

EmployMe Job Portal



**JARAMOGI OGINGA ODINGA UNIVERSITY OF SCIENCE AND  
TECHNOLOGY**

**PROJECT TITLE: EMPLOYME JOB PORTAL**

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**A Project Proposal Submitted to the School of Informatics and Innovative  
Systems at Jaramogi Oginga Odinga University of Science and Technology.**

**DECEMBER 2016**

**Under the guidance of  
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**DECLARATION**

**DECLARATION BY STUDENTS**

This project is our original work and has not been presented for an award of a diploma or conferment of a degree in any other University or Institution.

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**DECLARATION BY SUPERVISOR**

This project has been submitted for examination with our approval as the candidates' University Supervisor.

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We dedicate this work to our family for their constant support both spiritually and financially. We also dedicate this project work to our friends more so our classmates for the support, love and encouragement they showed us during this period.

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**ABSTRACT**

Unemployment is one of the serious social issues faced by both developing and developed countries. The main reason for this problem is the unfair distribution or lack of information on job opportunities so people are unable to know the new job vacancies. It means that there are some jobs available, but jobseekers do not have access to that information. An efficient search of the internet might help to jobseekers in their job hunt. The main aim of this job portal is to connect the industries and act as an online recruitment platform to support the job seekers to find the right jobs advertised by companies or individuals with job opportunities. Furthermore, this system enhances the understanding concept and importance of the job portal..

**TABLE OF CONTENTS**

**Contents**

DECLARATION ..... i  
    DECLARATION BY STUDENTS ..... i  
    DECLARATION BY SUPERVISOR..... i  
COPYRIGHT AND DEDICATION ..... ii  
ACKNOWLEDGEMENT..... iii  
ABSTRACT ..... iv  
TABLE OF CONTENTS .....v  
LIST OF FIGURES ..... viii  
LIST OF TABLES ..... viii  
ACRONYMS AND ABBREVIATIONS ..... ix  
CHAPTER ONE ..... 1  
1.0 INTRODUCTION..... 1  
    1.1 Background Information..... 1  
    1.2 Problem statement ..... 1  
    1.3 Objectives ..... 1  
    1.4 Why EmployMe Job Portal?..... 1  
    1.5 Assumptions..... 2  
    1.6 Advantages..... 2  
    1.7 Scope ..... 2  
    1.8 Limitations of the system..... 2  
    1.9 Proposed system features..... 2  
    1.10. Quality plan..... 2  
CHAPTER TWO ..... 3  
    2.0 Literature review ..... 3  
CHAPTER THREE..... 4  
    3.0 Methodology ..... 4  
    3.1 Predictive Life Cycle Models ..... 4  
    3.2. Adaptive Software Development life cycle models ..... 4  
    3.2.1. Agile System Development Methodology..... 4  
    3.2.2. Advantages of Agile ..... 4  
    3.2.3. Disadvantages of Agile..... 5  
CHAPTER FOUR..... 7

4.0 SYSTEM ANALYSIS.....	7
4.1. Specification requirements.....	7
4.1.1. Software requirement Specification .....	7
4.1.2. Hardware Requirement Specification.....	7
4.2. Functional requirements .....	7
4.2.1. Web Application.....	7
4.2.2. Front end.....	7
4.2.3. Back end.....	8
4.3. Non-functional requirements .....	8
4.3.1. Reliability requirements.....	8
4.3.2. Usability requirements.....	8
4.3.3. Implementation requirements.....	8
4.3.4. Security requirements .....	8
4.4.TECHNOLOGIES USED.....	8
4.4.1Netbeans IDE .....	8
4.4.1.1. Why Netbeans IDE? .....	8
4.4.2. History of MySQL.....	10
4.4.2.1. Security: .....	10
4.4.2.2. MySQL Stability.....	10
4.4.3. Tomcat .....	10
CHAPTER FIVE .....	11
5.0. System Design.....	11
5.1. Architectural Design.....	11
5.2. Logical Design .....	11
5.2.1. Data Flow diagrams.....	11
5.4. Use Case Documentation.....	13
5.5 Process Flow .....	17
5.5.1. Activity Diagrams .....	17
5.6. Sequence Diagram.....	23
5.7. SYSTEM IMPLEMENTATION AND TESTING .....	26
5.7.1Testing Methodologies: .....	26
5.7.2. Levels of Testing .....	26
5.7.2.1. STLC (Software Testing Life Cycle).....	26
5.7.2.2. Test Planning:.....	26

5.7.3. Types of Testing .....	26
5.7.4. TCD (Test Case Document):.....	27
5.7.5. Guidelines for Test Cases: .....	28
5.7.6. SYSTEM IMPLEMENTATION .....	29
i. 6. FINDINGS .....	30
7. RECCOMENDATIONS .....	31
8. CONCLUSIONS.....	32
9. APPENDIXES .....	33
9.1. References.....	33
9.2. User manual .....	34
9.4. Work plan.....	36



**LIST OF FIGURES**

Figure 1: Employme context level DFD ..... 12  
Figure 2: EmployMe top level DFD ..... 13  
Figure 3: EmployMe overall use case diagram ..... 14  
Figure 4: EmployMe Administrator use case ..... 15  
Figure 5: EmployMe company Use Case ..... 16  
Figure 6: EmployMe Candidate Use Case ..... 17  
Figure 7: EmployMe login process ..... 18  
Figure 8: EmployMe Registration Process ..... 19  
Figure 9: Administrator Process ..... 20  
Figure 10: EmployMe Company Process ..... 21  
Figure 11: EmployMe Candidate Process ..... 22  
Figure 12: EmployMe Administrator Sequence ..... 23  
Figure 13: EmployMe Company Sequence ..... 24  
Figure 14: EmployMe Candidate Sequence ..... 25  
Figure 15: EmployMe login window ..... 34  
Figure 16: EmployMe Search/Post Job ..... 34  
Figure 17: EmployMe Post a Job ..... 35  
Figure 18: EmployMe Administrator Panel ..... 35  
Figure 19: EmployMe work plan ..... 36

**LIST OF TABLES**

Table 1: Template for Test Case ..... 28  
Table 2: Example of GUI Test Case ..... 28  
Table 3: example of positive test case ..... 28  
Table 4: example of a negative test case ..... 29

**ACRONYMS AND ABBREVIATIONS**

SIIS	- School of Informatics and Innovative System
ASD	- Adaptive Software Development life cycle
DFD	- Data flow diagram
ISO	- International Organization for Standardization
RAM	- Random Access Memory
RAD	- Rapid Application Development
SDLC	- Systems Development Life Cycle
GUI	- Graphical User Interface
T.C NO	-Test Case Number

## **CHAPTER ONE**

### **1.0 INTRODUCTION**

Online job portals use internet as a platform for job advertisements, posting of job vacancies and job applications by job seekers. EmployMe Job Portal allows Job seekers to apply for a job online by viewing jobs Posted by companies. It allows online job posting for companies and sending interview letter to selected candidates by e-mail. Quick and advanced search facility for both Job seeker and Companies is the main advantage of this application.

#### **1.1 Background Information**

EmployMe job portal involves a user (job seeker) creating an account by registering and uploading his/her curriculum vitae. The company(s) also registers and publishes the job vacancies and job requirements on the portal. The candidate can then apply for the job and the company will vet the applications upon which the candidate can be recruited or turned down. A candidate will be able to access career guidance or advice that will be available in the portal

#### **1.2 Problem statement**

With the high number of youths in our country, landing a job has become a greater challenge. This is greatly contributed by the fact that there is no proper interaction between the job seekers and the companies themselves. There is therefore a concern to design an on-line recruitment system that allows employers to post their job advertisements, which job seeker can refer to, when looking for jobs. This job portal is able to capture job requirements based on industry needs.

#### **1.3 Objectives**

##### *1.3.1 Main objective*

To develop a system that will be able to provide an online based platform for job advertisements, application, and job recruitment.

##### *1.3.2 Specific objectives*

To develop a system that will provide a platform to enable companies to post job vacancies/job advertisement for candidates to apply within the same platform.

To develop a system that will allow job seekers to make applications that will be approved by companies on the platform.

To develop a system that will provide best opportunities to job seekers and Companies can select best qualified candidates by sitting in front of a system

#### **1.4 Why EmployMe Job Portal?**

The Objective of this project is to develop an e-recruitment site, which is a modern way for the employers to advertise the latest job openings in their organization over the internet. This project also facilitates the jobseekers to apply for these jobs online. This project will provide the employers with low budget cost effective resume search and job posting options for the companies to best fit their job requirements. This job portal is able to capture job requirements based on industry needs. EmployMe also tends to offer career advice to job seekers.

Most companies lack a website. They can therefore use EmployMe portal to advertise their job vacancies.

### **1.5 Assumptions**

The system users (job seekers and companies/ individuals with job opportunities) have access to internet services.

### **1.6 Advantages**

- i. The new system should be cost effective.
- ii. To augment management, improve productivity and services.
- iii. To enhance user / system interface.
- iv. To improve information quality and usability.
- v. To upgrade systems reliability, availability, flexibility and growth potential.

### **1.7 Scope**

The project will be developed from project conception and initiation to project close which will run from 17th October 2016 to 4th December 2016. The stakeholders will be the companies/individual who will post or advertise a job vacancy on the platform, the platform administrators who form the team monitors and manages the platform, the candidates (job seekers) who will apply for the advertised job vacancies based on the described qualifications and job requirements.

### **1.8 Limitations of the system**

Users must have access to the internet.

### **1.9 Proposed system features**

- i. Applying for jobs through online
- ii. Maintaining records of job opportunities with its company details
- iii. Maintaining records of candidates' profile with their experience
- iv. To access the different companies for opportunities
- v. Offering the best services for job seekers and company users
- vi. User(s) can edit and delete the information in their profile.
- vii. Company user can view suitable candidates profile
- viii. Administrator can add and delete the users on the basis of their performance
- ix. Candidate can view and apply the opportunities available in the companies
- x. Admin user can add or delete the company user from the system.

### **1.10. Quality plan**

The International Organization for Standardization (ISO) defines quality as “the degree to which a set of inherent characteristics fulfils requirements”. In order to achieve quality of our system we would use ISO: 9000:2000.

ISO 9000 is a quality system standard that:

Is a three-part, continuous cycle of planning, controlling, and documenting quality in an organization

Provides minimum requirements needed for an organization to meet its quality certification standards

Helps organizations around the world reduce costs and improve customer satisfaction

## **CHAPTER TWO**

### **2.0 Literature review**

The digital world has brought a new dimension to the world of recruiting. The World Wide Web, or Web 1.0, shortened the search time, costs and offered a transparent method of information for candidates (Salmen, 2012). E-Recruitment is an easiest and convincing way to hire people from any part of the world and promotes opportunity, it benefits the company to be recognized globally, and E-HRM helps in conveying any kind of HR policies, training program, and pay slip sheets easily. E-HRM is based on more systematic & technology theorem, which helps the HR department to scrutinize employee performance carefully & accurately.

It helps in imparting any HR policy; keep a track on employees daily activity report (DAR), efficiently helps the employees in promotion & transfers. E-recruitment, also known within the literature as online recruitment, cyber recruiting, or internet recruiting are synonymous. They imply formal sourcing of jobs online (Ganalaki, 2002). It is a complete process which includes job advertisements, receiving resumes and building human resource database with candidates and incumbents.

The findings from Holm's (2012) thesis were that there was a difference between the paper-based and the electronic-based recruitment process. From the findings, Holm's found that the electronic-based recruitment process began with few electronic tools for line managers to commence the recruitment process, e.g. line managers were putting their hiring needs into a Word document and sending it to the responsible recruiter. The recruiter then had to read each applicant and rate the order. In some cases, this is handled through filter programs bringing top applicants to the forefront. Holm's (2012) study was conducted between the years 2008 to 2010 in three companies in Denmark, which could have limited the validity of the recruitment process today as electronic technology has been developed for the evolving topic of recruitment

## **CHAPTER THREE**

### **3.0 Methodology**

The Systems Development Life Cycle (SDLC) is a framework for describing the phases involved in developing and maintaining information systems

Systems development projects can follow;

#### **3.1 Predictive Life Cycle Models**

*Waterfall model:*

has well-defined, linear stages of systems development and support

*Spiral model*

shows that software is developed using an iterative or spiral approach rather than a linear approach

*Incremental build model*

provides for progressive development of operational software

*Prototyping model*

used for developing prototypes to clarify user requirements

*Rapid Application Development (RAD) model*

used to produce systems quickly without sacrificing quality

#### **3.2. Adaptive Software Development life cycle models**

***Scrum***; According to the Scrum Alliance, Scrum is the leading agile development method for completing projects with a complex, innovative scope of work.

***Agile***; Agile today means using a method based on iterative and incremental development, in which requirements and solutions evolve through collaboration.

##### **3.2.1. Agile System Development Methodology**

Agile is a software development methodology to build a software incrementally using short iterations of 1 to 4 weeks so that the development process is aligned with the changing business needs. Instead of a single-pass development of 6 to 18 months where all the requirements and risks are predicted upfront, Agile adopts a process of frequent feedback where a workable product is delivered after 1 to 4-week iteration. The aim of agile methods is to reduce overheads in the software process (e.g. by limiting documentation) and to be able to respond quickly to changing requirements without excessive rework.

##### **3.2.2. Advantages of Agile**

- i. Customer satisfaction
- ii. Allows for changes to be made.
- iii. Deliver a working software frequently, ranging from a few weeks to a few months, considering shorter time-scale.
- iv. Promotes collaboration
- v. Provides motivation between individual team members.
- vi. Allows face-to-face Conversation

- vii. Measure the Progress as per the Working Software.
- viii. Maintain Constant Pace
- ix. Monitoring - Pay regular attention to technical excellence and good design to enhance agility.
- x. Simplicity - Keep things simple and use simple terms to measure the work that is not completed.
- xi. Review the Work Regularly

### **3.2.3. Disadvantages of Agile**

- i. Limited support for distributed development environments.
- ii. Limited support for subcontracting.
- iii. Limited support for developing large, complex software.
- iv. Limited support for development involving large teams.

Agile follows the phases of software development life cycle which include;  
Project planning: initiate, ensure feasibility, plan schedule, and obtain approval.  
Analysis: understand computer lab needs and processing requirements  
Design: define solution system based on requirements and analysis decisions  
Implementation: construction, testing, user training, and installation of new system  
Support: keep system running and improve

#### *3.2.3.1. System Planning*

In planning phase, we identified the system requirements for the EmployMe Job Portal project. This was first phase of the system and it entailed determining the necessary information that was required for the system to be fully operational and functional. The requirements that we captured was subjected to thorough scrutiny to determine the level of essence of it as well as eliminate the unwanted requirements. We did this based on the fact that though the requirements might have been raised by the target users, they might not be realistic or might not be so much important.

#### *3.2.3.2. System Analysis*

here, we analyzed and considered the current systems and investigated any problems associated with it. Other sources of information about system and the new requirements were also investigated at this time. The important information from the planning phase was highly used in this phase, and the valid information gathered from the users was analyzed for the design stage.

#### *3.2.3.3. System Design*

After the requirements having already been captured and analyzed, the design of the information flow was done here. It is in this phase that the flow charts, dataflow diagrams and entity relationship diagrams were drawn to show flow of information and the activity diagrams were developed to show the connection that will exist between one information and another.

#### *3.2.3.4. System Coding and Implementation*

After the design of the interfaces as well as the indication of the information flow through the Sequence diagrams and the flowcharts algorithms, the next step was to develop code that performed the hidden functionality of the system to realize the already set objectives. The code was developed highly depending on the information flow and therefore the flowcharts developed

earlier were now applied here. The requirements documentation was referred throughout the rest of the system development process to ensure the developing project aligns with the needs and requirements or scope. A proper execution of the previous stages ensured an easier realization of this phase in the course of our development. Upon completion of the coding, the various components of the system were then integrated in to one system in order to function collectively as a single component.

#### *3.2.3.5. System Testing*

Last phase is system testing done when development is complete and the system is ready for deployment. The testing phase come next to determine if the earlier intended objective have been realized by then. Testing was done based on whether completeness will have been realized or functional testing that determined whether the software is doing what it is expected correctly and in the right way. User testing was then carried out to ascertain that the users will be contented with what will have been achieved then.



## **CHAPTER FOUR**

### **4.0 SYSTEM ANALYSIS**

Upon the completion of the EmployMe Job portal, there are a number of things that will be expected of it not only by the prospective users but also for the administrator of the system. These will therefore form the requirements of the EmployMe Job portal and will be broadly classified into the system requirements, functional requirements and the Non-functional requirements.

#### **4.1. Specification requirements.**

Requirement analysis for web applications encompasses three major tasks: formulation, requirements gathering and analysis modeling. During formulation, the basic motivation and goals for the web application are identified, and the categories of users are defined. In the requirements gathering phase, the content and functional requirements are listed and interaction scenarios written from end-user's point-of-view are developed. This intent is to establish a basic understanding of why the web application is built, who will use it, and what problems it will solve for its users.

##### **4.1.1. 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 2000, XP
Presentation layer	:	PHP, Apache, Javascript
Database	:	My SQL
Documentation Tool	:	Microsoft Office
Design Tool	:	Visio professional

##### **4.1.2. 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
Keyboard	:	Standard keyboard
Mouse	:	Standard mouse

### **4.2. Functional requirements**

#### **4.2.1. Web Application**

##### **4.2.2. Front end**

- i. User registration/login
- ii. Job vacancies advertisement
- iii. User dashboard
- iv. Contact us functionality
- v. Sitemaps
- vi. Links to EmployMe social sites
- vii. Ask question/ help

- viii. Privacy and security
- ix. Terms of use
- x. Privacy rights

#### **4.2.3. Back end**

- i. Database holding all data
- ii. Login functionality for admins
- iii. Description of privileges
- iv. Add/remove admin functionality
- v. Backup and restoration
- vi. Security
- vii. Integration
- viii. Operating system and browser compatibility

### **4.3. Non-functional requirements**

#### **4.3.1. Reliability requirements**

The system must perform accurately towards the administrator request. For example, when the administrator saves the edited details of the user, after he reviews the details later, they must be changed according to the latest details that was updated. Moreover, the client is not allowed to view the details that the administrator has. Besides that, the login form will have validity check to ensure that only the authorized users gain access to the system.

#### **4.3.2. Usability requirements**

This system should be user-friendly and easy to use so that users can perform their tasks nicely.

#### **4.3.3. Implementation requirements**

In implementing the system, it uses Netbeans as the main tool. This forms the front-end. At the back-end, the Apache and MYSQL will be synchronized and be used to maintain the information in the database. This is formed by the databases and other data stores.

#### **4.3.4. Security requirements**

User credentials should be encrypted so as to ensure confidentiality, integrity and availability and the project ideas should be protected so as to avoid being stolen by other parties.

### **4.4. TECHNOLOGIES USED**

#### **4.4.1. Netbeans IDE**

The NetBeans integrated development environment (IDE) delivers. The NetBeans IDE can boost your productivity when you're working with Java SE, Java EE, or Java ME technology as well as PHP, Groovy, JavaScript, and C/C++. Visual tools that generate skeleton code are also available, letting you create a basic application without writing a single line of code.

##### **4.4.1.1. Why Netbeans IDE?**

###### **Works Out of the Box**

Simply download and install the NetBeans IDE and you are good to go. Installation is a breeze with its small download size. All IDE tools and features are fully integrated—no need to hunt for plug-ins and they work together when you launch the IDE.

###### **Free and Open Source**

When you use the NetBeans IDE, you join a vibrant, open-source community of thousands of users ready to help and contribute. There are discussions on the NetBeans mailing lists, blogs on Planet NetBeans , and helpful FAQs .

#### Connected Developer

The NetBeans IDE is the tool of choice for teams working in a collaborative environment. You can create and manage java.net-hosted projects, for example; file issue tracking reports using both Jira and Bugzilla, and collaborate with like-minded developers all directly from within the familiar interface of the IDE.

#### Powerful GUI Builder

The GUI Builder (formerly known as Project Matisse) supports a sophisticated yet simplified Swing Application Framework and Beans Binding. Now you can build GUIs in a natural way.

#### Support for Java Standards and Platforms

The IDE provides end-to-end solutions for all Java development platforms including the latest Java standards. Java Mobility Support Complete environment to create, test, and run applications for mobile devices. With preprocessor blocks, you can readily handle fragmentation issues. Support for Java Mobility development is the best among all Java development tools. Java Enterprise Edition (EE) 6 support : The first free, open-source IDE to support Java EE 6 specifications. Java Standard Edition (SE) Support: You can develop applications using the latest Java SE standards.

#### ✓ Profiling and Debugging Tools

With NetBeans IDE profiler , you get real-time insight into memory usage and potential performance bottlenecks. Furthermore, you can instrument specific parts of code to avoid performance degradation during profiling. The HeapWalker tool helps you evaluate Java heap contents and find memory leaks.

#### Dynamic Language Support

The NetBeans IDE provides integrated support for scripting languages such as PHP, Groovy , and JavaScript .

PHP: With the NetBeans IDE for PHP, you get the best of both worlds: the productivity of an IDE (code completion, real-time error checking, debugging and more) with the speed and simplicity of your favorite text editor in a less than 30mb download. JavaScript : The NetBeans IDE has the JavaScript tools you need: an intelligent JavaScript editor, CSS/HTML code completion, the ability to debug JavaScript in Firefox and IE, and bundled popular JavaScript libraries. Your favorite JavaScript framework will get you 80% of the way, NetBeans IDE will help you with that last 20%.

#### Extensible Platform

Start with its extensible platform and add your own NetBeans IDE features and extensions or build an IDE-like application, keeping only features you want. Extending the platform and its Swing-based foundation saves development time and can optimize performance.

#### Customizable Projects

Through the NetBeans IDE build process, which relies on industry standards such as Apache Ant, make, Maven, and rake, rather than a proprietary build process, you can easily customize projects and add functionality. You can build, run, and deploy projects to servers outside of the IDE.

#### Non-Java Code Support

You're not limited to the Java programming language. You can include many other programming languages, such as C/C++ , scripting languages like JavaScript, etc. Even more exciting, define your own language and include it in your projects.

Dedicated Support Available

When you can't get the help you need from the community, consider Developer Support Packages , which offer programming advice, software support, and training credits.

#### **4.4.2. History of MySQL**

We started out with the intention of using the MySQL database system to connect to our tables using our own fast low-level (ISAM) routines. This resulted in a new SQL interface to our database but with almost the same API interface as MySQL.

The following list describes some of the important characteristics of the MySQL Database Software.

- i. Internals and Portability:
- ii. Written in C and C++.
- iii. Tested with a broad range of different compilers.
- iv. Works on many different platforms.
- v. Uses GNU Automake, Autoconf, and Libtool for portability.
- vi. APIs for C, C++, Eiffel, Java, Perl, PHP, Python, Ruby, and Tcl are available.

##### **4.4.2.1. Security:**

A privilege and password system that is very flexible and secure, and that allows host-based verification. Passwords are secure because all password traffic is encrypted when you connect to a server.

##### **4.4.2.2. MySQL Stability**

This section addresses the questions, “How stable is MySQL Server?” and, “Can I depend on MySQL Server in this project?” The information in this section is based on data gathered from the mailing lists, which are very active in identifying problems as well as reporting types of use.

Each release of the MySQL Server has been usable. Problems have occurred only when users try code from the “gray zones.” The descriptions mostly deal with Versions 3.23 and later of MySQL Server.

The MySQL Server design is multi-layered with independent modules. Some of the newer modules are listed here with an indication of how well-tested each of them.

#### **4.4.3. Tomcat**

Apache Tomcat is the servlet container that is used in the official Reference Implementation for the Java Servlet and Java Server Pages technologies. The Java Servlet and Java Server Pages specifications are developed by Sun under the Java Community Process.

Tomcat 5 implements the Servlet 2.4 and Java Server Pages 2.0 specifications and includes many additional features that make it a useful platform for developing and deploying web applications and web services.

## **CHAPTER FIVE**

### **5.0. System Design**

#### **5.1. Architectural Design**

EmployMe Job Portal uses three tier architecture. Three tier architecture is a client-server architecture in which the functional process logic, data access, computer data storage and user interface are developed and maintained as independent modules on separate platforms. Three-tier architecture is a software design pattern and a well-established software architecture.

The three tiers in a three-tier architecture are:

- i. Presentation Tier: Occupies the top level and displays information related to services available on a website. This tier communicates with other tiers by sending results to the browser and other tiers in the network.
- ii. Application Tier: Also called the middle tier, logic tier, business logic or logic tier, this tier is pulled from the presentation tier. It controls application functionality by performing detailed processing.
- iii. Data Tier: Houses database servers where information is stored and retrieved. Data in this tier is kept independent of application servers or business logic.

### **5.2. Logical Design**

#### **5.2.1. Data Flow diagrams**

There are 2 types of Dfd's they are

- i. Context Level DFD
- ii. Top Level DFD

5.2.1.1. Context Level DFD

In the Context Level the whole system is shown as a single process.

No data stores are shown.

Inputs to the overall system are shown together with data sources (as External entities).

Outputs from the overall system are shown together with their destinations (as External entities).

Figure 1 below shows EmployMe context level DFD.

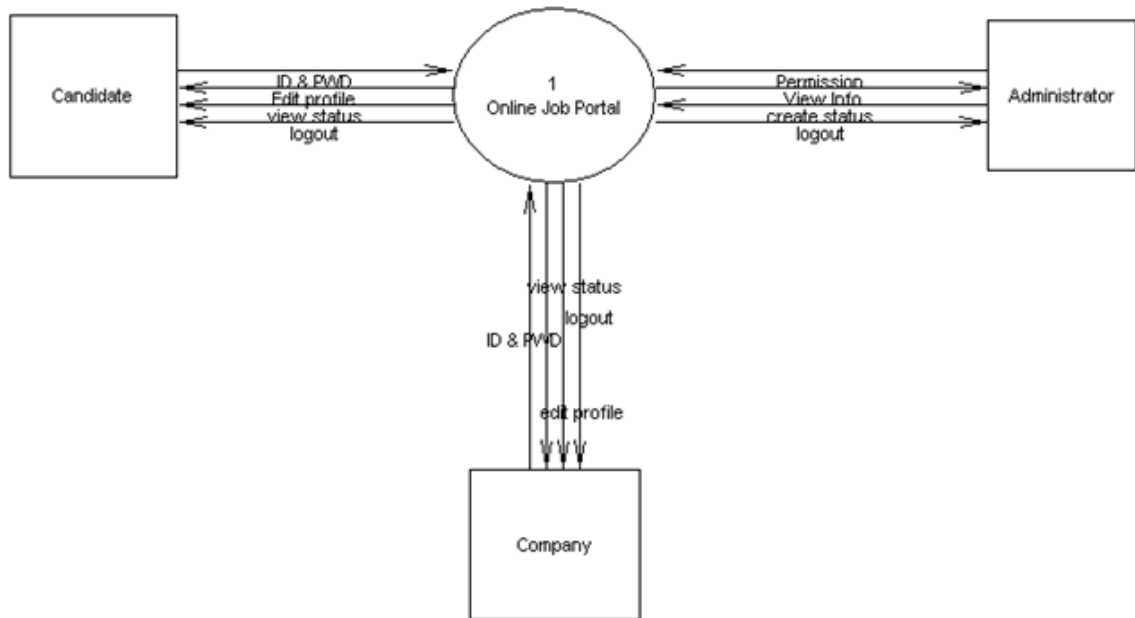


Figure 1: Employme context level DFD

### 5.3.1.2. Top Level DFD

The Top Level DFD gives the overview of the whole system identifying the major system processes and data flow. This level focuses on the single process that is drawn in the context diagram by 'Zooming in' on its contents and illustrates what it does in more detail.

Figure 2 below shows EmployMe top level DFD

[1,1]

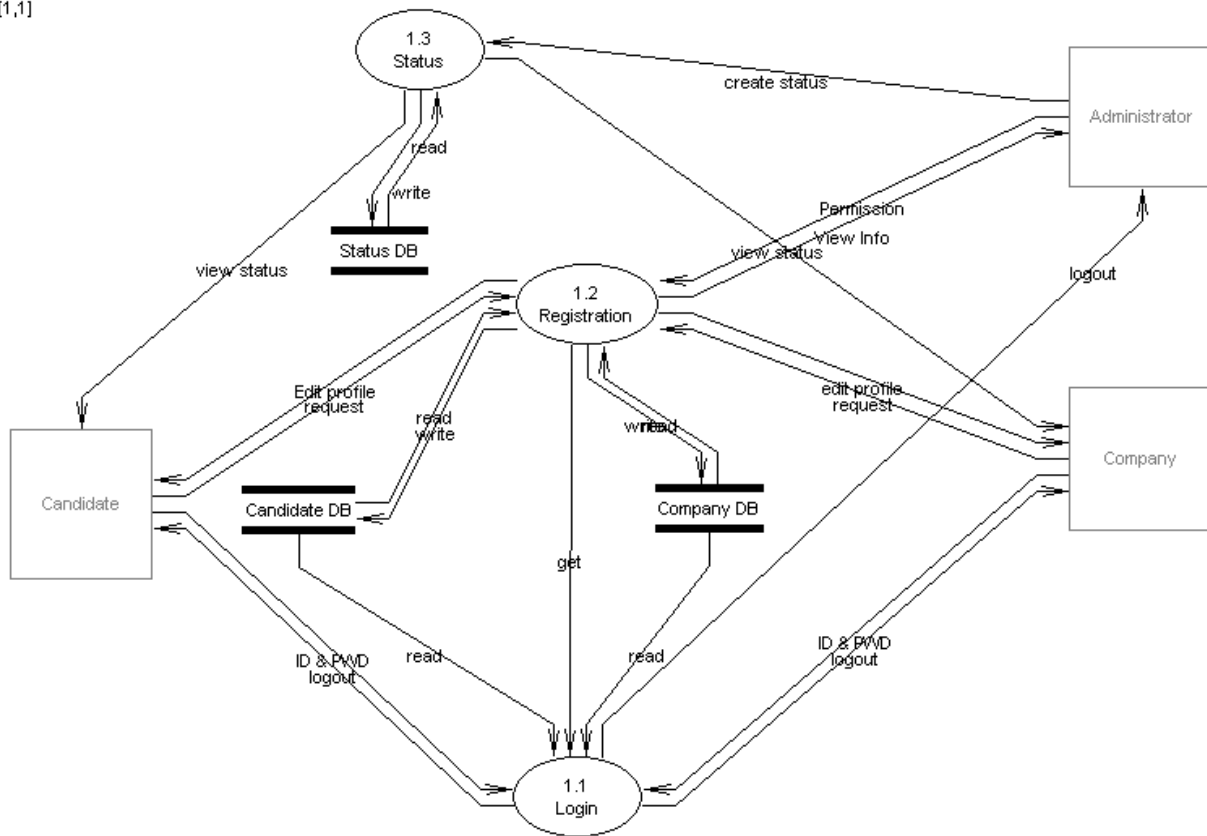


Figure 2: EmployMe top level DFD

## 5.4. Use Case Documentation

### Use Case Diagram

A use case diagram is a diagram that shows a set of use cases and actors and relationships.

Contents

Use case commonly contain

- ✓ Use cases
- ✓ Actors
- ✓ Dependency, generalization and association relationships

Figure 3 below shows EmployMe Overall Use Case

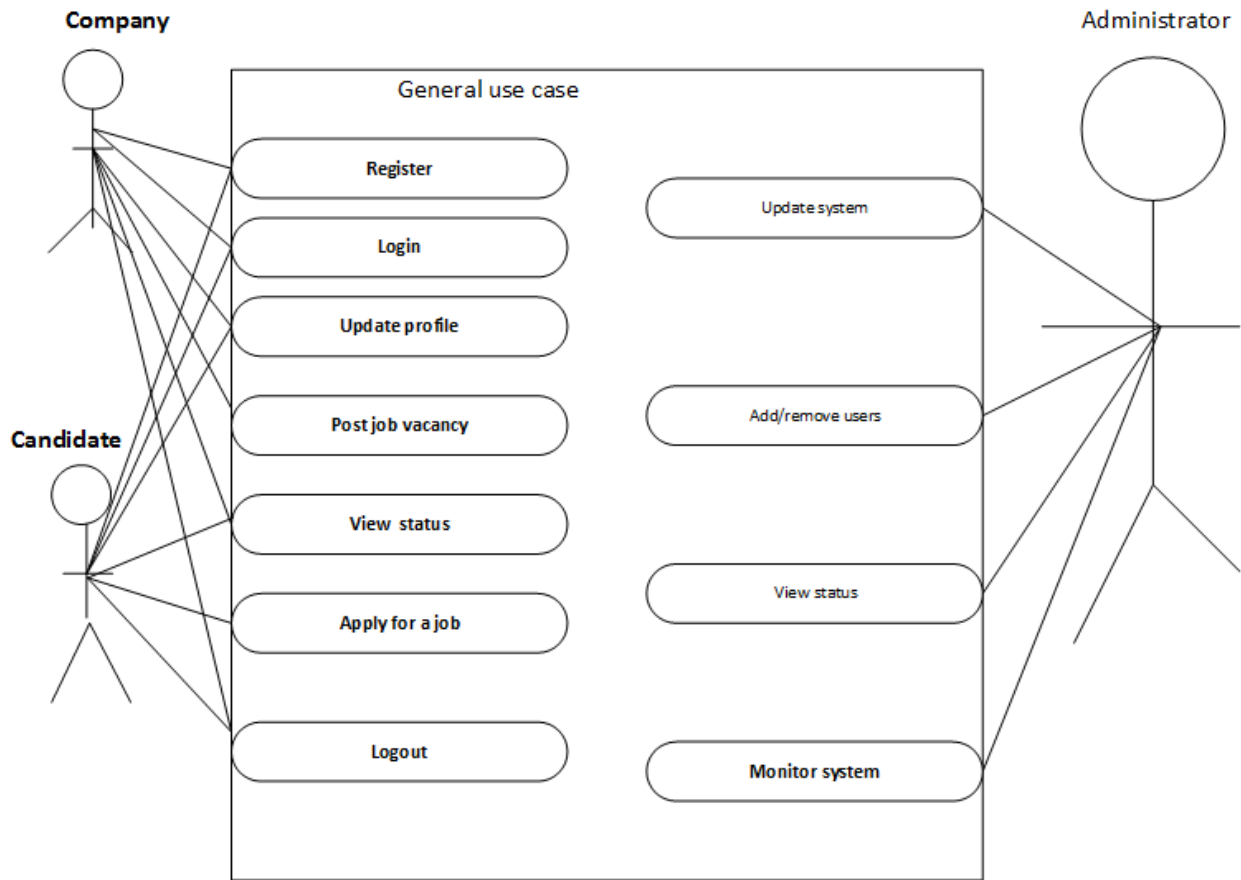


Figure 3: EmployMe overall use case diagram



Figure 4 below shows EmployMe Administrator Use Case

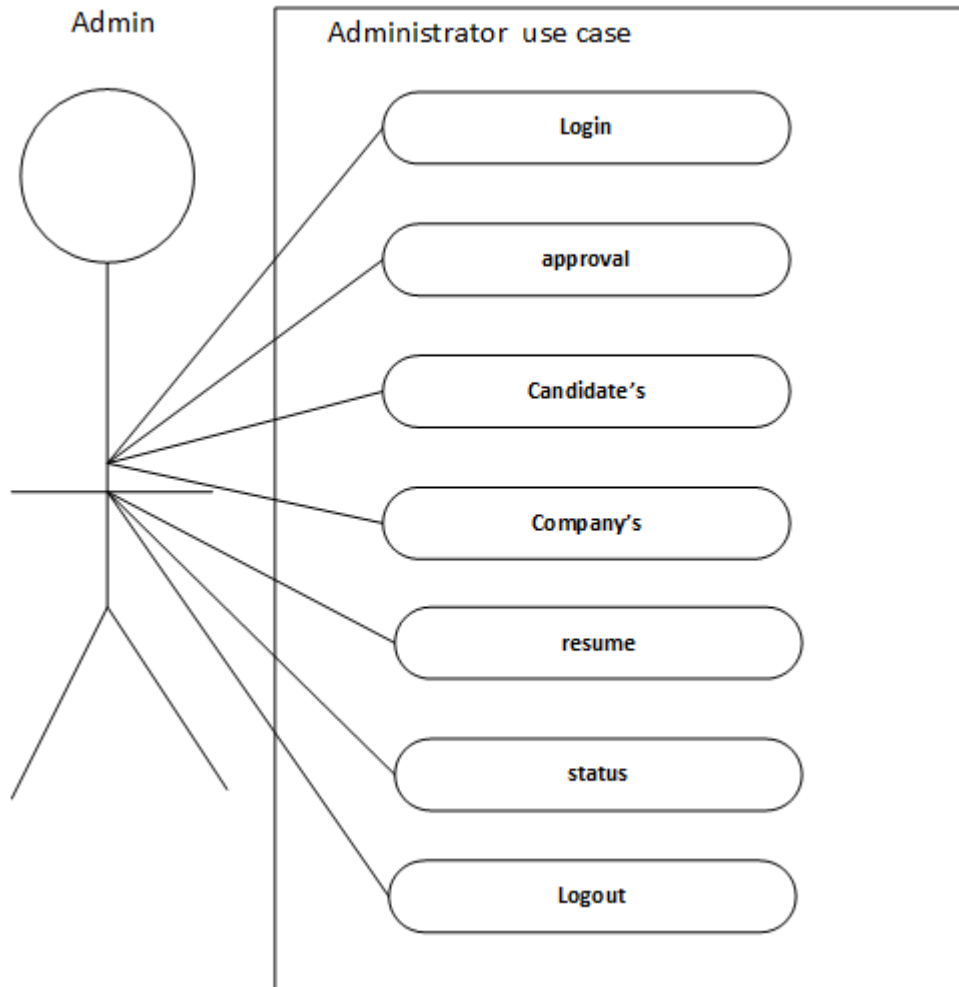


Figure 4: EmployMe Administrator use case

Figure 5 below shows EmployMe Company Use Case Company Use Case

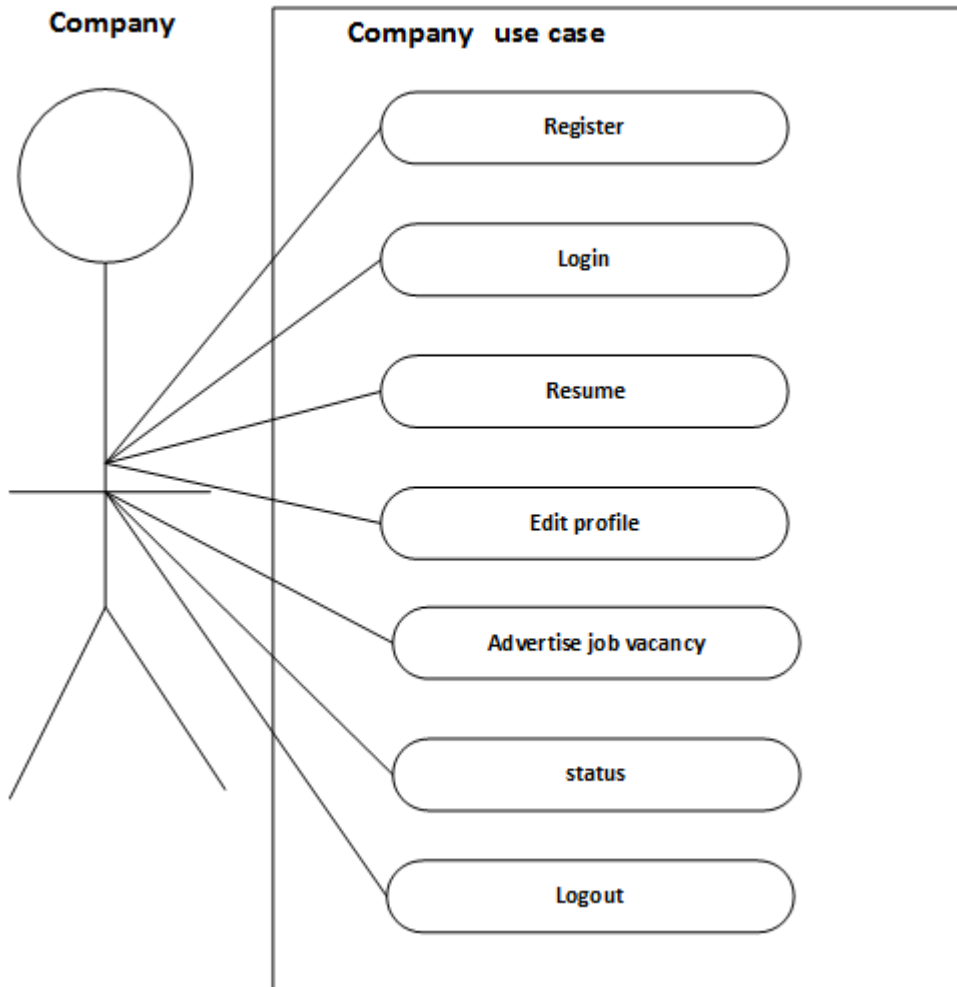


Figure 5: EmployMe company Use Case

Figure 6 below shows EmployMe Candidate Use Case Candidate Use Case

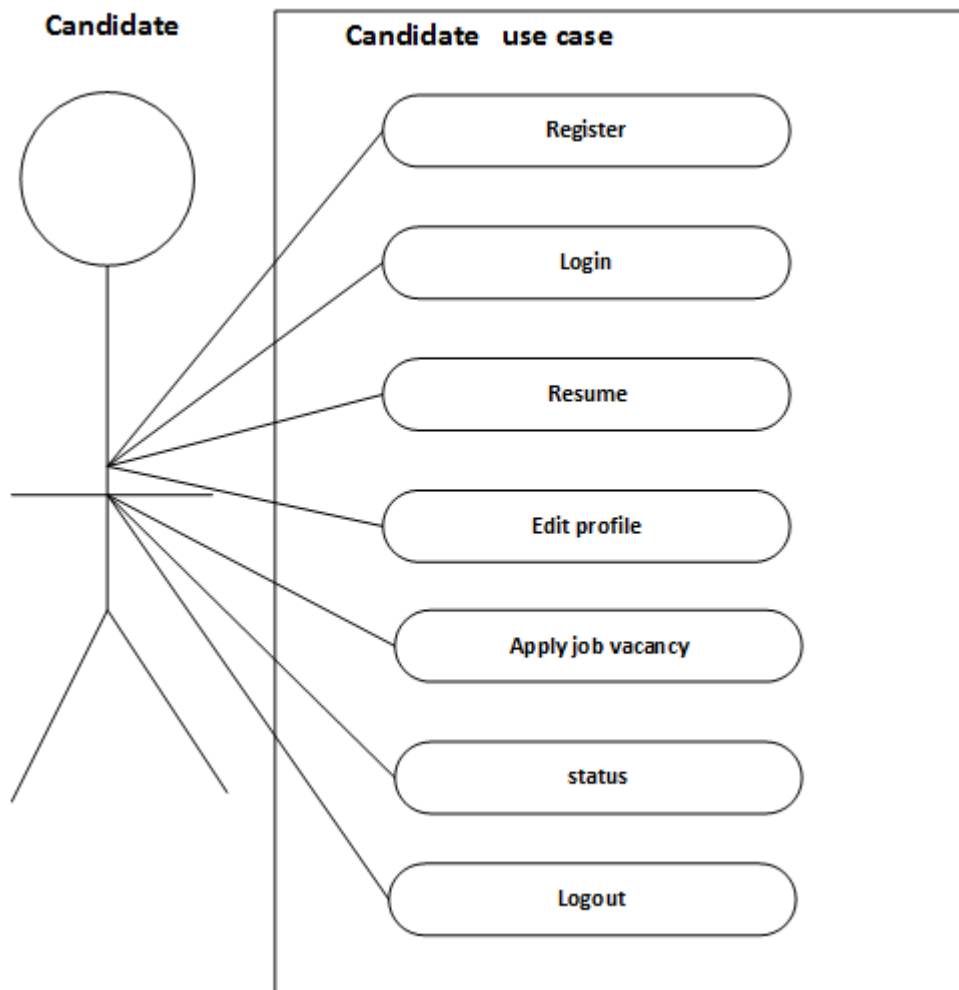


Figure 6: EmployMe Candidate Use Case

## 5.5 Process Flow

### 5.5.1. Activity Diagrams

An activity diagram shows the flow from activity to activity. An activity is an ongoing non-atomic execution within a state machine.

Activities ultimately result in some action, which is made up of executable atomic computations that result in a change in state of the system or the return of a value.

Activity diagrams commonly contain

- i. Activity states and action states
- ii. Transitions
- iii. Objects
- iv. Like all other diagrams, activity diagrams may contain notes and constrains.

Figure 7 below shows EmployMe Login Process

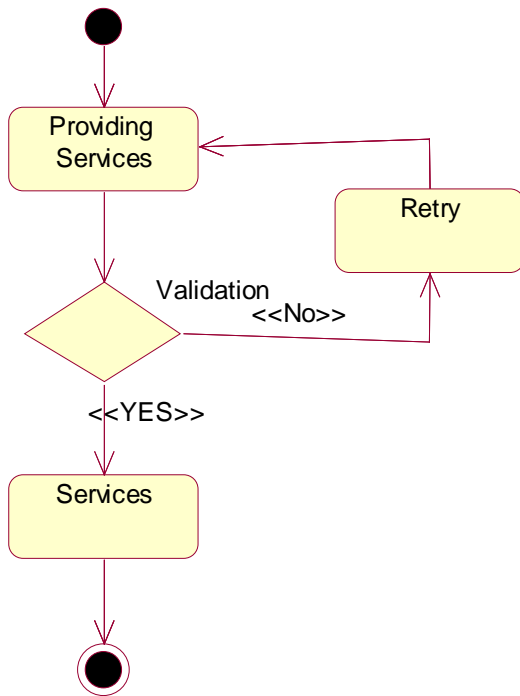


Figure 7: EmployMe login process

Figure 8 below shows EmployMe Registration Process

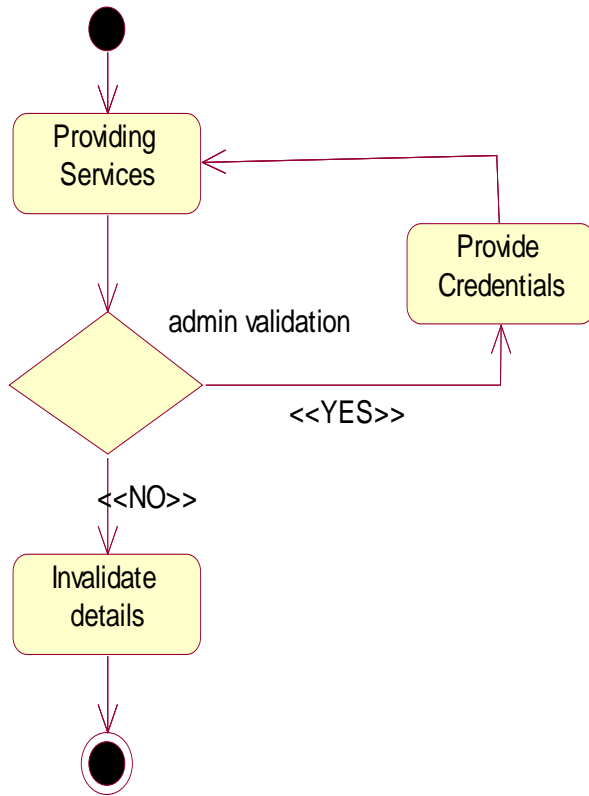


Figure 8: EmployMe Registration Process

Figure 9 below shows EmployMe Administrator Process

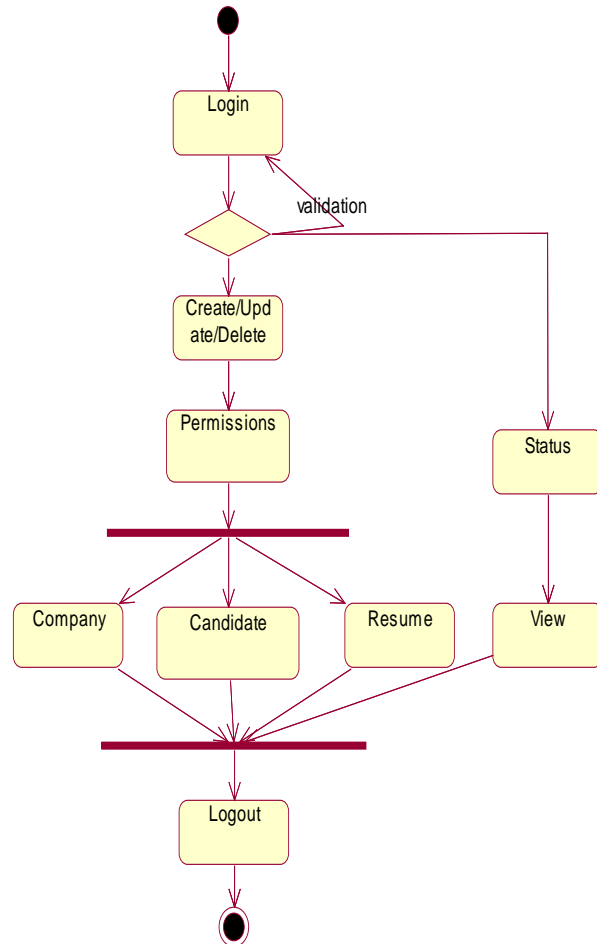


Figure 9: Administrator Process

Figure 10 below shows EmployMe Company Process

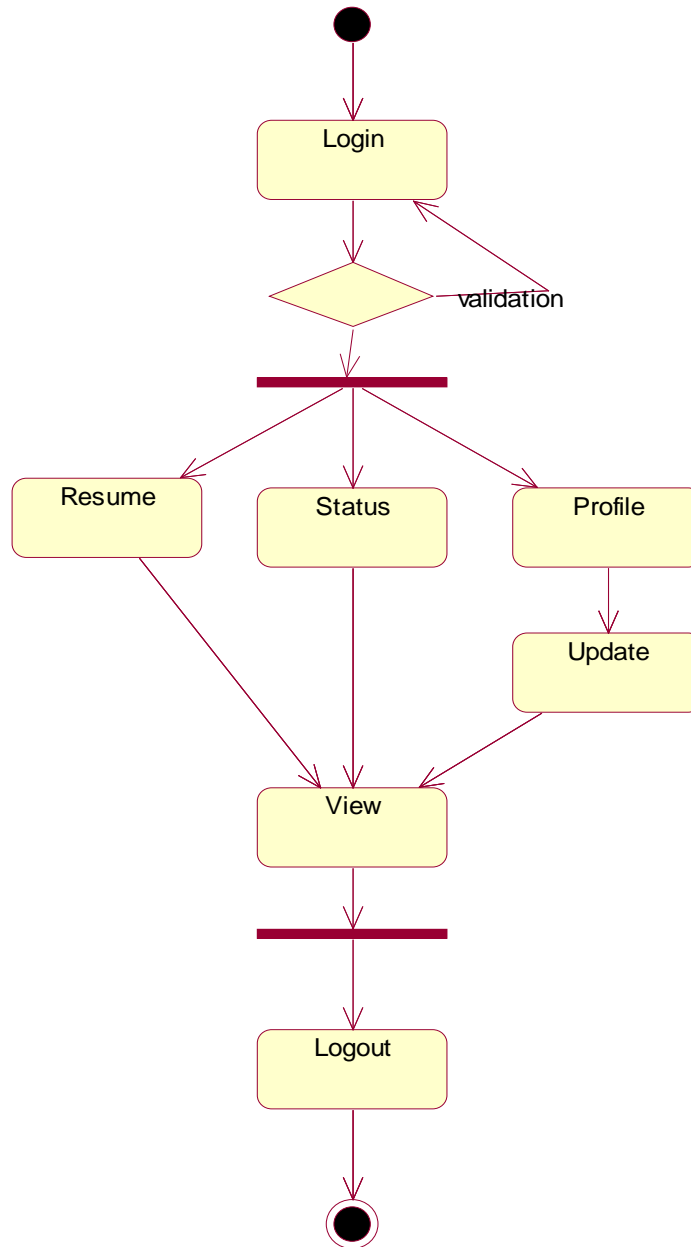


Figure 10: EmployMe Company Process

Figure 11 below shows EmployMe Candidate Process

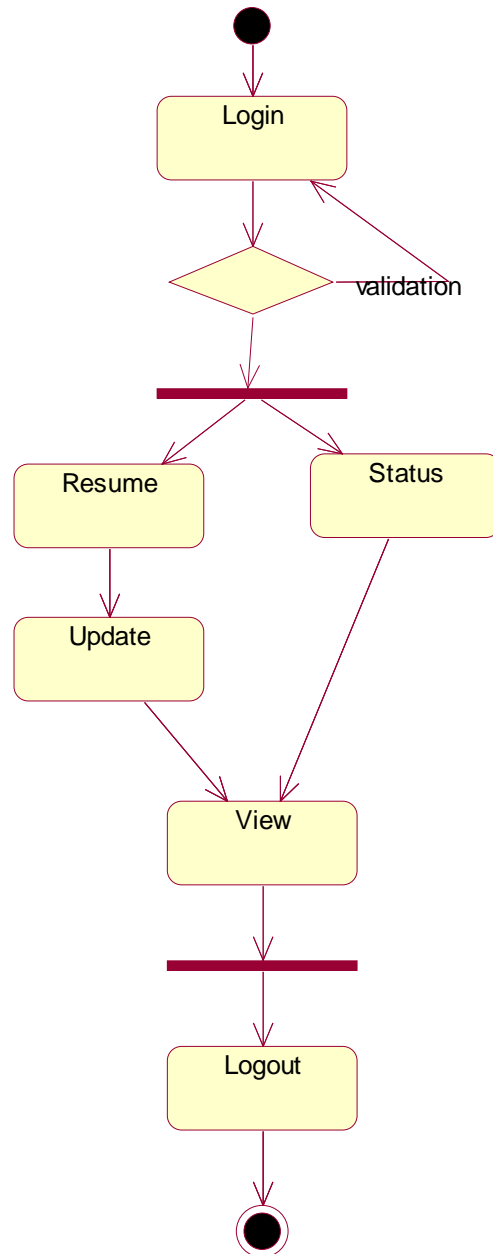


Figure 11: EmployMe Candidate Process



### 5.6. Sequence Diagram

An interaction diagram shows an interaction, consisting of a set of objects and their relationships, including the messages that may be dispatched among them. A sequence diagram is an interaction diagram that emphasizes the time ordering of messages. Graphically, a sequence diagram is a table that shows objects arranged along x-axis and messages, ordered in increasing time, along the y-axis.

Contents

Sequence diagrams commonly contain the following:

- Objects, Links and Messages

Figure 12 below shows EmployMe Administrator Sequence

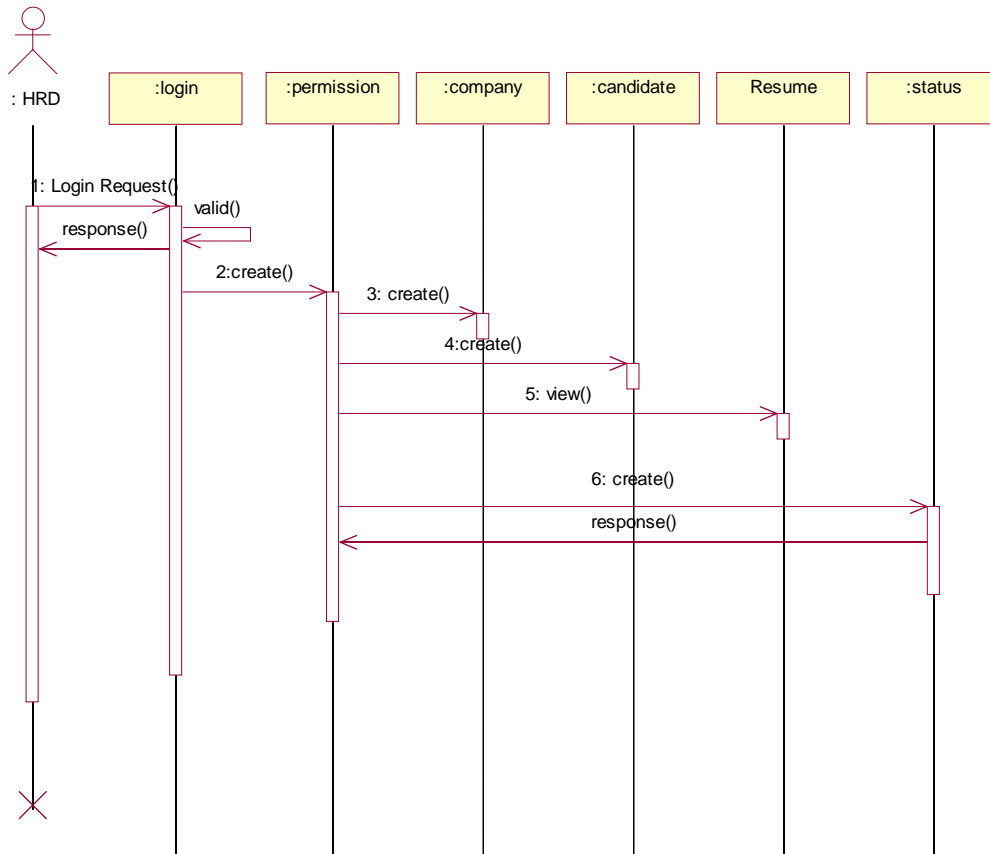


Figure 12: EmployMe Administrator Sequence

Figure 13 below shows EmployMe Company Sequence

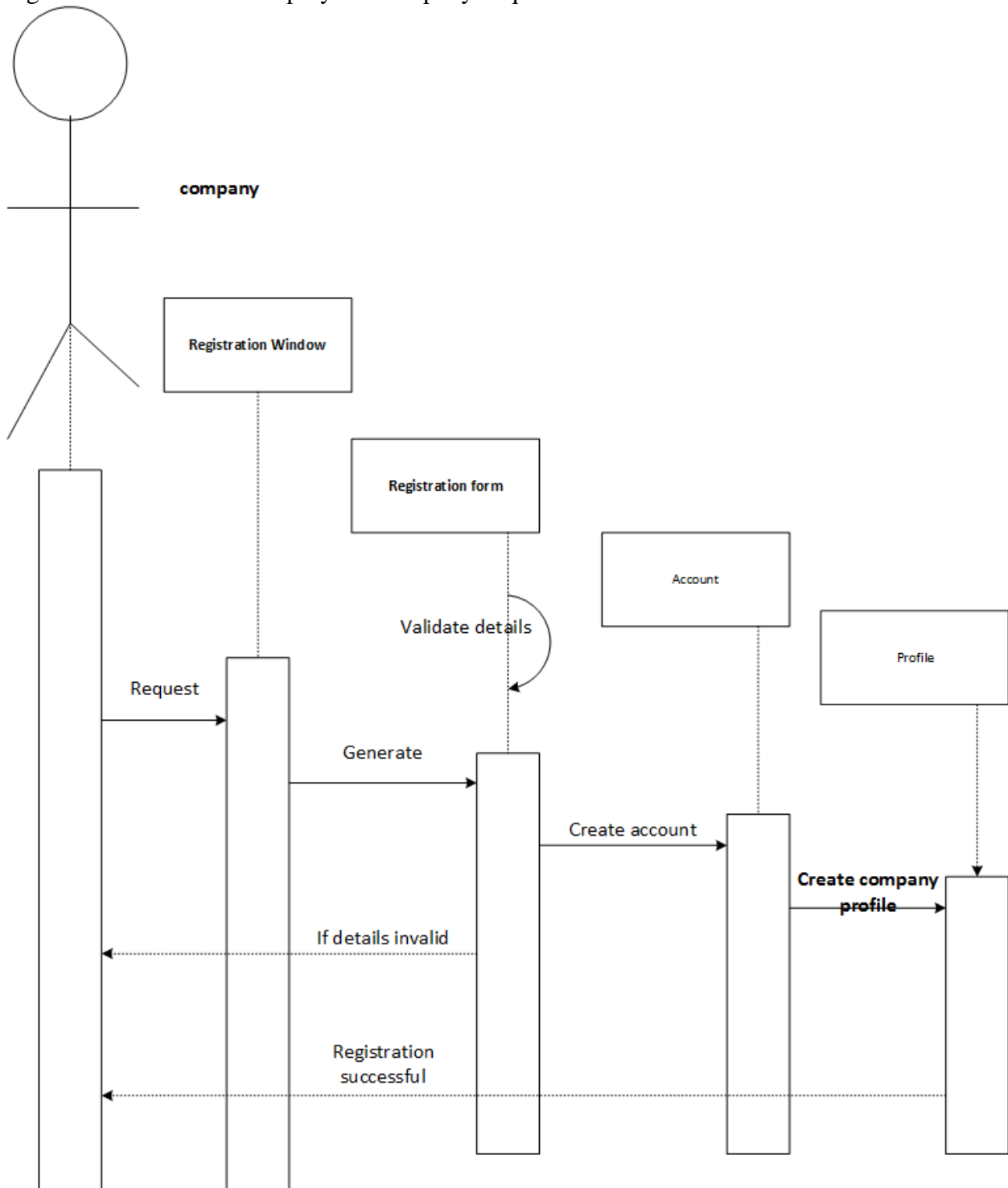


Figure 13: EmployMe Company Sequence

Figure 14 below shows EmployMe Candidate Sequence

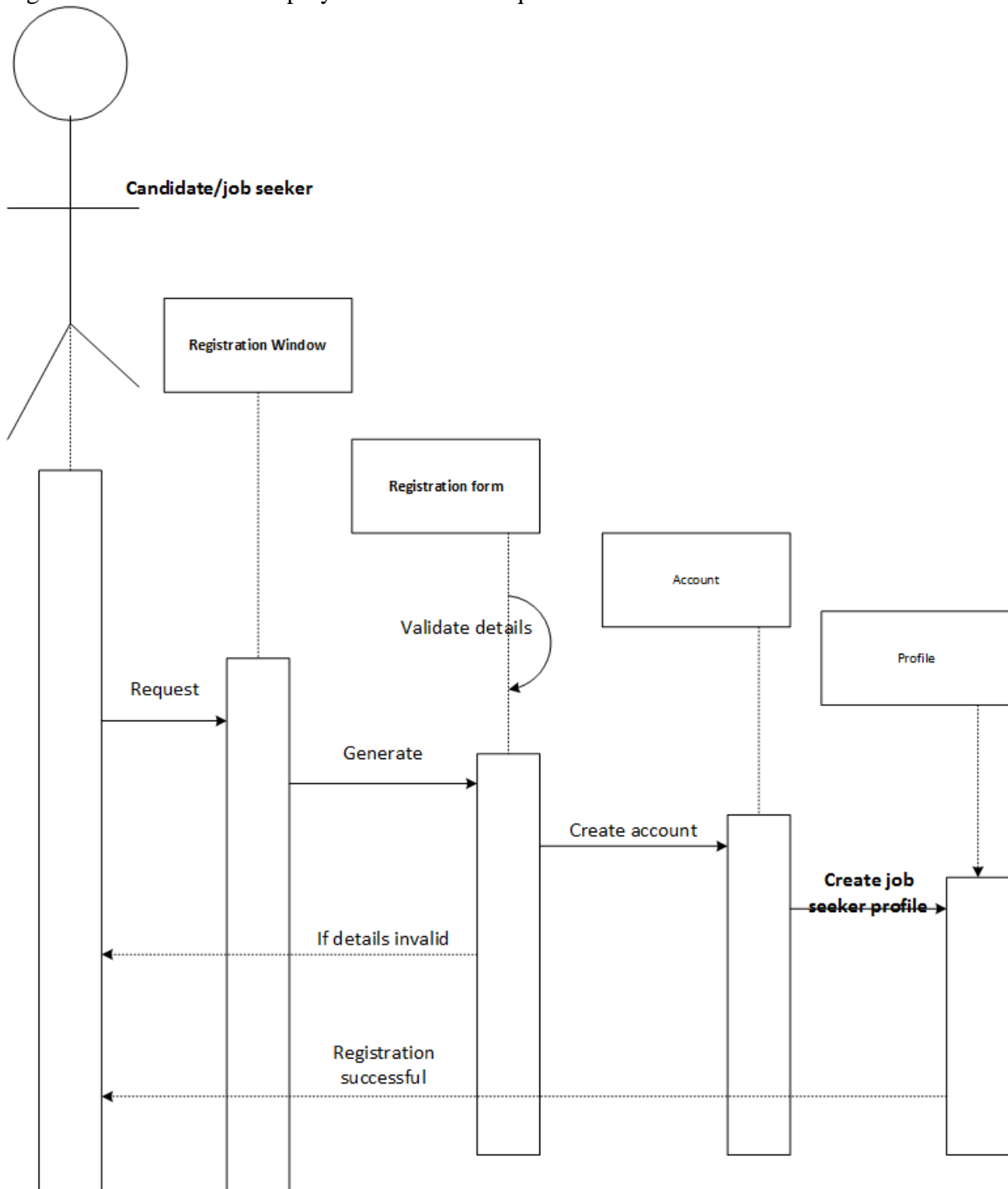


Figure 14: EmployMe Candidate Sequence

## 5.7. SYSTEM IMPLEMENTATION AND TESTING

### Testing:

The process of executing a system with the intent of finding an error.

Testing is defined as the process in which defects are identified, isolated, subjected for rectification and ensured that product is defect free in order to produce the quality product and hence customer satisfaction.

Quality is defined as justification of the requirements

Defect is nothing but deviation from the requirements

Defect is nothing but bug.

Testing --- The presence of bugs

Testing can demonstrate the presence of bugs, but not their absence

Testing is a systematic attempt to break a program or the AUT

Debugging is the art or method of uncovering why the script /program did not execute properly.

### 5.7.1 Testing Methodologies:

**5.7.1.1. Black box Testing:** is the testing process in which tester can perform testing on an application without having any internal structural knowledge of application.

Usually Test Engineers are involved in the black box testing.

**5.7.1.2. White box Testing:** is the testing process in which tester can perform testing on an application with having internal structural knowledge.

Usually The Developers are involved in white box testing.

**5.7.1.3. Gray Box Testing:** is the process in which the combination of black box and white box techniques are used.

### 5.7.2. Levels of Testing

#### 5.7.2.1. STLC (Software Testing Life Cycle)

**5.7.2.2. Test Planning:** Test Plan is defined as a strategic document which describes the procedure how to perform various testing.

- Objective of testing,
- Areas that need to be tested,
- Areas that should not be tested,
- Scheduling Resource Planning,

Test Development: Test case Development (check list)

Test Procedure preparation. (Description of the test cases)

Test Execution Implementation of test cases. Observing the result.

Result Analysis: Expected value: is nothing but expected behavior of application.

Actual value: is nothing but actual behavior of the application

Bug Tracing: Collect all the failed cases, prepare documents.

Reporting: Prepare document (status of the application)

### 5.7.3. Types of Testing

**Smoke Testing:** is the process of initial testing in which tester looks for the availability of all the functionality of the application in order to perform detailed testing on them. (Main check is for available forms)

**Sanity Testing:** is a type of testing that is conducted on an application initially to check for the proper behavior of an application that is to check all the functionality are available before the detailed testing is conducted by on them.

**Regression Testing:** is one of the best and important testing. Regression testing is the process in which the functionality, which is already tested before, is once again tested whenever some new change is added in order to check whether the existing functionality remains same.

**Re-Testing:** is the process in which testing is performed on some functionality which is already tested before to make sure that the defects are reproducible and to rule out the environments issues if at all any defects are there.

**Static Testing:** is the testing, which is performed on an application when it is not been executed.  
ex: GUI, Document Testing

**Dynamic Testing:** is the testing which is performed on an application when it is being executed.  
Ex: Functional testing.

**Alpha Testing:** it is a type of user acceptance testing, which is conducted on an application when it is just before released to the customer.

**Beta-Testing:** it is a type of UAT that is conducted on an application when it is released to the customer, when deployed in to the real time environment and being accessed by the real time users.

**Monkey Testing:** is the process in which abnormal operations, beyond capacity operations are done on the application to check the stability of it in spite of the user's abnormal behavior.

**Compatibility testing:** it is the testing process in which usually the products are tested on the environments with different combinations of databases (application servers, browsers...etc) In order to check how far the product is compatible with all these environments platform combination.

**Installation Testing:** it is the process of testing in which the tester try to install or try to deploy the module into the corresponding environment by following the guidelines produced in the deployment document and check whether the installation is successful or not.

**Adhoc Testing:** Adhoc Testing is the process of testing in which unlike the formal testing where in test case document is used, without that test case document testing can be done of an application, to cover that testing of the future which are not covered in that test case document. Also it is intended to perform GUI testing which may involve the cosmetic issues.

#### **5.7.4. TCD (Test Case Document):**

Test Case Document Contains

- Test Scope (or) Test objective
- Test Scenario
- Test Procedure
- Test case

The procedure for testing this screen is planned in such a way that the data entry, status calculation functionality, saving and quitting operations are tested in terms of Gui testing, Positive testing, Negative testing using the corresponding Gui test cases, Positive test cases, Negative test cases respectively

Test Cases:

Table 1 below shows Template for Test Case

T.C.No	Description	Exp	Act	Result

Table 1: Template for Test Case

**5.7.5. Guidelines for Test Cases:**

- a) GUI Test Cases:
  - i. Total no of features that need to be check
  - ii. Look & Feel
  - iii. Look for Default values if at all any (date & Time, if at all any require)
  - iv. Look for spell check

Table 2 below shows Example for GUI Test cases:

T.C. No	Description	Expected value	Actual value	Result
1	Check for all the features in the screen	The screen must contain all the features		
2	Check for the alignment of the objects as per the validations	The alignment should be in proper way		

Table 2: Example of GUI Test Case

- b) Positive Test Cases:
  - i. The positive flow of the functionality must be considered
  - ii. Valid inputs must be used for testing
  - iii. Must have the positive perception to verify whether the requirements are justified.

Table 3 below shows Example for Positive Test cases:

T.C. No	Description	Expected value	Actual value	Result
1	Check for date left for advertised job vacancy closure	The date and time of the advertised job must be displayed		
2	Enter the valid username and password for job seeker	It should accept		

Table 3: example of positive test case

- c) Negative Test Cases:
  - i. Must have negative perception.
  - ii. Invalid inputs must be used for test.

Table 4 below shows Example for Negative Test cases:

T.C. No	Description	Expected value	Actual value	Result
1	Try to modify the information in date and time	Modification should not be allow		
2	Enter invalid data in to the job seeker login form	It should not accept invalid data, save should not allow		

*Table 4: example of a negative test case*

### 5.7.6. SYSTEM IMPLEMENTATION

It is the process of ensuring that the information system is operational, and then allowing users to take over its operation for use and evaluation. Implementation of EmployMe Job portal includes activities such as:

- i. Training of end users how the whole system operates and the functionalities of the system
- ii. Completion of user documentation.
- iii. System changeover.
- iv. Evaluation of the system on regular intervals.

**i. 6. FINDINGS**

Most companies do not have their own Job Portals for advertising job vacancies.

Most existing job portals do provide platform for hiring of Casual job seekers

Most job sites are prone to phishing, hence lack of data confidentiality, integrity, availability.



## **7. RECCOMENDATIONS**

EmployMe provides a platform where companies that lack their own website can advertise their Job vacancies.

Encrypting user data and ensuring multiple layers of security to avoid phishing hence helps to maintain Confidentiality, Integrity and Availability

EmployMe caters for the casual job seekers

## **8. CONCLUSIONS**

In conclusion, we intended to solve some problems that job seekers and companies are facing today. The main aim of this work was to develop a web job portal, which caters for various types of users and is easy to use. The advantages of the new portal are as follows:

- i. Achieve the main targets of the Project
- ii. Standard content, services and display
- iii. High level management and flexibility

This work has focused on improving the online job portals and tried to reduce some problems that existed in them by developing a knowledge system that also acts as a job portal. Thus, this portal can be more beneficial with further enhancements the services and features. We divided the future enhancement of this system into three areas of improvements, as follows:

- i. Graphic improvements
- ii. Contents improvements
- iii. Technical improvements

## **9. APPENDIXES**

### **9.1. References**

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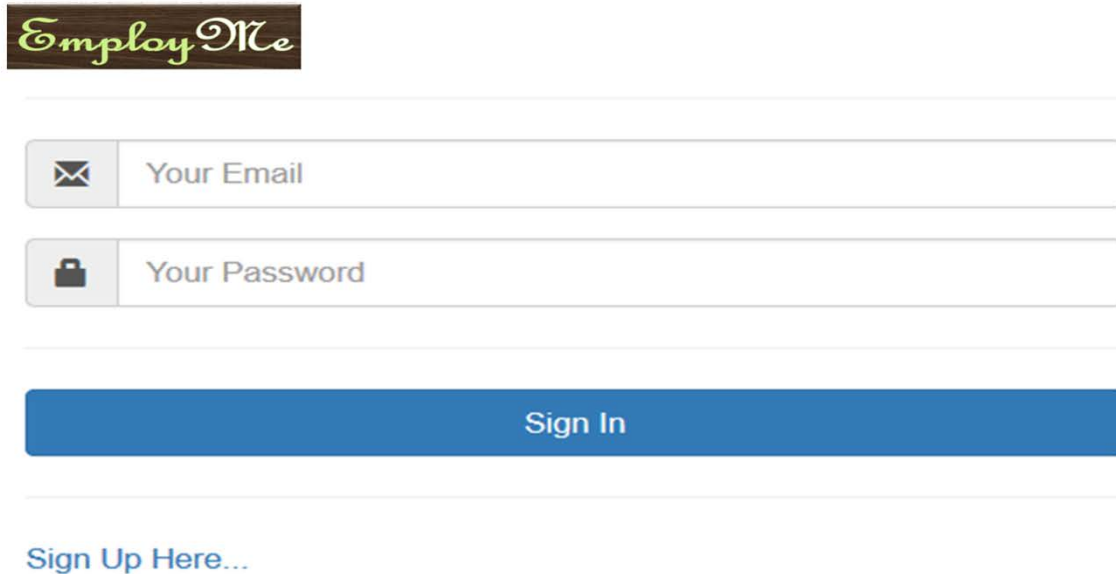
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## 9.2. User manual

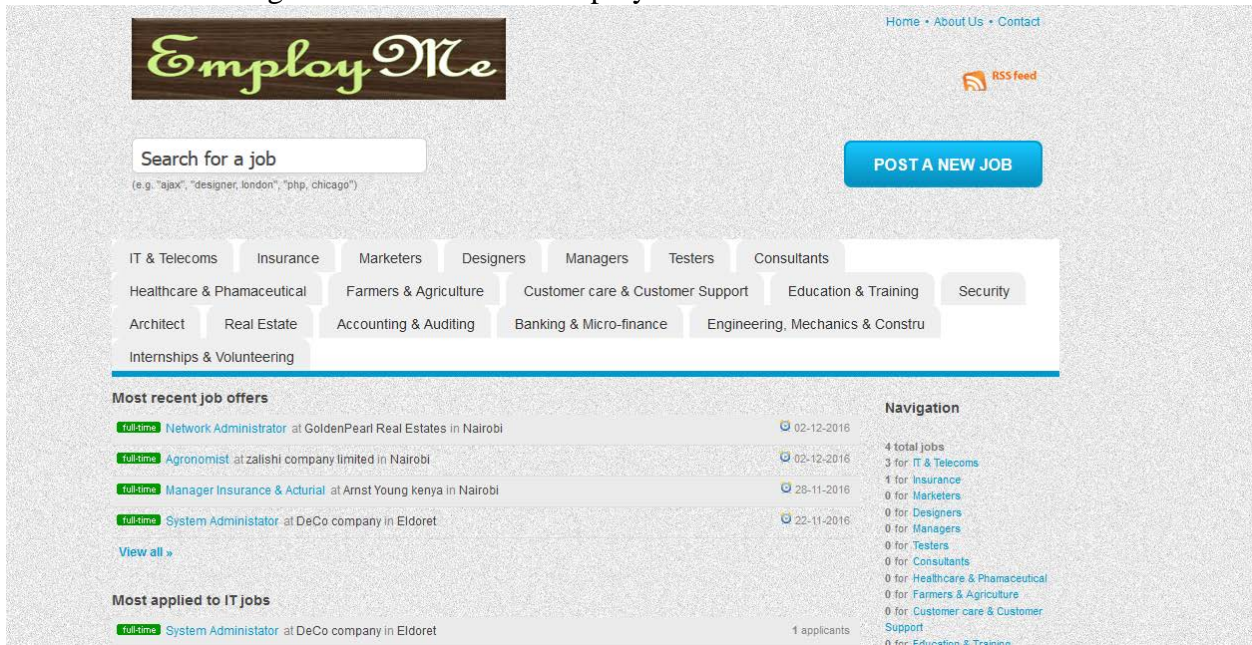
Step one: Register by filling the registration form then proceed to login. Figure 15 below shows EmployMe login window



The image shows the EmployMe login window. At the top is the EmployMe logo. Below it are two input fields: "Your Email" with an envelope icon and "Your Password" with a lock icon. A blue "Sign In" button is positioned below the password field. At the bottom, there is a link that says "Sign Up Here..."

Figure 15: EmployMe login window

Step2: If it's a company user, proceed to "POST JOB" while for Job seekers proceed to "SEARCH JOB". Figure 16 below shows EmployMe Search/Post Job



The image shows the EmployMe Search/Post Job page. At the top left is the EmployMe logo. In the top right corner, there are links for "Home", "About Us", and "Contact", along with an "RSS feed" icon. Below the logo is a search bar with the text "Search for a job" and a "POST A NEW JOB" button. Under the search bar, there are several category buttons: IT & Telecoms, Insurance, Marketers, Designers, Managers, Testers, Consultants, Healthcare & Pharmaceutical, Farmers & Agriculture, Customer care & Customer Support, Education & Training, Security, Architect, Real Estate, Accounting & Auditing, Banking & Micro-finance, Engineering, Mechanics & Constru, and Internships & Volunteering. Below the categories, there are two sections: "Most recent job offers" and "Most applied to IT jobs". The "Most recent job offers" section lists four jobs: Network Administrator at GoldenPearl Real Estates in Nairobi (02-12-2016), Agronomist at zalishi company limited in Nairobi (02-12-2016), Manager Insurance & Acturial at Arnst Young kenya in Nairobi (28-11-2016), and System Administrator at DeCo company in Eldoret (22-11-2016). The "Most applied to IT jobs" section lists one job: System Administrator at DeCo company in Eldoret (1 applicants). On the right side, there is a "Navigation" section with a list of categories and their respective job counts: 4 total jobs, 3 for IT & Telecoms, 1 for Insurance, 0 for Marketers, 0 for Designers, 0 for Managers, 0 for Testers, 0 for Consultants, 0 for Healthcare & Pharmaceutical, 0 for Farmers & Agriculture, 0 for Customer care & Customer Support, and 0 for Education & Training.

Figure 16: EmployMe Search/Post Job

Figure 17 below shows a company posting a job

The screenshot shows a job posting form with the following fields and options:

- Job type:  full-time,  part-time,  freelance,  Charity
- Category: IT & Telecoms
- Title: [Text input field]
- Summary: [Text input field]
- Location: Anywhere (dropdown), other (link)
- Description: [Large text area]
- Hiring company or person:
  - Name: [Text input field]
  - Website: http:// [Text input field]
  - E-mail (not published): [Text input field]
- Allow Online Applications:  (If you are unchecking it, then add a description on how to apply online above)

Figure 17: EmployMe Post a Job

An administrator has to approve a job before it is published on the platform. Figure 18 below shows an administrator’s panel

The screenshot shows the administrator panel with the following elements:

- Header: EmployMe | Admin
- Navigation: Post a job, Active jobs, Inactive jobs, Applicants, Pages, Cities, Job categories, Job types, Links
- Section: Currently inactive jobs
- Table of inactive jobs:

Job Title	Location	Date	Actions
full-time <a href="#">IT MANAGER</a>	at VICTOR in Nakuru	28-11-2016	[Edit] [Star] [Lock] [Trash]
full-time <a href="#">TCP/IP Programming in LINUX</a>	at Makiya Richard in Nairobi	28-11-2016	[Edit] [Star] [Lock] [Trash]
full-time <a href="#">teacher</a>	at Rusinga School in Kisii	28-11-2016	[Edit] [Star] [Lock] [Trash]

Figure 18: EmployMe Administrator Panel

### 9.4. Work plan

Figure 19 below shows Employme work plan

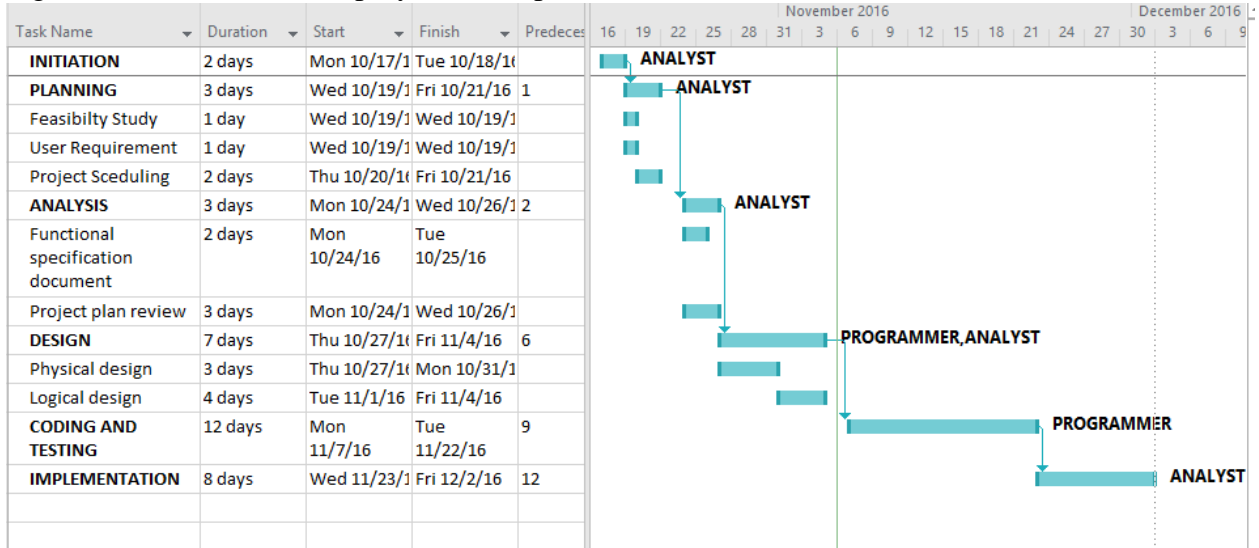


Figure 19: EmployMe work plan