ONLINE ATTACHMENT PLACEMENT SYSTEM

NAME

REG. NUMBER

BSC.IT

A project proposal submitted in partial fulfillment of the requirements for the award of Bachelor of Business Information Technology at the School of Computing and information Technology, Muranga University of Technology

YEAR

DECLARATION

This proposal is my own original work and has not been presented for a degree in any other university or for any other award.

NAME

REG. NUMBER

_Sign_____ DATE _____

SUPERVISOR

I confirm that the work reported in this project was carried out by the candidate under my supervision.

_____ _____

Dr. Geoffrey Mariga, Ph.D. DATE

Department of Information Technology

School of Computing and Information Technology

Murang'a University of Technology

DEDICATION

I dedicate this work to my dad and siblings who have always been there when I most needed them, supported me and encouraged me to concentrate and work on this project, and to my friends for their encouragement.

ACKNOWLEDGMENTS

First I would like to appreciate the almighty God for the charitable time strength and aptitude that enabled me to complete this project Am greatly thankful and would like to specifically appreciate my supervisor Dr. Geoffrey Mariga, for the assistance he has offered and for taking me through this work, My loving father Peter Maina who has helped me in funding this work. I wish to also acknowledge the entire MUT fraternity especially my lecturers for guiding and supporting me to gain experience and knowledge academically and making the working environment conducive and friendly.

ABSTRACT

Industrial attachment is a basic requirement that each and every undergraduate student is required to fulfill so as to be awarded a degree in his/her field of study. However industrial attachment application has become tedious process as students strive to compete for the available vacancies. Manual application process is tedious and involves movement from office to office; moreover, students are not aware of available attachments. The goal of this project is to assist students find the right organization, company or industry according to their field of study and preferences. The attachment recruitment system will show the companies and industries with declared vacant positions to be filled by students proceeding for industrial attachments.

The attachment recruitment portal system is expected to allow students create account i.e. sign up using the sign-up menu and upload their resume after logging in. The admin through his/her dashboard will receive notifications on the applications and approve or reject based on the qualifications met by the applicant. The attachment posting will be done by the administrators from institutions with vacant positions. In this study Rapid Application Development Methodology (RAD) is used since it integrates project management techniques to build a quality application and has better risk management techniques while designing systems. It also provides a means for developing systems faster while reducing costs and increasing quality. Proposed future research will be based on the fact that the system is unable to detect incomplete CVs and recommendation letters from applicants, provision of false full information should be researched into.

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ACRONYMS AND ABBREVIATIONS

ITAP	Industrial training attachment portal
NITA	National industrial training authority
ALO	Attachment liaison officer.
SDLC	System development life cycle
RAD	Rapid application development
MYSQL	My structure query language
RAM	Random access memory
UAT	User acceptance testing
HTML	Hypertext Markup Language
XML	extensible Markup Language
UML	Unified Markup Language

CHAPTER ONE

INTRODUCTION

1.1 Overview

This chapter introduces the background of the study, problem statement and objectives of the study, significance of the study and the scope of the study.

1.2 Background to the Study

Industrial attachment is a crucial requirement that every undergraduate university student should meet to fulfill for the attainment of a degree in his/her field of study. Attachment application among university students has always been a tiresome activity when applying for the vacancies available in various companies. This activity is often a nightmare to student since they are made to move from one office to another with application letters making the process tedious. Usually students find a hard time trying to gather the required material, within a short period so as to meet the set timeline.

These issues prompted me to come up with a system that will assist in solving this problem. In this system a student is able to view and apply for available attachments regardless of his/her region. The student will get a notification informing him/her on the status of his/her application.

1.3 Statement of the Problem

Industrial attachment among students has been a difficult task over the years. It usually involves a strenuous activity of getting hardcopy forms filling them, and submitting them to respective offices for approval. This makes the process long and tiresome. In most cases the process usually takes a lot of time for the applicant to get their feedback based on their approval or not. This system will create a platform where all the procedures and practices are put in one place so that the attachment applicants can easily find attachments of their choices. This will enhance transparency and make the process easy and simple.

1.4 Objectives of the Study

1.4.1 General Objective

To develop an online based attachment placement portal with a simple friendly user interface.

1.4.2 Specific Objectives

To achieve the general objectives of the project with the following specific objectives:

- To analyze an existing online attachment portal.
- To design an online attachment placement portal with a simple friendly user interface.
- To develop and implement the designed system.
- To test\validate the developed system.

1.5 Significance of the Study/Justification

This project is aimed at developing an online student's portal that will enable students proceeding for industrial attachment to view and apply for the posted available attachments. However, attachment applicants will be required to upload their details and also meet the requirements needed by the system and organization.

1.6 Scope of the Study

The system is an online attachment placement system for attachment applications for use by students attending attachments in various institutions. With the help of this system, the system allows students who are added to the system be able to apply for attachment, view their applications approval or disapproval. A simple interface will be in place making it easy and simple to use for all students. A database will be used to hold all student applications details and keep data in a way that it can be viewed by the administrator. The system will also be able to print reports of students who have been approved.

CHAPTER TWO

LITERATURE REVIEW

2.1 Introduction

This chapter describes the research and reviews on attachment recruitment system that has been carried out by other researchers. Different methods and technique used by these researchers in terms of software will be discussed. Still the chapter will discuss the improvements we intend to make so as to introduce a gradual change in the way attachment applications are conducted. This system is going to integrate various recruitment processes into one module for easy and efficient performance

2.2 Requirements gathering and Analysis techniques

2.2.1 User requirements

Requirements specification that specifies what the user expects the software to be able to do and achieve. The users require a system that;

(i) Is easy to use and understand
(ii) Has best Graphical User Interface
(iii) Is informative and instinctual

2.2.2 Functional requirements

Functional requirements involve data manipulation, processing and other specific functionality defining what the system is supposed to accomplish.

(i) Define the problem at hand
(ii) Gather system requirements
(iii) Design the system
(iv) User sign up/sign in and management
(v) Real device testing
(vi) Implementation

2.2.3 Nonfunctional requirements (NFRs)

Defines system attributes such as security, reliability, performance, maintainability, scalability and usability. The system shall display an error message when the user tries to login as an admin

(authorization). It will also display an error message when login details fail to match (authentication error). The system will only grant access at the login window only when details match after successful verification of details provided. Data storage in the database will be stored efficiently so as to save and ensure unnecessary growth of data.

2.3 System Design Techniques

2.3.1 UML Diagrams

A UML diagram is a diagram based on the UML(Unified Modeling Language) with the purpose of visually representing a system along with its main actors,roles,actions,artifacts or classes, in order to better understand ,alter,maintain,or document information about the system.

2.3.1.1 Use-Case Diagram

It is a representation of user's interaction with the system that shows the relationship between the user and different use cases in which the user is involved.

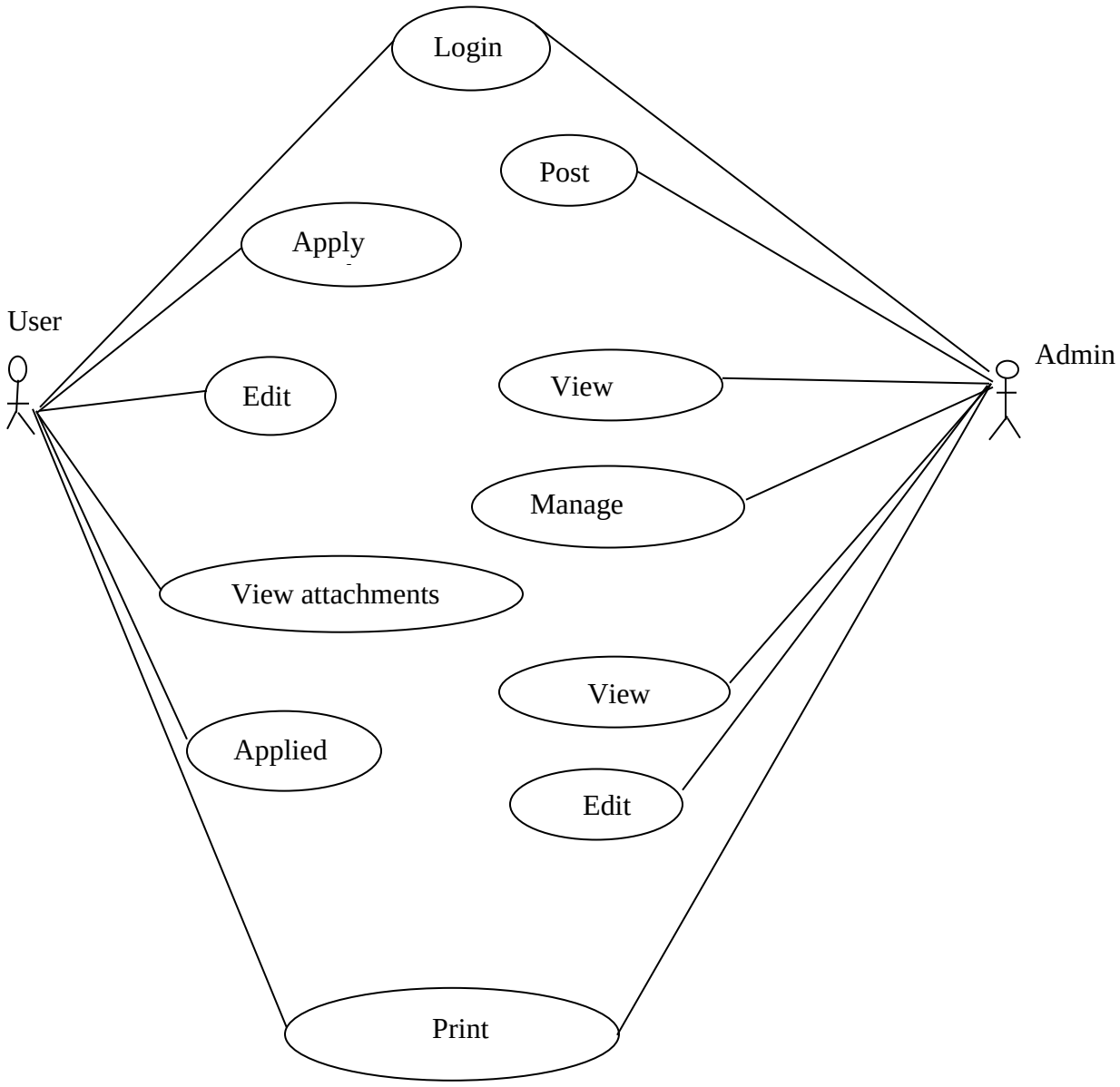
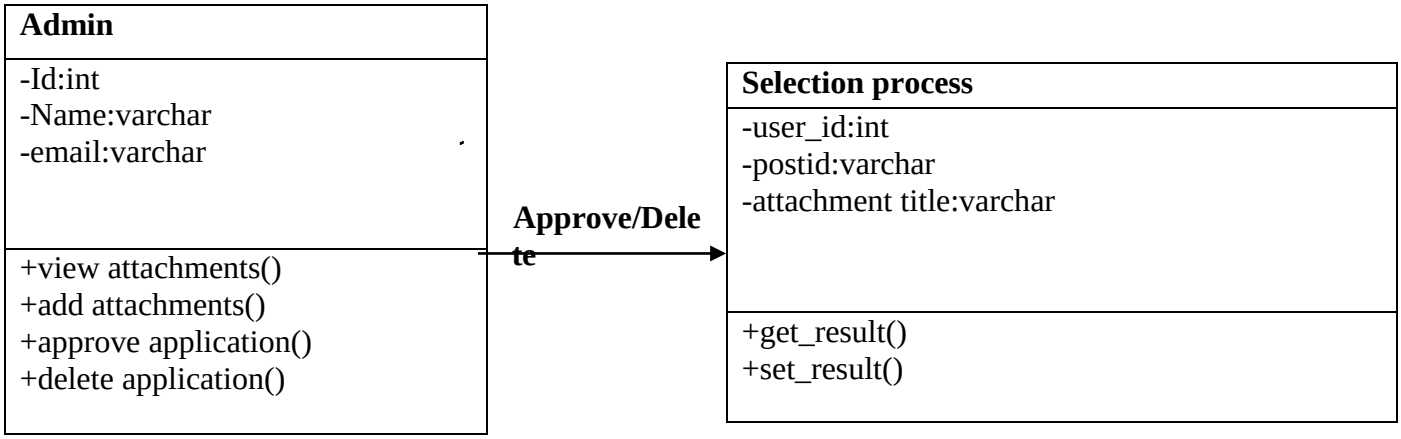


Fig 1 Use case diagram

2.3.1.2 Class Diagram

It is a type of static structure diagram that describes the structure of a system by showing the system classes, their attributes, operations and relationships among objects.



Apply

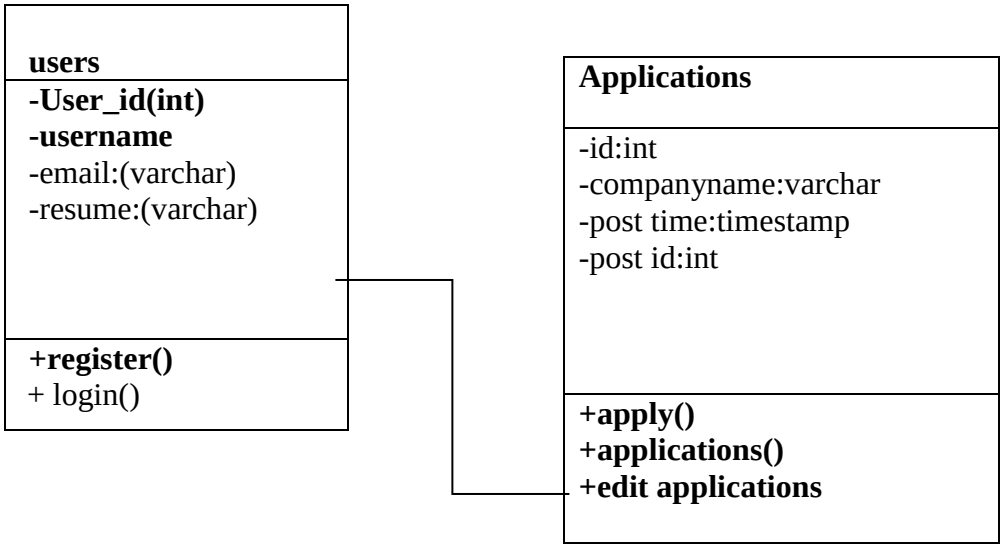


Figure 2 Class Diagram

2.3.1.3 Activity Diagram

It is a diagram that represents the flow from one activity to another through a series of actions in a system.

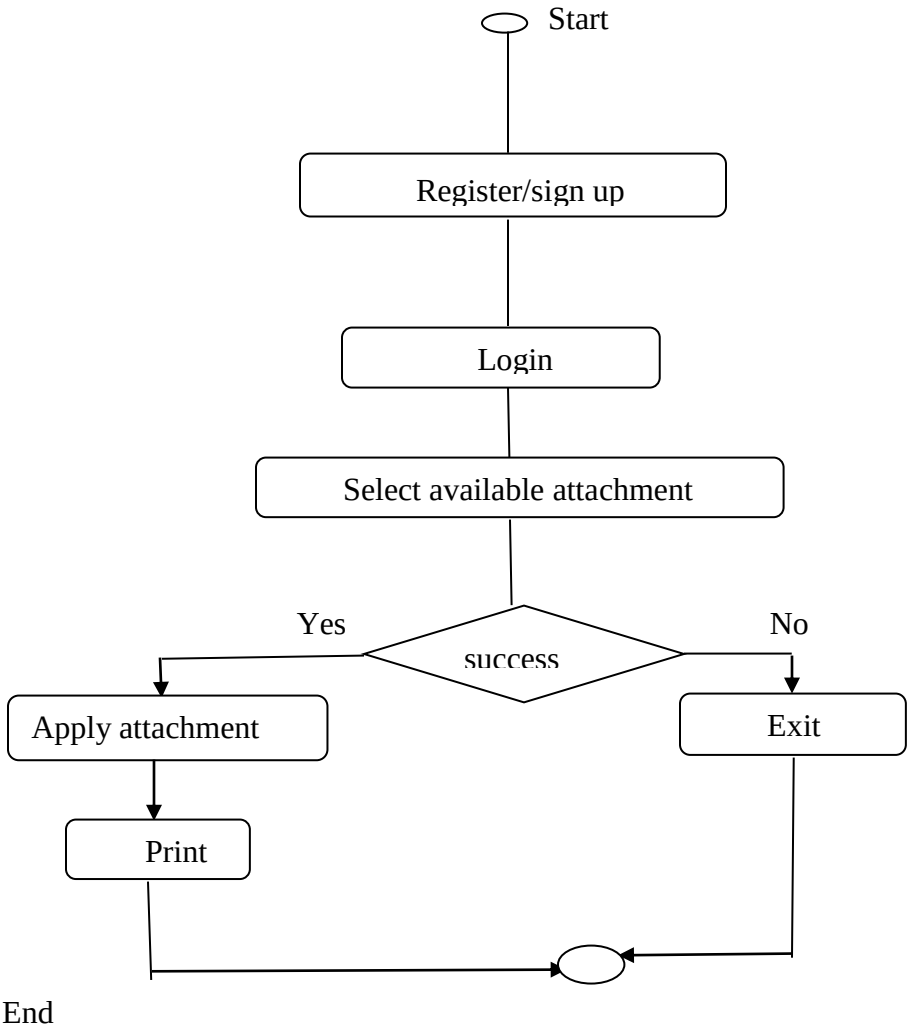


Fig 3.1 activity diagram for attachment applicant

When the user (attachment applicant) logs into the system for the first time and clicks on the application tab on the website he/she is prompted to follow the following procedures as displayed from the user activity diagram.

(i) The user is required to register/signup so as to create his/her account.
(ii) After successful sign up the user is redirected to a login window.
(iii) User is prompted to upload required documents i.e. a CV and a recommendation letter from the department once login process is completed (stamped and signed by dean of faculty).
(iv) After verification of details provided the user proceeds to apply for attachment and if no attachment is available the user is prompted to exit the system.
(v) Printing is allowed for duly filled application forms.
(vi) The user exits.

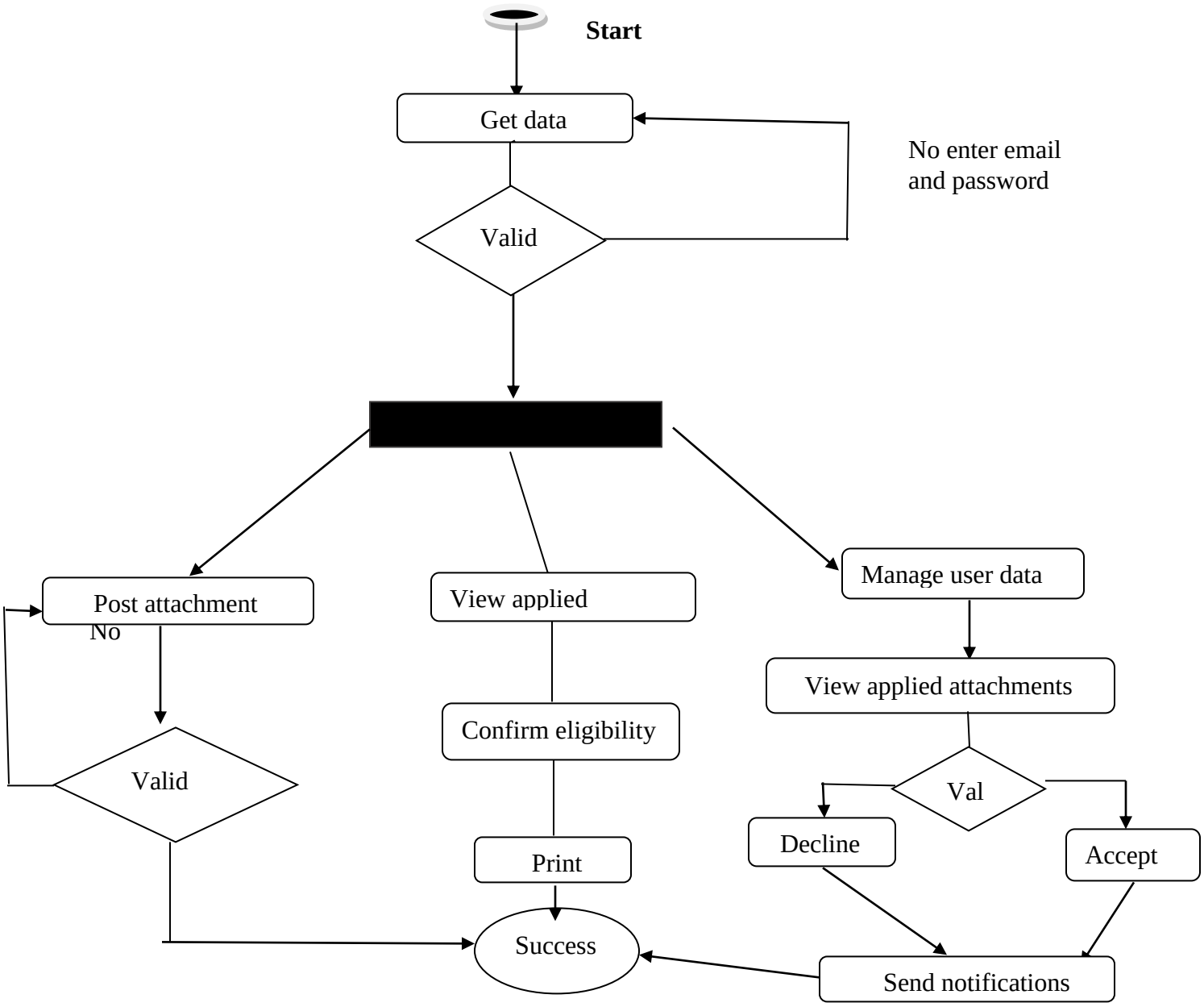


Fig 3.2 Activity diagram for admin

2.3.1.4 Sequence Diagram

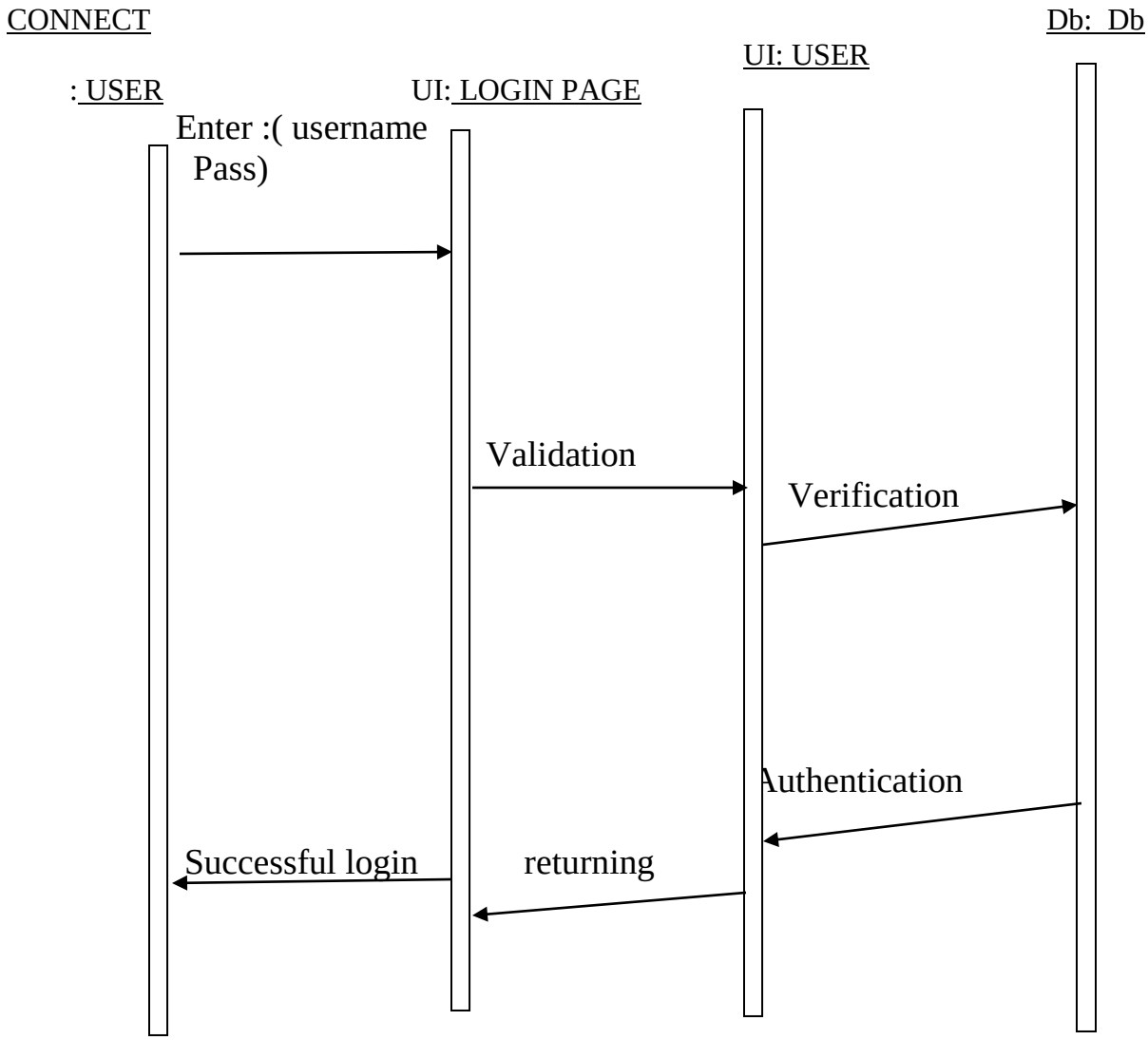


Fig 4 sequence diagram

2.3.2 Deployment Diagram

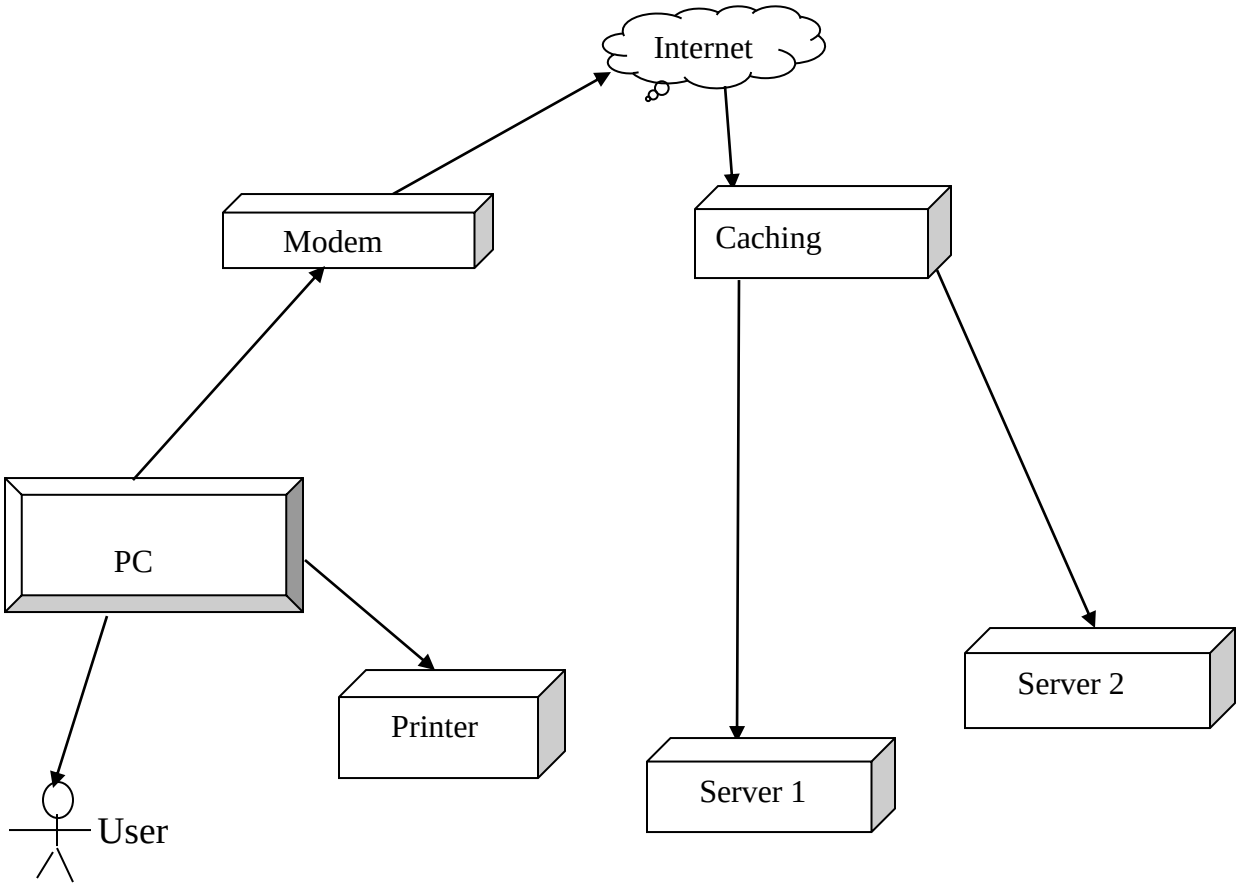


Figure 5 Deployment Diagram

2.4 System Development Techniques/Technologies

2.4.1 XAMPP

XAMPP is a free and open source cross-platform web server stack package. The main tools that contain in it are Apache HTTP Server, MySQL database and interprets for scripts written in PHP and Perl programming languages. XAMPP is an easy to install Apache distribution containing MySQL, PHP and Pen [12]

2.4.2 Apache

Apache is a software foundation that creates and provides a web servers software as open source software. HTTP server which is the most popular HTTP server in use today is their main product. This service is totally free. The advantages of apache are:

- Apache has various useful features
- Apache server and API source code are open to public
- Run faster and consumes less system resource
- Can be run on various operating system

2.4.3 PHP

PHP is a powerful tool for making dynamic and interactive Web pages. It is the widely used, free and efficient. PHP and MySQL has been the main web development tool for it is free and open sources. They take PHP as the development language because: free, small size of project, strong supporting, good portability, simple grammar and rapid development.

2.4.4 ASP.NET

ASP.NET is a web application framework developed and marketed by Microsoft to allow programmers to build dynamic Web sites, Web applications and Web services.

2.5 System Testing Techniques

2.5.1 Unit Testing

Unit testing is where the system is tested partially and independently, component by component, to ensure that particular portion or module is workable within it. In the development of the online attachment placement system, each component will be tested independently before finally integrating each of them into one system.

2.5.2 System Testing

A system normally consists of all components that make up the whole system to function. It will be required to ensure the smooth running of the system as a whole, and it should perform as expected and as required. Here, technical and functional testing will be performed. The technical testing will involve the process of testing the system compatibility with the hardware, operating system, data integrity in the database and user authorization access rights.

2.5.3 User acceptance testing

User acceptance Testing is the last phase of system testing process. During UAT actual system users test the system to make sure it can handle required task in real world situations, according to specifications and meet their expected results. The login module was initially implemented and tested using username and password. Then other modules were as shown in the;
Table below 2.5.3.1

Type of testing	Module	Objective	Expectation	Outcome
Unit testing	Application module	To check if the administrator can successfully view applications.	Admin should be able to view applicants leave applied	Successful
Unit testing	User module	To check if the administrator can view all the registered accounts	Administrator should be able view all accounts	Successful
Unit testing	Apply Module	To check if registered accounts can apply for available leave	Users should be able to apply for available leave	Successful
Unit testing	Registration module	To check if new accounts can be created	New accounts should be created successfully	Successful

2.6 Existing Systems

2.6.1 ITAP

Industrial Training Attachment Portal [ITAP] is a web portal designed to link students to the industry through NITA. As a student you are only required to fill an application form online then wait for the ALO who is based in the institution of study and verify your eligibility as a student. However, the system is not in a position to automatically send messages to the students who have been approved; one is required to travel to NITA Headquarters' in Nairobi to at least get access to his approval letter. The system did not also offer a wide range of vacant positions to students since they give most of access to students who study at NITA hence this becomes a problem to other qualified students in other institutional campuses in other regions of the country.

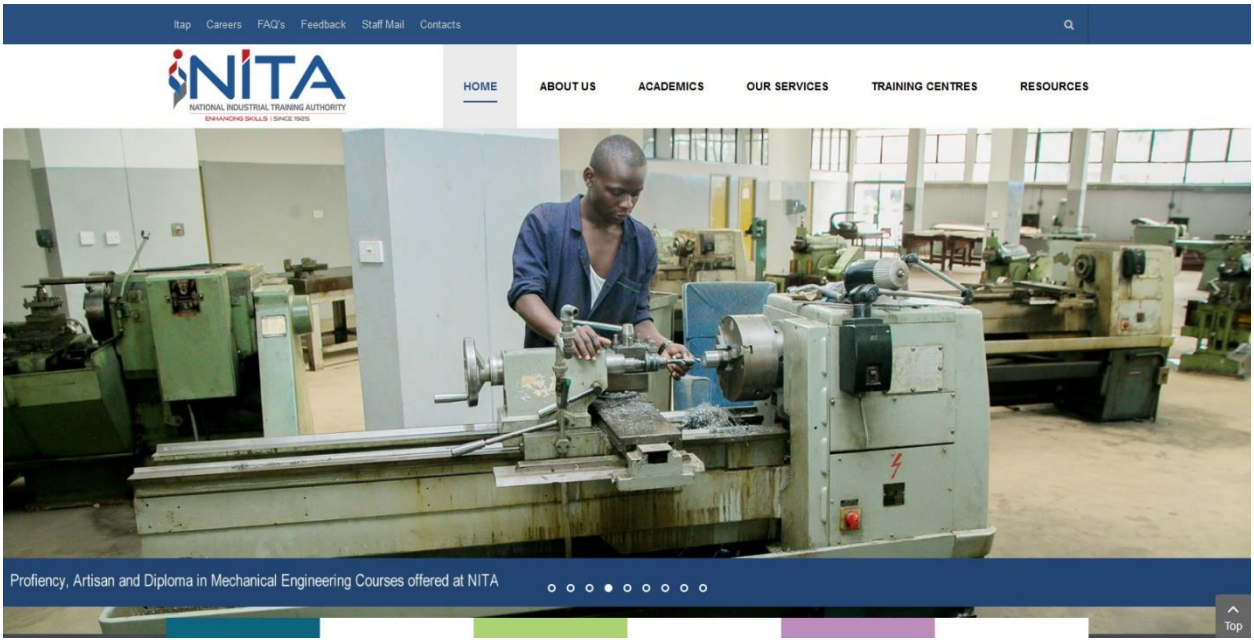


Figure 6 Industrial Training Attachment Portal

2.6.2 Career Point Kenya

Career Point Kenya is used for providing a platform where individuals can view latest attachments, job vacancies and internships that have been posted. However, the system does not offer an efficient environment where students can apply for the posted attachments online since this portal mostly comprises of job vacancies rather than attachment opportunities. One is also required to pay an annual or monthly access fee to the system portal to get notifications on attachments, job vacancies or internships hence this becomes a major problem to students in need of attachment within a required set timeline.

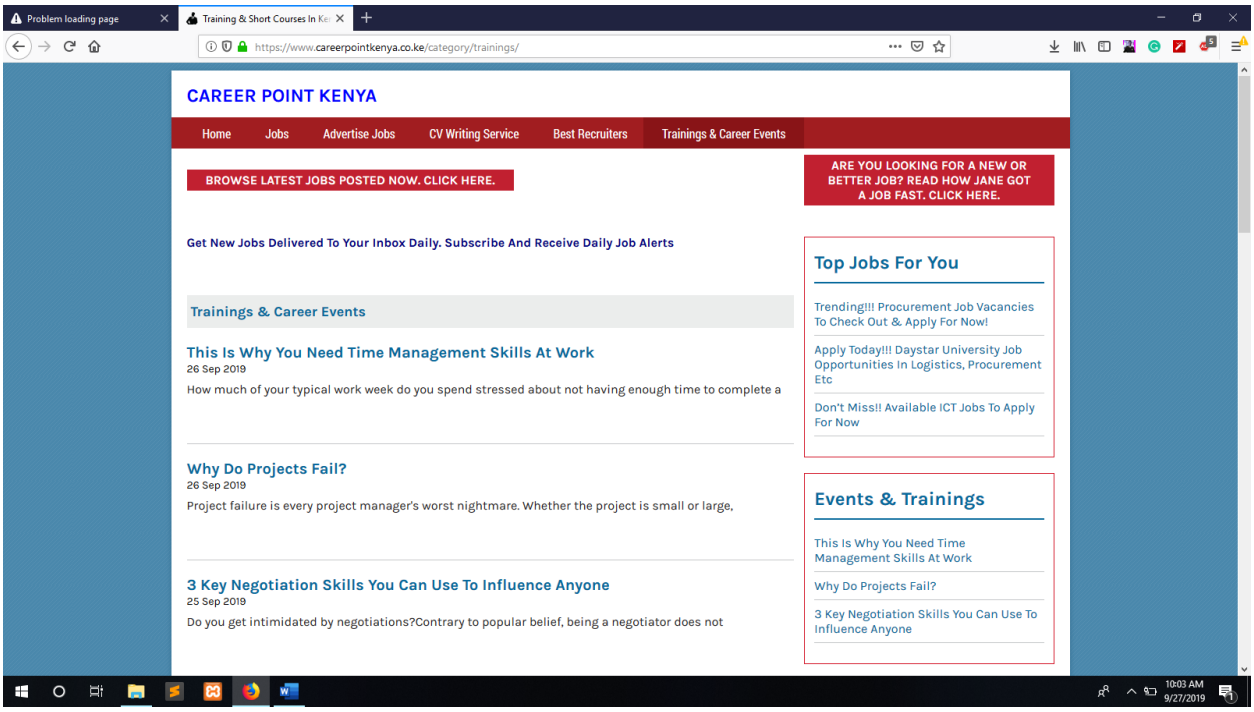


Fig 7 Career Point Kenya

2.6.3 Brighter Monday

Brighter Monday is a web recruitment portal that offers a variety of all job functions and internships to graduate students. The designers and developers of this system understood the complications experienced in the application of internships manually and hence were prompted to develop this system. The system was however not able to detect errors on entered data of applicants, could not offer a sign-up menu for students and individuals looking for industrial attachments but only offered a sign-up menu for those searching for jobs and internship programs. Moreover, the sign-up menu was also very complicated and could not offer the latest user interface.

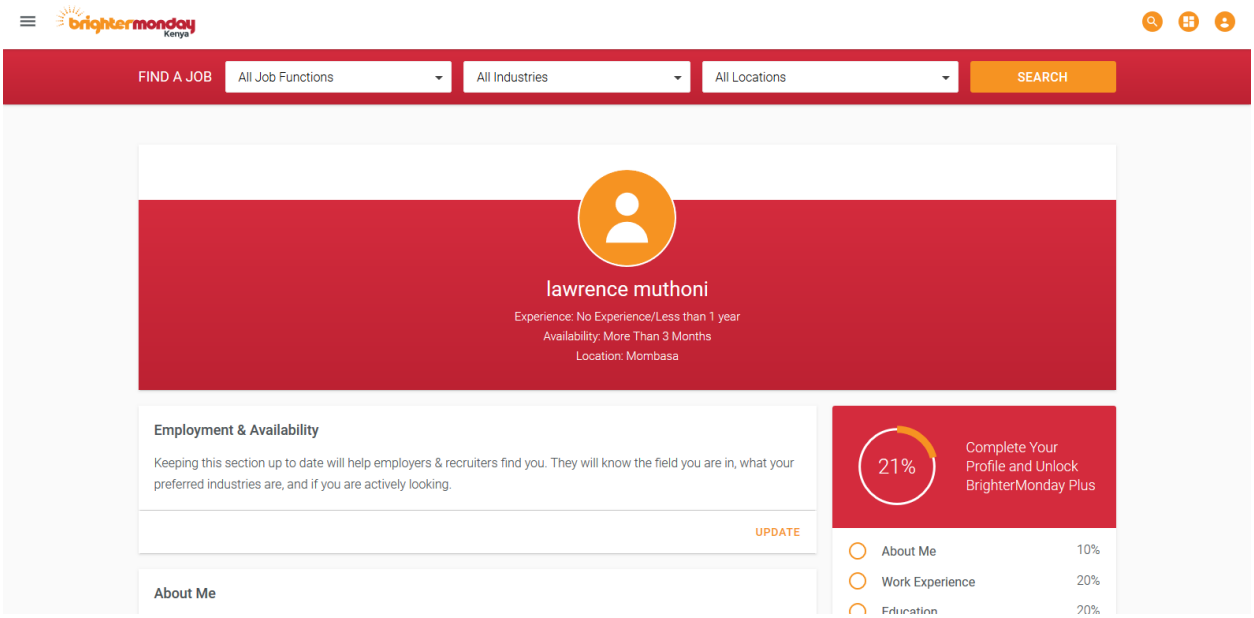


Fig 8 Brighter Monday Portal

2.7 Conclusion

Brighter Monday portal could not offer a sign-up menu for students and individuals looking for industrial attachments but only offered a sign-up menu for those searching for jobs and internship programs. Moreover, the sign-up menu was very complicated and could not offer the latest user interface. Email and phone number verification was not done in all systems.

As I interacted with the systems, I also noted that career point Kenya could not offer sign-up menu and one could also not create a profile or even update the profile itself. This is a major drawback since it is necessary to create a profile and keep updating it so as to attract employees looking for industrial attachment students.

CHAPTER THREE

METHODOLOGY

3.1 Introduction

This section explains the methods procedures and techniques used in the analysis design and implementation of the new system as per the requirement analysis i.e. an investigation of the requirements

3.2 System Development Methodology

3.2.1 Rapid Application Development Model

Rapid Application Development is a software development process that integrates project management techniques to build quality and usable systems within a short period of time. It provides more sophisticated, more integrated applications with shorter product cycles and faster payback.

Four Phases of RAD

1. **Requirement planning phase**- combines elements of the system planning and systems analysis phases of the System Development Life Cycle (SDLC). Users, managers and IT personnel discuss and agree on business needs, project scope, constraints and system requirements. It ends when the team agrees on the key issues and obtains management authorization to continue.
2. **User design phase**- during this phase, users interact with systems analysts and develop models and prototypes that represent all system processes, inputs and outputs. The RAD groups or subgroups typically use combination of Joint Application Development techniques and CASE tools to translate user needs into working models. User Design is a continuous interactive process that allows users to understand, modify and eventually approve a working model of the system that meets their needs.
3. **Construction phase**- focuses on program and application development task similar to SDLC. In RAD, however users continue to participate and can still suggest changes or improvements as actual screens or reports are developed. It's task are programming and application development, coding, unit integration and system testing.

4. **Implementation phase-** resembles the final tasks in the SDLC implementation phase, including data conversion, testing, changeover to the new system and user training. Compared with traditional methods, the entire process is compressed. As a result, the new system is built, delivered and placed in operation. Its tasks are data conversion, full scale testing, system change over and user training.

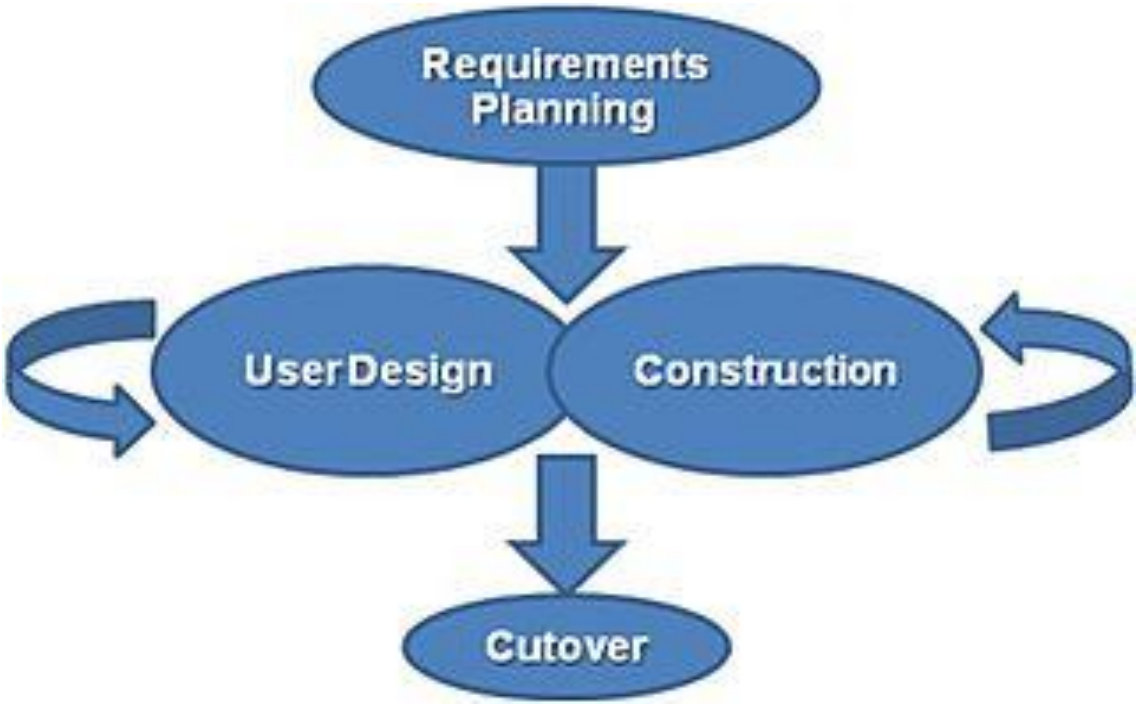


Fig 9 Rapid application development stages

3.2.2 Justification of the design

Rapid Application development systems commonly have the following advantages and thus encouraged me to choose it. It has increased speed of development and increased quality. The speed increases can be achieved using a variety of methods including rapid prototyping virtualization of system related routines and the use of case tool techniques.

Quality as defined by RAD is both the degree to which a delivered application meets the needs of users as well as the degree to which a delivered software has low maintenance cost.

Disadvantages of RAD

i) Reduced scalability; occurs because RAD developed application starts as a prototype and evolves into a finished product.
ii) Reduced features; occurs due to time boxing where features are pushed to later versions in order to finish a release in a short amount of time

3.3 Data Collection Methods

3.3.1 Questionnaire

Students who had proceeded for attachment were given questionnaire so as to try and establish the problems they encountered during the attachment application process. The questionnaire used was open ended so as to ensure that students provided complete information to the researcher. A sample size of about 40 students was used and the researcher got direct interaction with the student so as to gain additional information and clarification of data provided.

3.3.2 Sampling design

Sampling method refers to the rules and procedures by which some elements of the population are included in the sample. In this proposed system we used simple random sampling in which we selected a group of subjects a (sample) to represent the whole population. Each individual was chosen entirely by chance and each member had an equal chance of being included in the sample.

3.3.3 Population

The target population for this online attachment recruitment system is university undergraduate students proceeding for industrial attachment and who find it difficult in moving from one institution to the other looking for available attachments.

3.3.4 Research design

Refers to all the processes used to collect information, from undergraduate students applying for industrial attachment manually.

3.4 System Requirements

3.4.1 Hardware Requirements

These refer to the hardware components required to efficiently manage and run the proposed software.

Hardware	**Minimum requirement**
Processor	Intel Pentium 4, Intel core, Intel Celeron
Hardware disk size	Minimum hard disk should be of 500GB
memory	Memory minimum of 2 GB

Table 1 Hardware requirements

3.4.2 Software Requirements

Software	**Minimum system requirements**
Client operating system	Windows 7 ,Windows 8 & Windows 10
Web server	Apache
Server operating system	Windows 10
Database management system	MYSQL server version
Web browser	Mozilla Firefox, Google chrome
Text editor	Notepad, sublime text, MyPhP,Xamp
Programming language	Php ,Html CSS,Javascript and bootstrap

Table 2 Software specifications

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APPENDICES

Budget

This table contains detail on the approximated amount of funds that was required to carry out the proposed research successfully. The details below are the actual figures that cost me on my project.

ITEMS	COST
Laptop Computer	35,000
Binding and printing	700
Airtime@200per week*12wks	2,400
16gb Flash Disk for Back up	2,000
Other expenses & services	1,500

Table 3 Budget

Project Schedule

The amount of time required to fully develop the system is approximately 3 ½ Months.

Project Proposal

Project Planning

Project Installation

Project Research

System Design

System Development

Validation

Report Writing

Project

Presentation

GANT CHART

ACTIVITY	W 1	W 2	W 3	W 4	W 5	W 6	W 7	W 8	W 9	W 10	W 11
PROJECT IDENTIFICATION											
PROPOSAL PRESENTATION											
USER INTERFACE DESIGN											
CODING											
TESTING AND VALIDATION											
DATA ENTRY											
FINAL TESTING AND VALIDATION											
PROJECT PRESENTATION											
DOCUMENTATION											