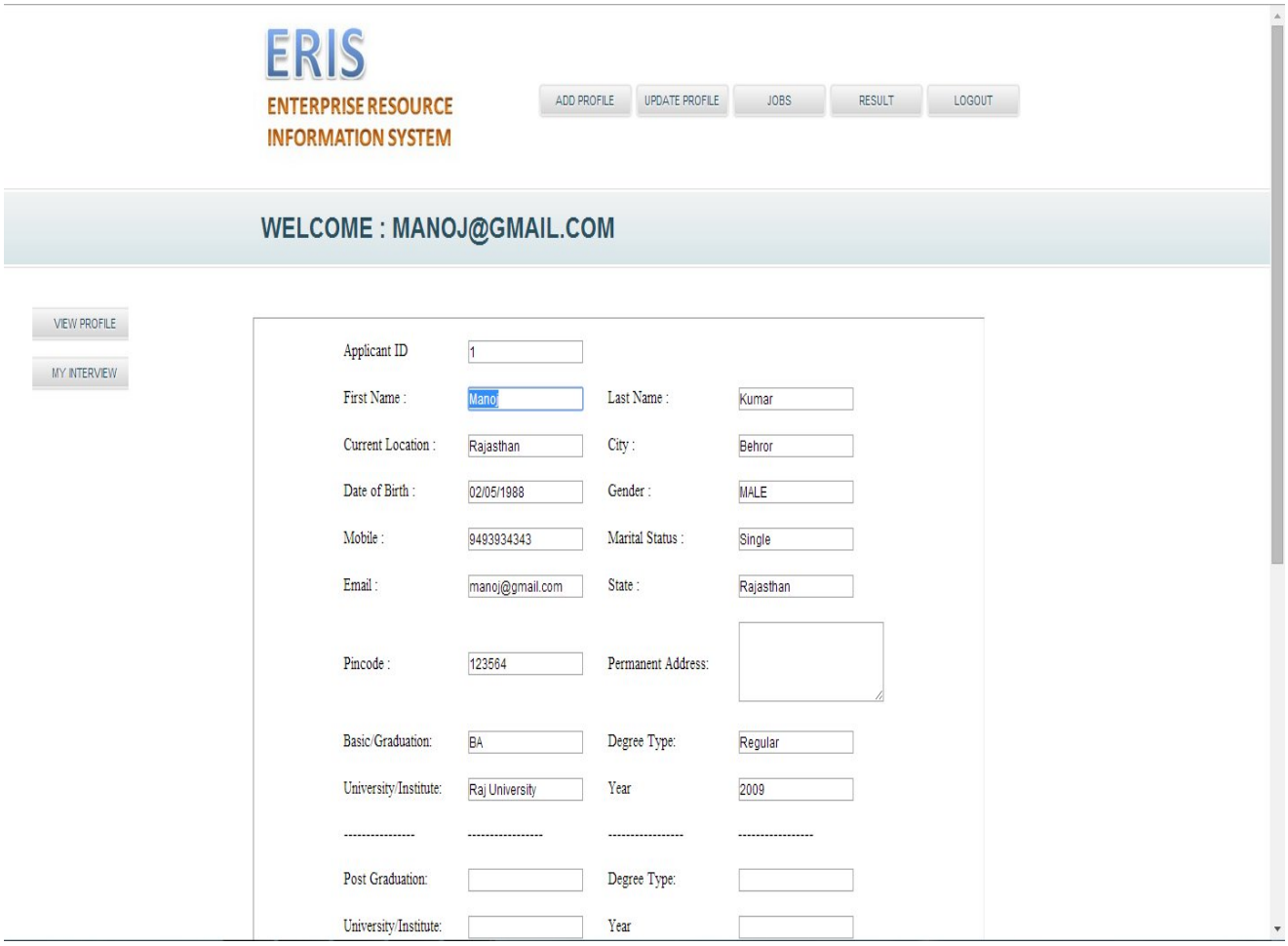
Page Name : index
Process : Clicking on the Tabs
Table : No
Remarks : Static Page
Error : No



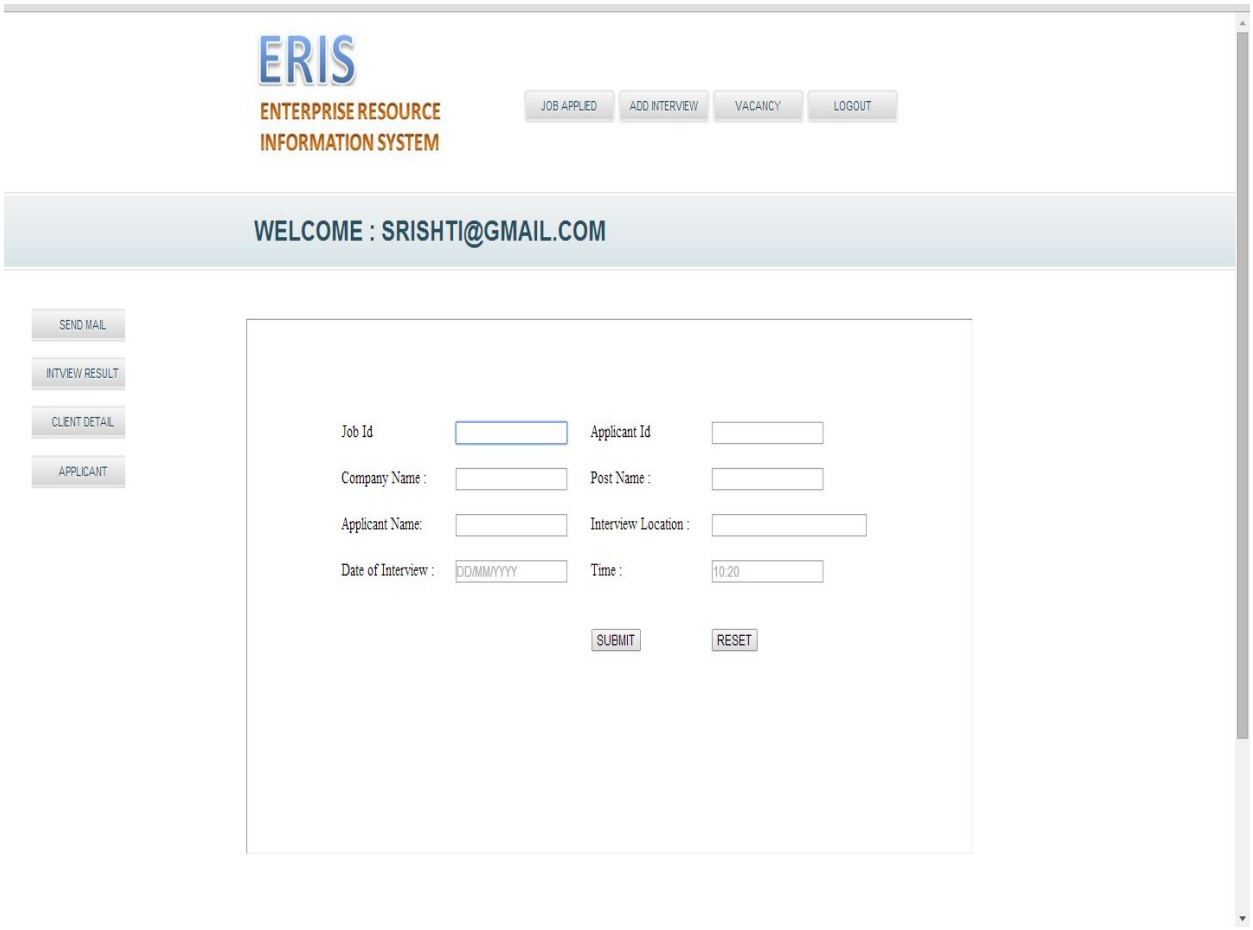
Page Name : Login
Process : Clicking on the Button
Table : Registertb,recruiterdetailtb
Remarks : Dynamic Page
Error : No



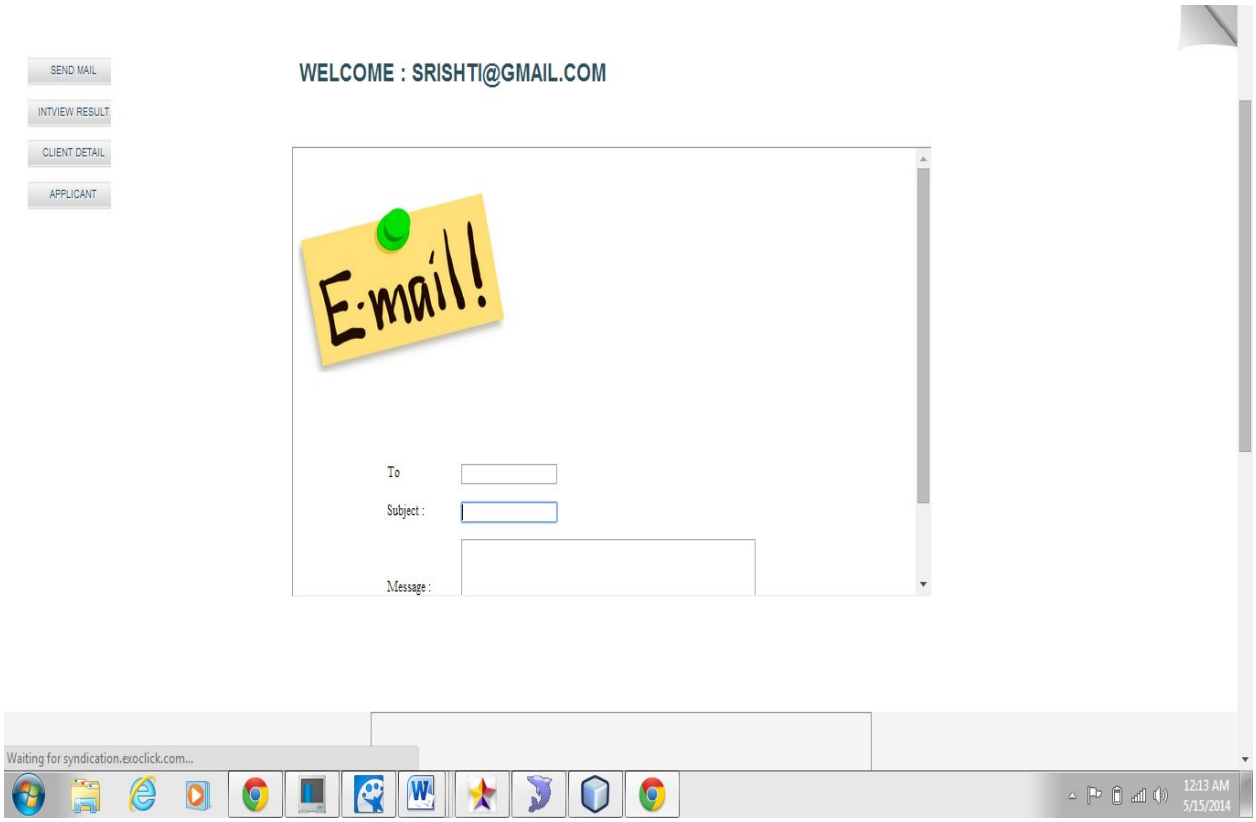
Page Name : Addprofile
Process : Entering the Fields
Table : applicanttb
Remarks : Dynamic Page
Error : No



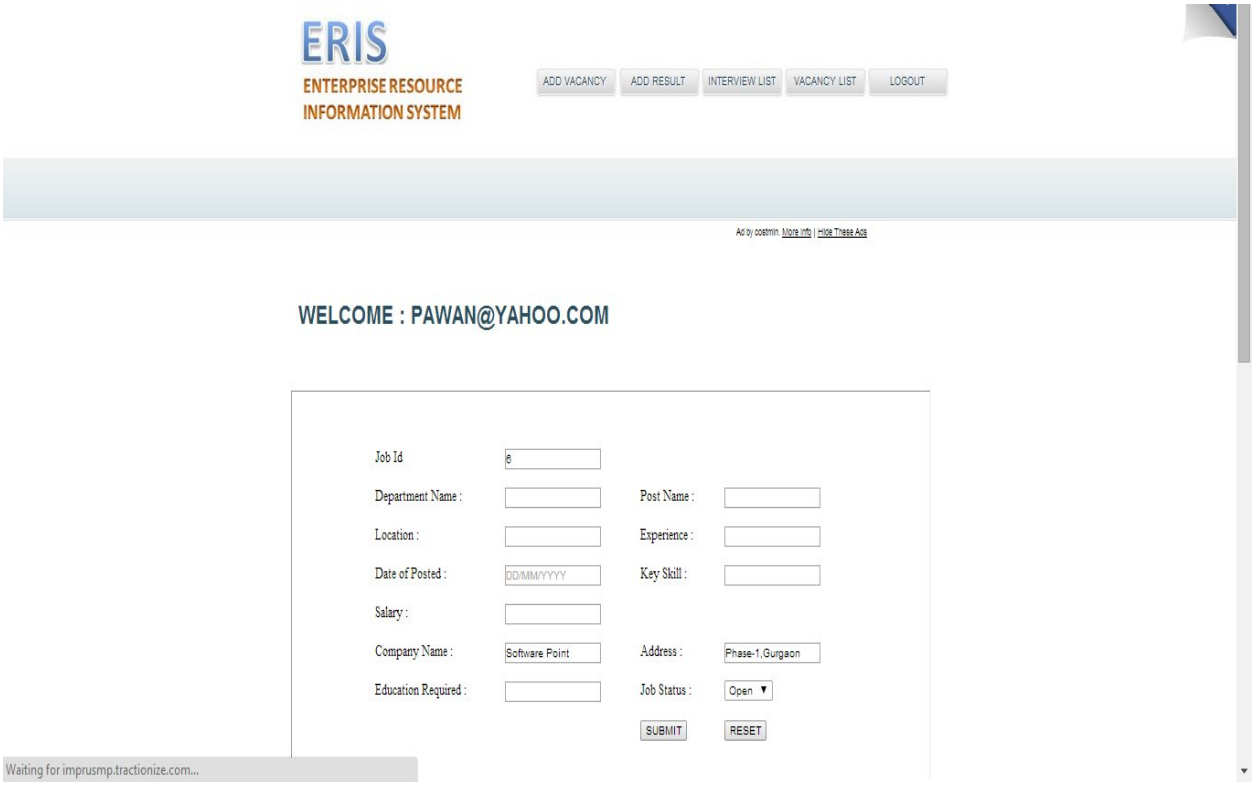
Page Name : changeprofile
Process : Entering the Fields
Table : applicanttb
Remarks : Dynamic Page
Error : No



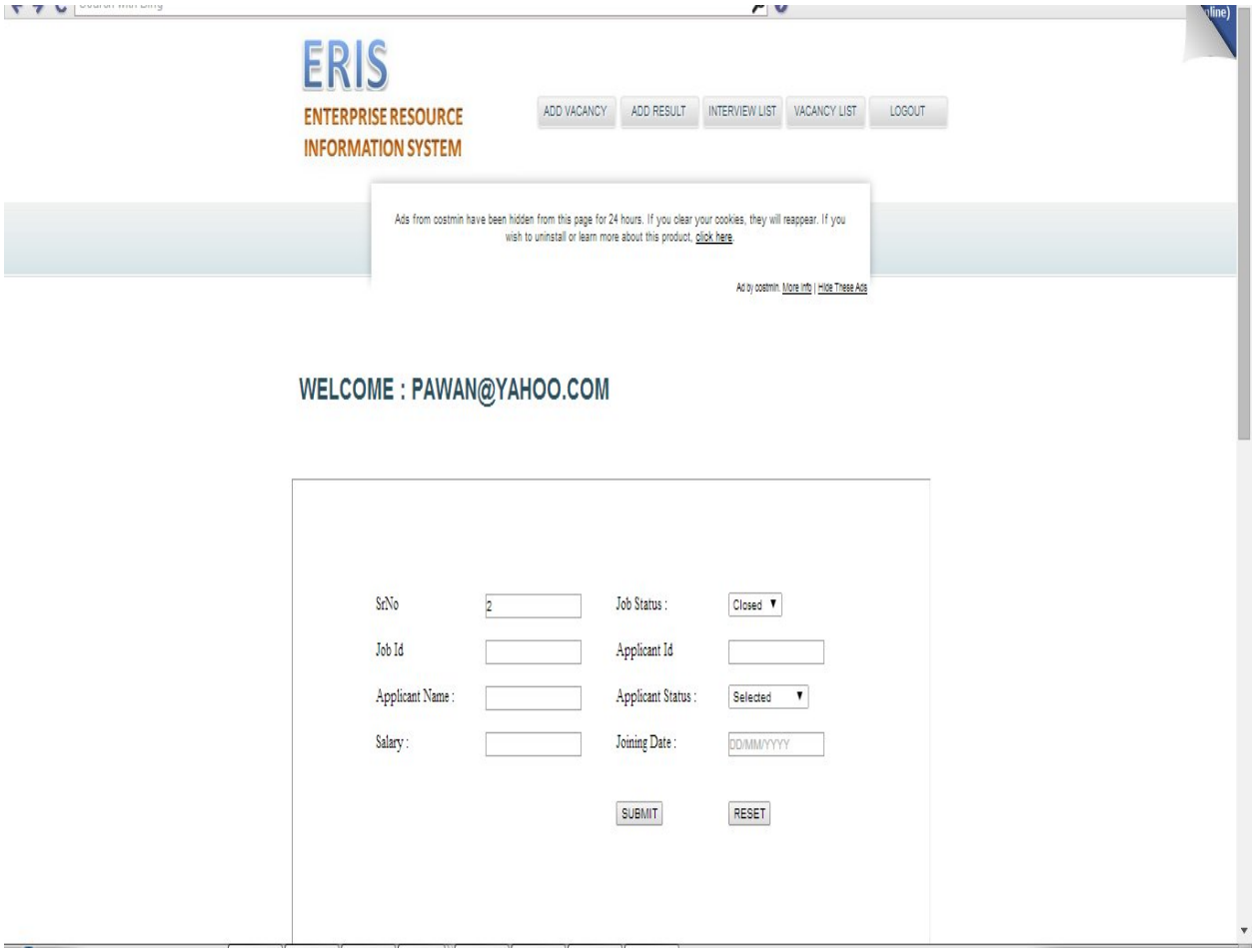
Page Name : addinterview
Process : click button
Table : interviewtb
Remarks : Dynamic Page
Error : No



Page Name : Send mail
Process : send mail
Remarks : Dynamic Page
Error : No

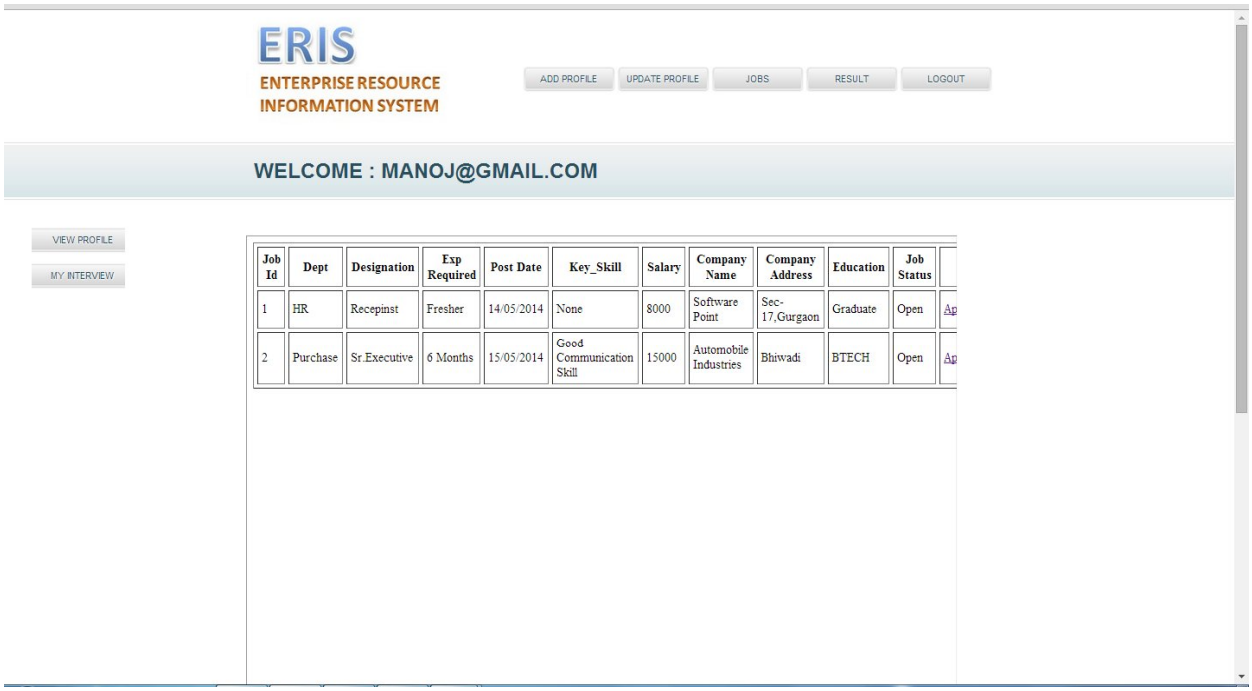


Page Name : add vacancy
Process : Enter details
Table:jobtb
Remarks : Dynamic Page
Error : No



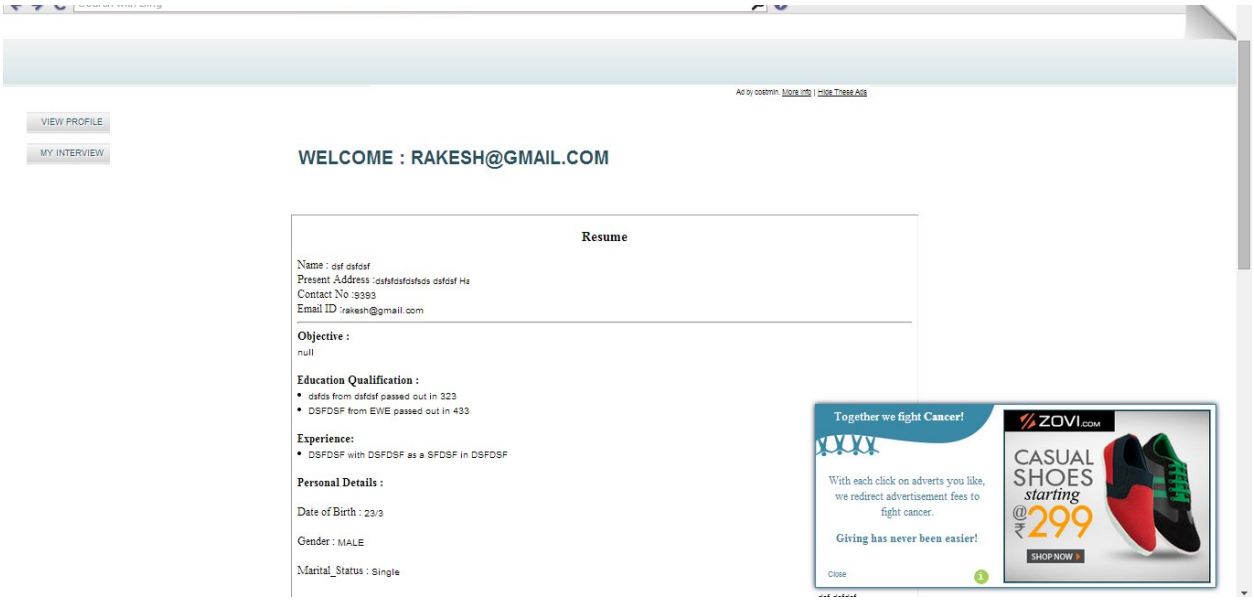
Page Name : add result
Process : Enter details
Table:resultb
Remarks : Dynamic Page
Error : No

5.2 Reports/Outputs Design Preview

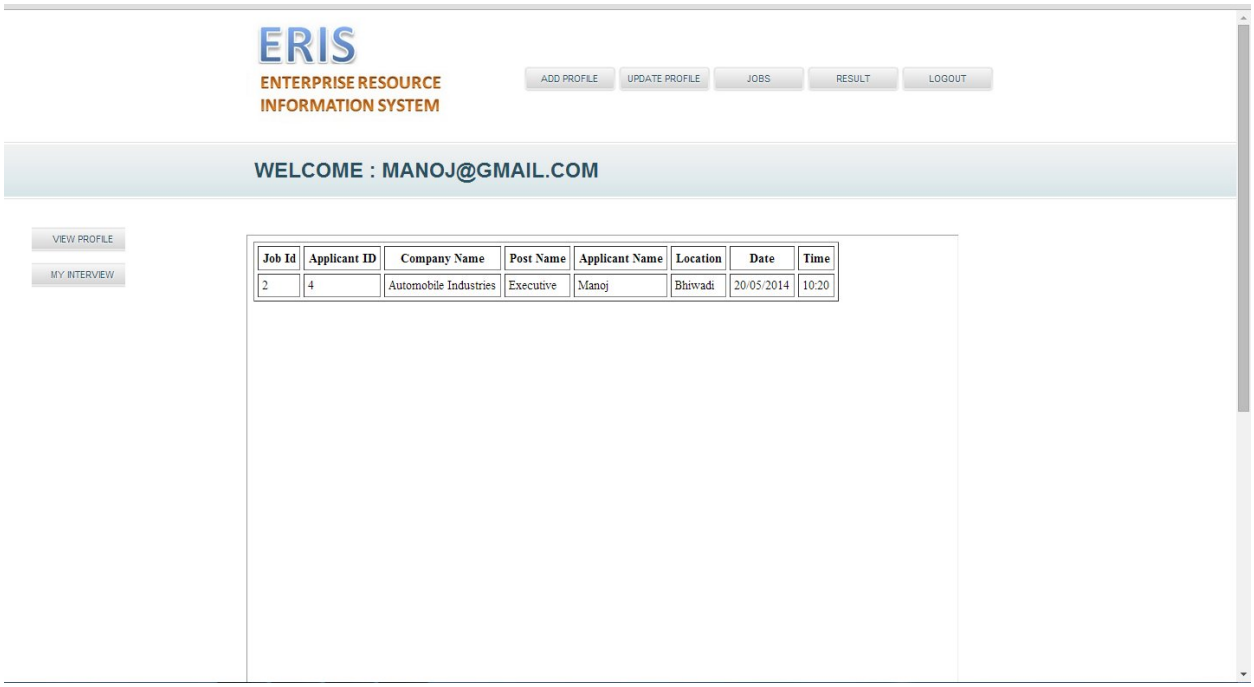


Job Id	Dept	Designation	Exp Required	Post Date	Key_Skill	Salary	Company Name	Company Address	Education	Job Status	
1	HR	Recepinst	Fresher	14/05/2014	None	8000	Software Point	Sec-17,Gurgaon	Graduate	Open	Ap
2	Purchase	Sr.Executive	6 Months	15/05/2014	Good Communication Skill	15000	Automobile Industries	Bhiwadi	BTECH	Open	Ap

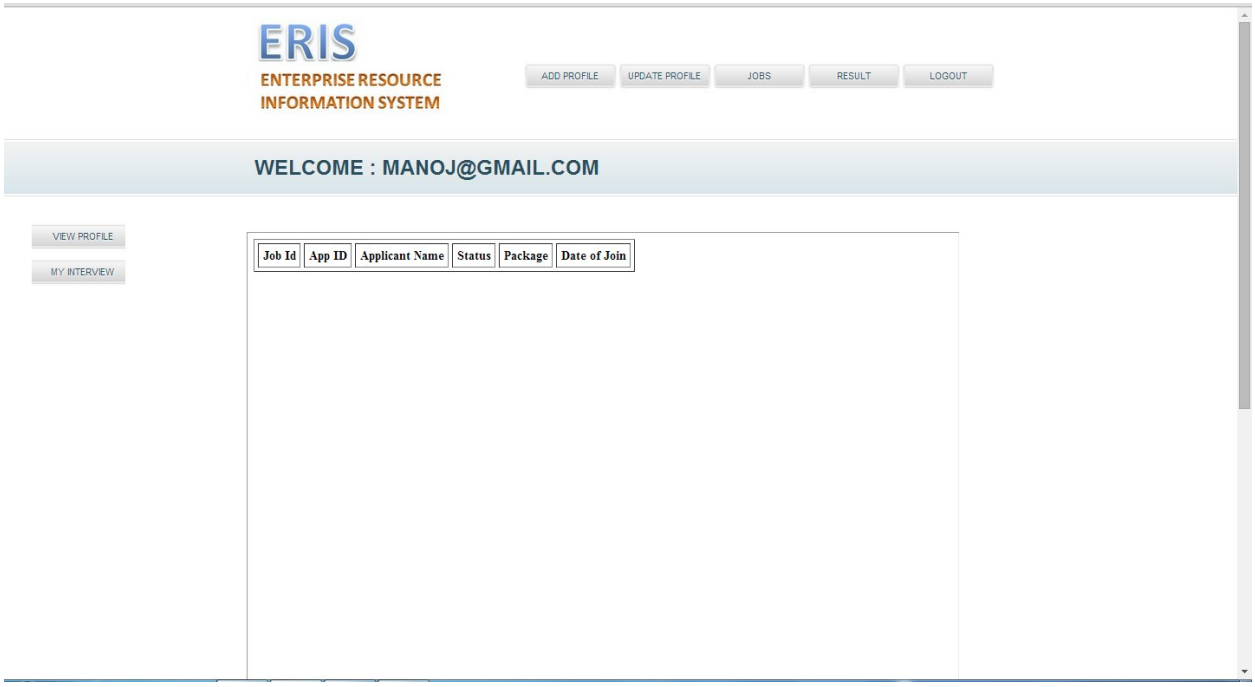
Page Name : jobreport
Process : view
Table : jobtb
Remarks : Dynamic Page
Error : No



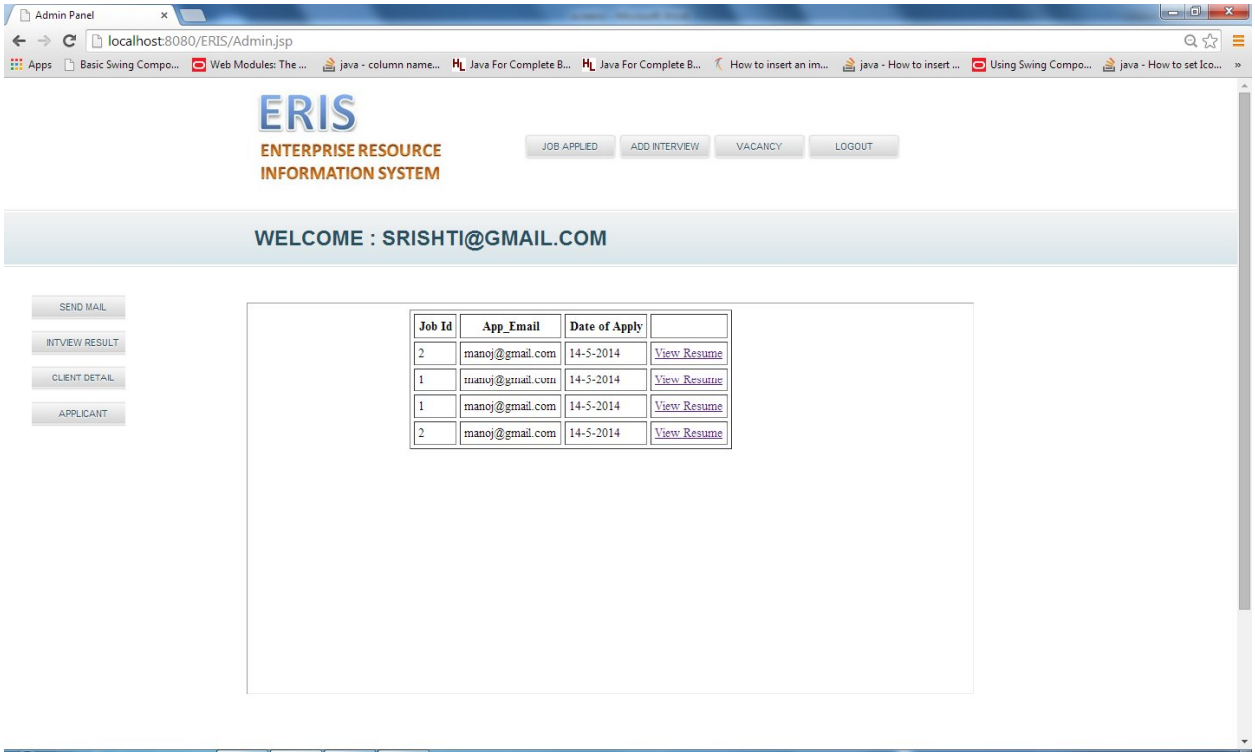
Page Name : viewprofile
Process : view
Table : applicanttb
Remarks : Dynamic Page
Error : No



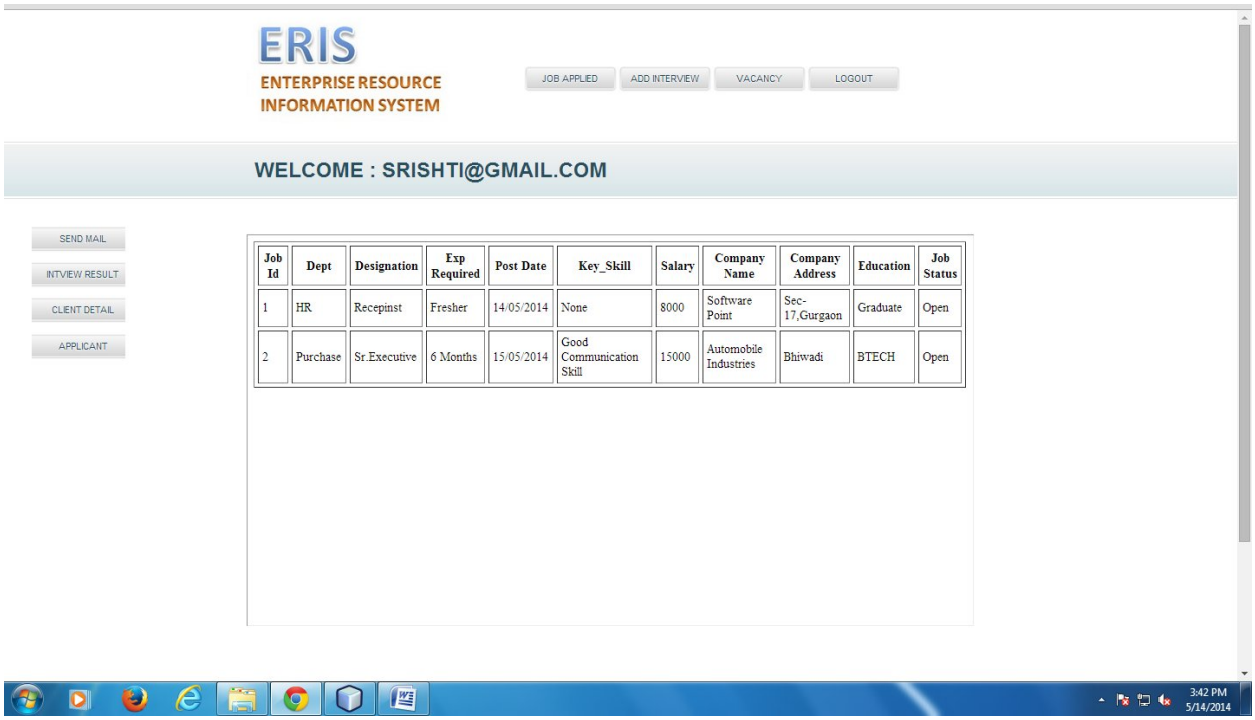
Page Name : Interviewreport
Process : view
Table : interviewtb
Remarks : Dynamic Page



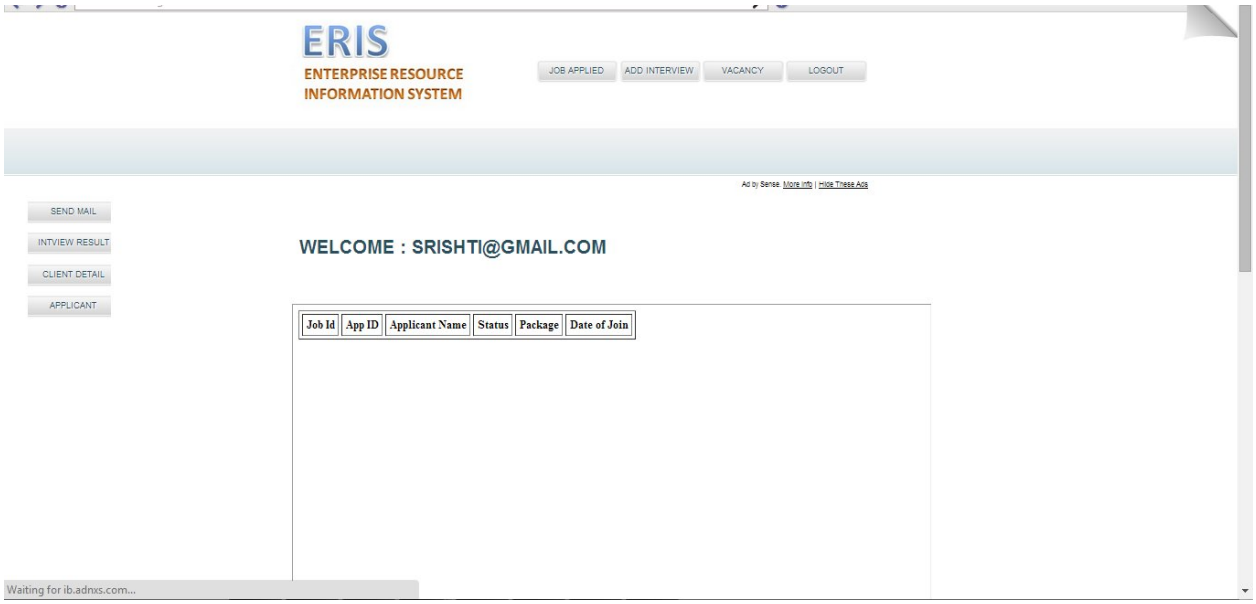
Page Name : resultreport
Process : view
Table : resulttb
Remarks : Dynamic Page
Error : No



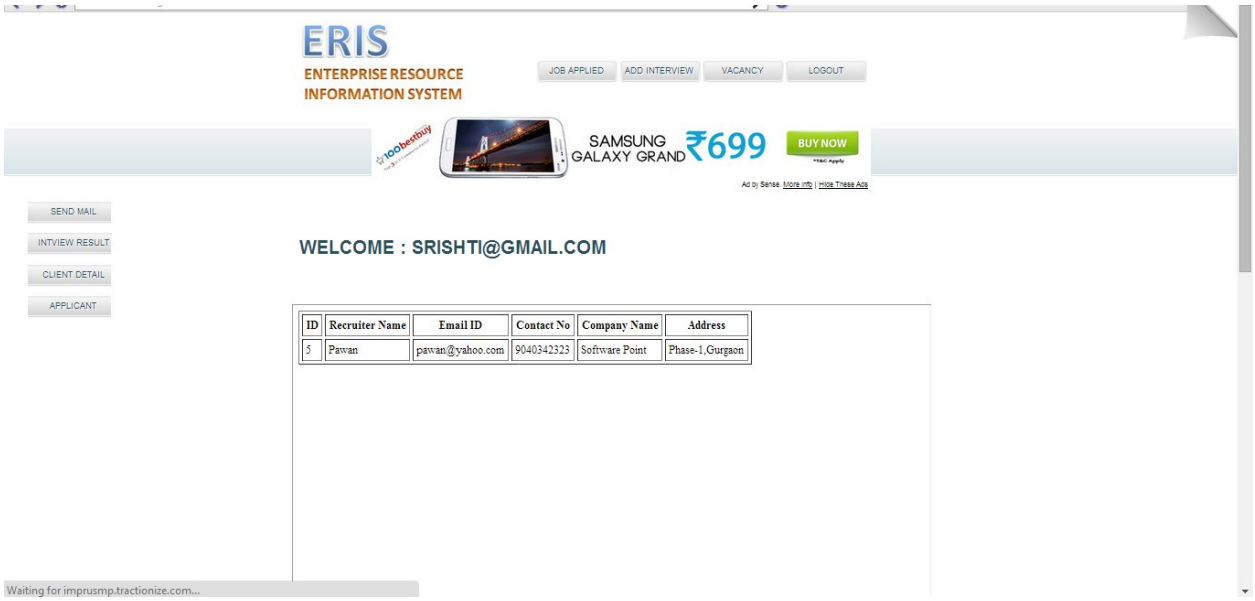
Page Name : applyreport
Process : view & click on link
Table : applytb
Remarks : Dynamic Page
Error : No



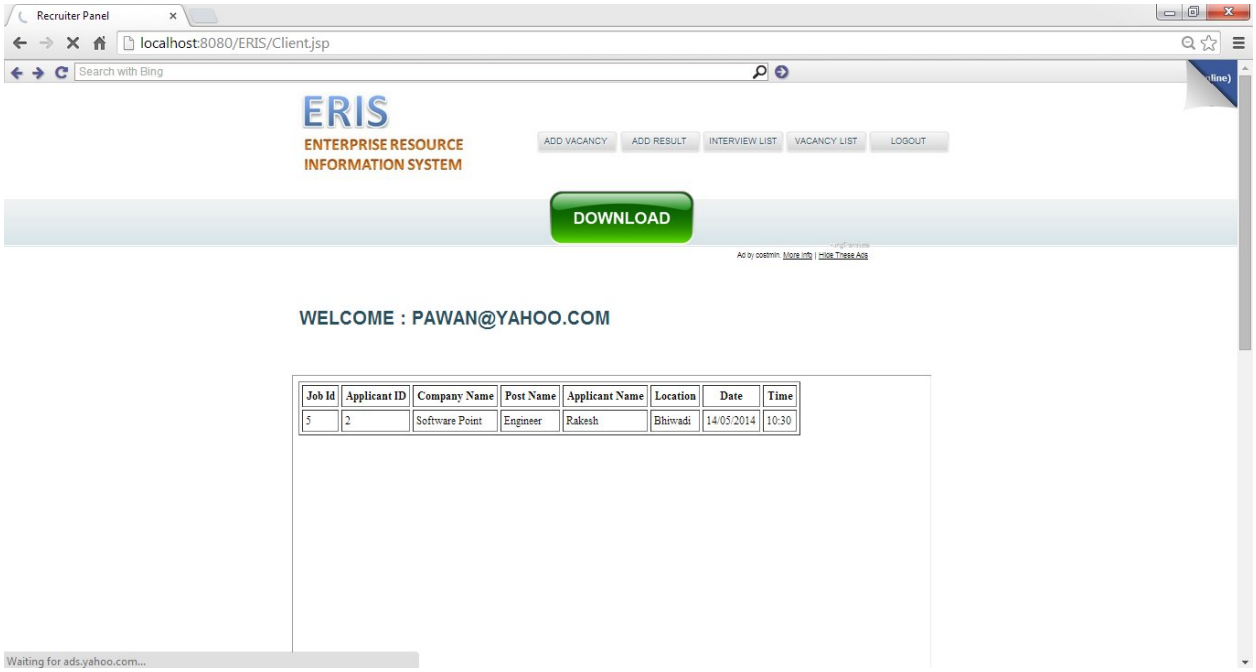
Page Name : adminjobreport
Process : view
Table : interviewtb
Remarks : Dynamic Page
Error : No



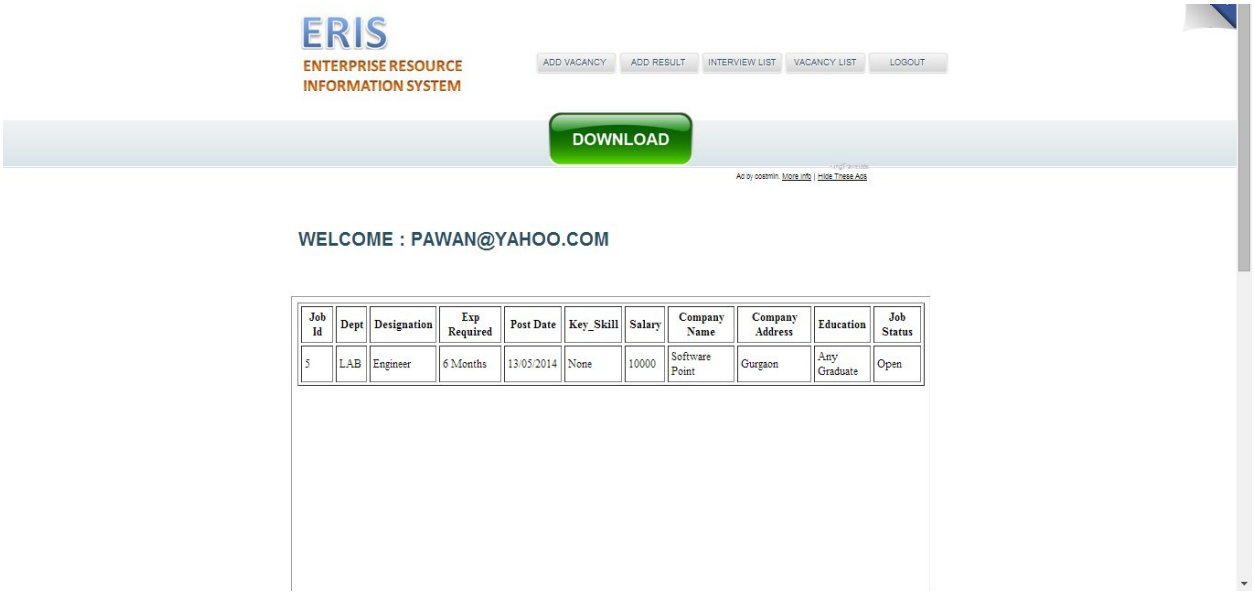
Page Name : Interview Result
Process : View
Remarks : Dynamic Page
Error : No



Page Name : client details
Process : View
Table:recruiterdetailtb
Remarks : Dynamic Page
Error : No



Page Name : interviewlist
Process : view details
Remarks : Dynamic Page
Error : No



Page Name : vacancylist
Process : view details
Remarks : Dynamic Page
Error : No

Chapter 6 Coding (on CD/DVD)

The entire software including the coding, database, documentation and final presentation is attached in a separate DVD.

Chapter 7 System Testing Specification

7.1 Table containing Description and Results of Test cases

The below mentioned testing is performed before our application can finally be deployed to our customers. Unit testing is done with a set of test inputs and expected behavior is studied.

Test ID	Description	Input Data	Expected Output	Actual Result	Pass/ Fail	Defect ID
01.	Login	Email & Password	Valid Email: Corresponding user homepage will display Invalid Login: Message displayed.	Module working fine.	Pass	Nil
02.	Add profile	Personal details entered	Details will be submitted to database.	Details will be submitted to database.	Pass	Nil
03.	Applicant registration	Applicant details entered	Unique Applicant ID allotted	Unique ID generated	Pass	Nil
04.	Recruiter registration	Recruiter details entered	Unique Recruiter ID allotted	Unique ID generated	Pass	Nil
05.	Job Apply	Click Apply link	Job applied successfully.	Job applied successfully.	Pass	Nil
06	Forget Password	New password Email ID	New password updated	Password changed	Pass	Nil
07	Logout	Click logout button	Back to login page	Back to login page	Pass	Nil
08	View Resume	Click view resume link	Resume will be displayed	Resume will be displayed	Pass	Nil

09	Send Mail button	To, Subject, Message entered.	Mail sent	Mail Sent	Pass	Nil

7.2 Sample Reports Displaying Results Of Testing

1. **Login Form**

Activity : Check User And Password Validation

Data Input : Wrong Entry Or Blank Entry

Result: Error Message Shown

Solution: Enter Correct Data And Complete All Details

2. **Registration Form**

Activity : Check all fields

Data Input: Wrong Entry Or Blank Entry

Result: Validators Are Fired And Data Is Not Saved

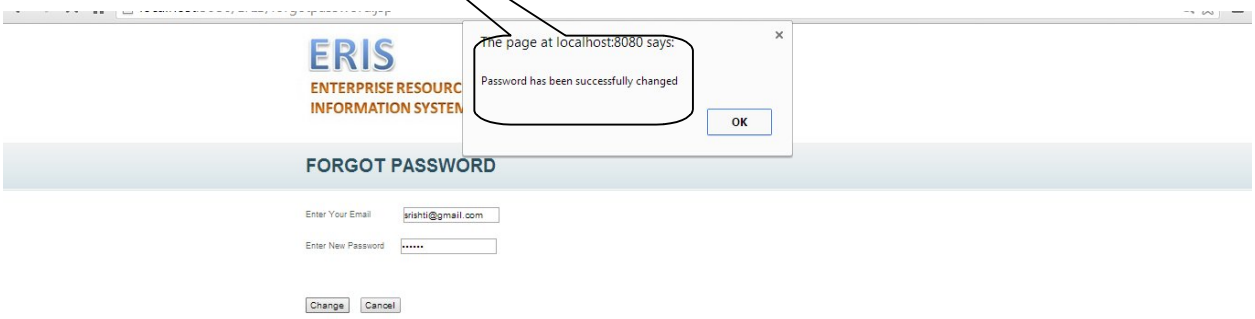
Solution: Enter Correct Data And Complete All Details

3. Forget Password Form

Activity : Reset password

Data Input: Email id and New password

Result: Password changed

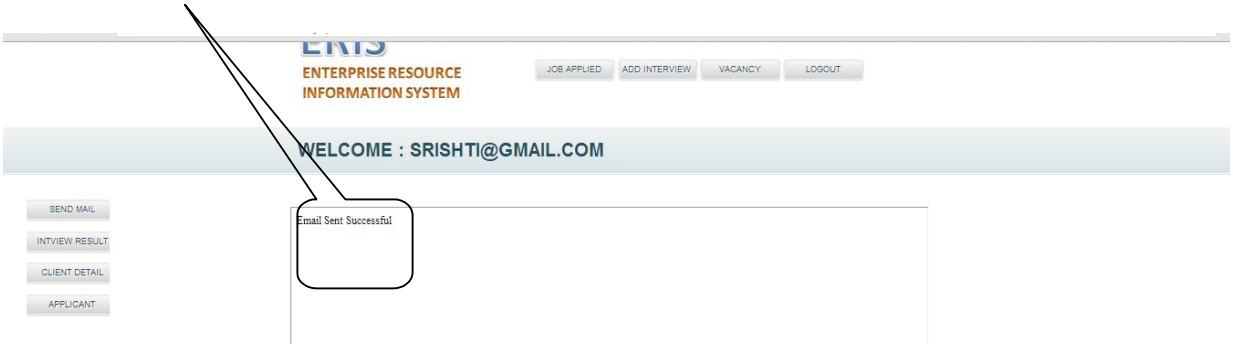


4. Send Email Form

Activity : Send email

Data Input: Receiver's Email address, subject ,message

Result: Email sent successful



Chapter 8 Conclusions

8.1 Summary

The task given to us performed by keeping in mind the goals we have to achieve, these are to provide user-friendliness. This project ERIS is mainly useful for software consultants.

The ERIS is expected to function as per the requirements and we expect that it will satisfy the users. Working on such a project in the organization provided the professional attitude and fuel needed to prepare for further hobs. The encounter with real life professionals will surely pave the way towards a more successful illustrious career.

8.2 Contribution(s) of the Project

Applicant can easily find jobs with the help of this application. And recruiter can recruit best employees in his organization and consultant manages overall process in better way .Administrator can get client and applicant reports very easily.

8.3 Limitations of the Project

- Resume files cannot be uploaded.
- Administrator has no rights to make his sub-admin users.
- We cannot print any reports.
- There is no option for data backup.
- There is no option to search job by keyword.

8.4 Future Work

- Resume files can be uploaded.
- Administrator has rights to make his sub-admin users.
- We can print any reports.
- There can be option for data backup.
- There can be option to search job by keyword.

Chapter-9 User Manual

9.1 Description of System Operation

System Operation Environment deals with environment which we chosen for developing the application and overview of each and every technology which we were used in development

Overview of JSP

JavaServer Pages (JSP) is a technology for developing web pages that support dynamic content which helps developers insert java code in HTML pages by making use of special JSP tags, most of which start with <% and end with %>.

A JavaServer Pages component is a type of Java servlet that is designed to fulfill the role of a user interface for a Java web application. Web developers write JSPs as text files that combine HTML or XHTML code, XML elements, and embedded JSP actions and commands.

Using JSP, you can collect input from users through web page forms, present records from a database or another source, and create web pages dynamically.

JSP tags can be used for a variety of purposes, such as retrieving information from a database or registering user preferences, accessing JavaBeans components, passing control between pages and sharing information between requests, pages etc.

Why Use JSP?

JavaServer Pages often serve the same purpose as programs implemented using the Common Gateway Interface (CGI). But JSP offer several advantages in comparison with the CGI.

- Performance is significantly better because JSP allows embedding Dynamic Elements in HTML Pages itself instead of having a separate CGI files.
- JSP are always compiled before it's processed by the server unlike CGI/Perl which requires the server to load an interpreter and the target script each time the page is requested.
- JavaServer Pages are built on top of the Java Servlets API, so like Servlets, JSP also has access to all the powerful Enterprise Java APIs, including JDBC, JNDI, EJB, JAXP etc.
- JSP pages can be used in combination with servlets that handle the business logic, the model supported by Java servlet template engines.

Finally, JSP is an integral part of Java EE, a complete platform for enterprise class applications. This means that JSP can play a part in the simplest applications to the most complex and demanding.

Advantages of JSP:

Following is the list of other advantages of using JSP over other technologies:

- vs. Active Server Pages (ASP): The advantages of JSP are twofold. First, the dynamic part is written in Java, not Visual Basic or other MS specific language, so it is more powerful and easier to use. Second, it is portable to other operating systems and non-Microsoft Web servers.
- vs. Pure Servlets: It is more convenient to write (and to modify!) regular HTML than to have plenty of println statements that generate the HTML.
- vs. Server-Side Includes (SSI): SSI is really only intended for simple inclusions, not for "real" programs that use form data, make database connections, and the like.
- vs. JavaScript: JavaScript can generate HTML dynamically on the client but can hardly interact with the web server to perform complex tasks like database access and image processing etc.
- vs. Static HTML: Regular HTML, of course, cannot contain dynamic information.

9.2 Error Message And Their Resolution

Validators are fired on screen and data is saved accordingly. Only when the data is correct it is saved in the table and when the data entered is invalid validators appear on screen showing the corresponding error message.

9.3 Installation Instruction

1.) Users must have the NETBEANS IDE 7.1.1 to run the project.
2.) They must have MYSQL for the backend.
3.) Browser Google Chrome(Testing)/Mozilla

9.4 Security Aspects and Access Rights

System security refers to various validations on data in form of checks and controls to avoid the system from failing. It is always important to ensure that only valid data is entered and only valid operations are performed on the system. The system employees two types of checks and controls:

CLIENT SIDE VALIDATION

Various client side validations are used to ensure on the client side that only valid data is entered. Client side validation saves server time and load to handle invalid data. Some checks imposed are:

- Maximum lengths of the fields of the forms are appropriately defined.
- Forms cannot be submitted without filling up the mandatory data so that manual mistakes of submitting empty fields that are mandatory can be sorted out at the client side to save the server time and load.
- Tab-indexes are set according to the need and taking into account the ease of user while working with the system.

SERVER SIDE VALIDATION
Some checks cannot be applied at client side. Server side checks are necessary to save the system from failing and intimating the user that some invalid operation hasbeen performed or the performed operation is restricted. Some of the server sidechecks imposed is:

- Server side constraint has been imposed to check for the validity of primary key and foreign key. A primary key value cannot be duplicated. Any attempt to duplicate the primary value results into a message intimating the user about those values through the forms using foreign key can be updated only of the existing foreign key values.
- User is intimating through appropriate messages about the successful operations or exceptions occurring at server side.
- Using server side validation, constraints on several restricted operations are imposed.

Only the valid users can login to the project. New applicants,recruiters must first register themselves to apply for jobs. Then a unique ID is given to them by the system.

9.5 Backup Instructions

Data backups for database server and the deployed system files is done to reconstruct and recover from any kind of data loss due to media failures, or physical damages due to disaster. Restoration of these backups makes it possible to recover from lost changes.
The database is backed up on a remote server every day. Backing up system state data, files, and other data on the server is also done to ensure the information and settings of software system to be backed up in an external media disk. All the directories from the root directory to the local level directories must be backed up.

Appendix 1 About the Supervisor(s)/Faculty Guide

Responsibility as a supervisor

1. Assume, in collaboration with the student, responsibility for the satisfactory progress and completion of the agreed project, making reasonable adjustments where necessary.

2. Possess and maintain knowledge of the programming and design area to provide adequate supervision of the research project.

3. Possess and continue to develop the appropriate skills to facilitate the production of high quality project work by the student.

4. Develop, in collaboration with the student, an appropriate planning schedule for successive stages of the project (including writing-up) so that the report may be completed and submitted within the appropriate timescale.

5. Assist students in identifying their development and training needs.

6. Ensure that the student is made aware of any unsatisfactory progress or standard of work, and arranging any supportive action as necessary.

7. Exercise formal duties in respect of Company regulations and guidelines.

8. Advise student when the report should be considered ready for submission.

Meetings, work and records

1. Maintain and ensure availability for regular contact with the student, making sufficient time available to fulfill the needs of the individual project.

2. Review written work produced by the student and provide appropriate and constructive criticism in a timely fashion and within two weeks of submission.

3. Maintain and ensure that student maintains clear, accurate, detailed and accessible records of work undertaken.

4. Maintain and ensure that student maintains a record of supervisory meetings and agreed actions.

5. Retain a copy of all written feedback provided to the student.

Industry Guide Details

Name: Gyanendra Singh Yadav
Designation: Sr. Trainer- Technical
Industry: Tech Mahindra Ltd.
Email ID: GyanendraSingh.Yadav@TechMahindra.com

Supervisor Details

Name: Sushant Patnaik
Designation: Assistant Manager-Training
Industry: Tech Mahindra Ltd.
Email ID: Sushantpa@TechMahindra.com

Appendix 2 About the Scholar

Responsibility as a developer and vocational trainee

1. Accept ultimate responsibility for completion of the agreed project.

2. Accept responsibility for your eligibility and preparedness for a programming level and for adherence to relevant Faculty and University regulations and guidelines.

3. Act as a responsible member of the academic community.

4. Maintain satisfactory progress of the agreed program of project.

5. Take the initiative in raising any problems or difficulties for discussion with the supervisor(s).

6. Identify personal development and training needs in consultation with supervisors.

7. Make appropriate use of both formal and informal teaching and learning opportunities provided by the Company.

8. In collaboration with supervisor(s), assume responsibility for the direction and progression of the project.

9. Ensure that the final report is submitted within the designated period, taking due account of advice and recommendations of supervisor(s)

Meetings, work and records

1. Discuss and agree with the supervisor(s) a schedule of regular supervisory meetings.

2. In collaboration with supervisors, set agenda for supervisory meetings and address the schedule of any agreed actions in a timely fashion after each formal meeting.

3. Discuss and agree with the supervisor(s) the most appropriate type and extent of guidance/feedback.

4. Submit the work for review and comment by supervisor(s) at agreed times.

5. Maintain clear, accurate, detailed and accessible records of all relevant work.

6. Provide adequate explanation of any failure to meet commitments, including meetings

Scholar Details

Name: Srishti Sukhralia
Roll No: 2K10-MRCE-CSE-113
Course: B.Tech (Computer Science & Engineering)
Year: 4th Year

Project Details

Project Title: Enterprise Resource Information System
Nature of Project: Software Development
Name of Organization: Tech Mahindra limited, Noida
Industry Type: Information Technology

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