



# **Online Job Portal**

**A dissertation submitted for the Degree of Master of  
Information Technology**

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**University of Colombo School of Computing  
2018**



## **Declaration**

The thesis is my original work and has not been submitted previously for a degree at this or any other university/institute.

To the best of my knowledge it does not contain any material published or written by another person, except as acknowledged in the text.

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Under my supervision. The thesis has been prepared according to the format stipulated and is of acceptable standard.

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## Abstract

Online Job Portal is a website oriented human resources management system, managed by multi-cultural and highly educated professionals in Sri Lanka. The main objective of this website is to provide recruitment services to the public, individuals and companies. Online Job Portal is providing demanded jobs to fulfilling specific skills and job profiles that are currently in demand in the Local and other International markets.

The proposed system has designed and developed using structural system analysis design methodology life cycle. The development of the proposed system uses the open-source programming framework to further development and developed functional requirements. This has designed with interactive features to be effective. The efficient outcome will fulfill requirements of the job hunters and job providers with high demand in the recruitment process. The online job portal system is created using the RawPHP Framework platform, having Apache web server as the server environment, PHP scripting language as the development language and MySQL as the database management system.

The System is attached with many online recruitment functions and other regular functions, such as User Registration, Management of Job Post, Job Search, Add Skill, Viewing applied jobs, Find Employer, Resumes management, Scheduling interviews, Skill Search, and more. It also includes high-end skill testing functions for the selected employee which facilitates an authentic candidate profile sorting process.

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## List of Abbreviations

TV	Television
CV	Curriculum vitae
UML	Unified Modeling Language
PHP	Hypertext Pre Processor
ERD	Entity Relationship Diagram
HTML	Hyper Text Markup Language
CPU	Central Processing Unit
RAM	Random Access Memory
UI	User Interface
IE	Internet Explorer
QA	Quality Assurance
MySQL	My Structured Query Language
Bit	Binary Digit
GB	Giga Byte
UX	User experience
HTTP	Hyper Text transfer Protocol
Mbps	Megabits per second
WAMP	Windows Apache MySQL PHP
LAMP	Linux Apache MySQL PHP

*Table 1: List of abbreviations*



# Chapter 1: Introduction

## 1.1 Introduction

An online job portal system, also known as an online career board system that helps job seekers to find jobs and assists the employers in finding the best candidates. Online job portals offer a wide range of jobs in various numbers of fields.

Many large organizations, government institutions, non-profit organizations, and private companies have their own job portals that job seekers directly access on their website. Also, most of them advertise on other media like newspaper and TV instead of that does not fulfill both side expectations of organization and job seekers completely. It is clear that most companies waste money and their valuable time to find the suitable candidates.

In this project, the online job portal system is developed for job seekers, companies, agencies and freelance project seekers. It provides a platform to job seekers and employees to interact with each other's in an efficient way. [1]

When a company wants to do recruitment through online job portal system, they have to do one-time registration into the system as job publisher and create the company profile.

Main features in the system are posting the job, job viewing, apply for a job, scheduled interview, Job poster - job seeker interaction, admin based job/job seeker/job poster administration and dashboard of the system.

## 1.2 Problem Statement

There are currently many job portal systems available but only a few of them interact with organization and job seekers effectively. The ineffectiveness of the most websites is being a hurdle for both parties' recruitment process. Organizations are waiting for many days to replace a suitable candidate even after posting vacancy advert. On the other side employees also waiting after applied for a suitable job.

Since employers and candidates are facing a common problem respectively to select a person and select a job on time. In employer point of view, if they need to assign a person for a work or fill the gap after a resignation of an employee is taking time delay on a following reason.

Generally advertising with 10 days or more for the application (CV) collection. After received the applications, the shortlist process will be done. Top management staff will decide a particular day to call for an interview.

Evaluation test or some module test will be conducted for the selected candidate (some organizations conduct a test before the interview). After the final interview, the candidate will be selected for work but the employee could be requested for notice period for his/her current job.

Due to these above reasons, the employer may get lost in their business or project. Candidates cannot give resignation to the current working place until he/she get an offer letter from new employer otherwise they will get affected economically.

Candidate can miss some opportunity to apply for a suitable position. When hundreds or thousands of jobs posting on the websites, candidates could not see all the opportunities in one page even if they are sorted by categories.

Current job interview processing in Sri Lanka is not reached to the standard automated recruiting method. Online job portal system will reduce the above mentions processing delay.

### 1.3 Aim and objectives

Both parties' employer and employees will get notified as soon as a job posted on the website. The automated electronic skill analyzer will help an employer to find out the right/top employee. Based on the marks allocated by employer for each skill whoever the employees get pass marks will be listed. Employees who are matching with required skills will also get notified separately based on their interests. Online job portal system will help for both parties in order to find out the suitable employee and best employer to the industry and candidate respectively.

### 1.4 Scope

The system provides a role based access to the candidates, employer, agents and the super - administrator. Company registration will be made by online registration but verification process will be done via email. Job agencies will work as middleware between candidates and employers but after the agreement between both parties. Automated recruiter function will help employer to find the employee who ever registered their profile. Employer can test practical and skill test by online. Any employee can make a search on the website; the website will suggest the suitable jobs. Candidate/ employee can select ON/OFF facility for their profile. Skills and interviews can be lead through application. If there is any request from the employer for referee's recommendation from candidates then the candidates should request to their referees to write recommendation via portal.

### 1.5 Dissertation overview

#### Chapter 1: Introduction

Describe general introduction to the project and it contains project introduction (Overview), problem statement, project aim, objective and overview of the dissertation.

#### Chapter 2: Background / Literature Review

Overview of project background that elaborates the how overall project will work. Analyze about similar projects and their features at the Literature Review.

### Chapter 3: Analyze and design

Identifies detail, requirement gathering and fact-finding techniques are discussed. Analyzing an ongoing system and requirements analysis for the proposed system is included. System's functional and non-functional requirements are also discussed. Specific hardware requirements and software requirements are analyzed and listed.

At the design view, the analyzed requirements are converted into graphical form and drawn up Entity Relationship Diagram (ERD), High-level architecture diagram, Use case diagram, Sequential diagram and class diagram.

### Chapter 4: Implementation

System overview, technology, and tools used in the system. Discussed software application and hardware requirements used for implementation and client-side software and hardware requirement.

### Chapter 5: Evaluation and Testing

Described testing objectives, User Interface testing, browser testing, several test cases tested for different functionalities. User acceptations form results are analyzed. Identified strengths and weaknesses of the system.

### Chapter 6: Conclusion and Future endeavors

Lessons learned through the system are described. Conclusion and Future endeavors are included.



## Chapter 2: Background/Literature Review

### 2.1. Background

#### 2.1.1 Introduction

Online job portal system is a part or sub set of Human Resources Management System (HRM). A Method of recruit a suitable person for a job based on job description and requirements. Further identifying the personality and skills as well as the career background also to be matching with current work and applied job criteria.

This system for identifying the employee based on the qualification, working experiences and the skills for the requested job and sends an automated notification to the employer or company who has post the job. This function will work during the selection process.

Most of the job banks and job searching websites are providing the facility to create the profile of a candidate and let them search the job posted by the employer or a company. After finding a job, they are requested to send the CV via email or traditional post or apply through online. Every employer should wait about two weeks to receive the applications.

Online job portal system will automatically apply for the suitable job on behalf of candidate who has activated the facility. Later on they may cancel the application from the list of applied job displayed on their personal dashboard if they are not happy with the company where systems made automated apply.

Online job portal system is identified as an important system in order to overcome from the above mentioned problems.

## 2.2 Evaluation of recruitment services

### 2.2.1 Advertisements on print media

Advertisement on newspaper and recruit people for a job is a most common process. Several employers follow newspaper media as a traditional method. Some of the organizations still follow this as legal policy based on their organization constitution. This allows many people to apply via postal service, email service and walk-in interview.

### 2.2.2 Advertise through recruitment agency

Recruitment agency services have large amount of employee databases in several area. A company is recognized by holding higher the number of candidates. Most of the agencies using electronic database to handle candidates and this method is faster than advertising on newspaper.

### 2.2.3 Online Job Portals

There are multitudinous recruitment websites launched after started internet era. In early internet era, a job has been posted with description and candidates applied using postal service, thereafter email services were used. Gradually begin to adapt with new technology growing trends in the world of information technology. Nowadays, job search engines help to accomplish recruitment task easily. At the same time, posting a job or applying for a job, both became very easy as just a few clicks away.

### 2.2.4 Job recruitment in social media

Billions of users are actively interacting with social media websites. Nowadays, social media website like Facebook preside over the internet. They facilitate advertisements based on user location, age and type of advertisement like pay per clicks and post promotion. These advertisements are very cost effective. LinkedIn is one of the platform which interact companies and professionals together. . [www11]

## 2.3. Literature Review

The concept of online job portal system is a unique and highly effective concept which exactly fits the above-mentioned shifting consumer behavior especially in Sri Lankan context where people are getting adapted to westernized lifestyle and packed with busy schedules. Fundamentally the concept is developed based on an online job portal which facilitates the candidate and the company or institutions from top to bottom. It caters the needs of the market by providing a hassle-free, paperless and less time consuming human resource experience.

The objective of this project is to assess the HRM recruitment process and insert some innovation process for an effective and efficient method of recruiting people via this system.

Many websites are available to publish jobs and they allow candidates to apply via online or traditional postal service and also they store curriculum vitae or a user profile of candidate for future use. There are standalone applications to automated skill evaluation but those will help only the employer to sort list the candidate from applied employee list.

Topjobs, and CV.lk are some of the popular websites which provide recruitment services in Sri Lanka.

LinkedIn, Workable, and Indeed are the websites which provide logically similar functionality which online job portal system provide.

[www.topjobs.lk](http://www.topjobs.lk): topjobs.lk is a well-known online recruitment service used by employers to post their job offers online and also handle online applications from job seekers. Jobseekers who are looking for their first job, or considering a career change, can search for vacancies and apply online and the job seeker registration is free. Jobseeker's application will be sent straight through to the HR team of topjobs.lk registered employers. Employers will contact the applicants if applicants are shortlisted. For the employers, topjobs.lk offers a complete electronic recruitment platform for online advertising and automating the recruiting process. [www8]

[www.cv.lk](http://www.cv.lk): cv.lk is a leading Sri Lankan online employment services and job search platform. cv.lk offers an environment with the most extensive collection of career development tools. The job seekers who are ready for their first job, or ready to take the next step in their career can find many opportunities in cv.lk once they uploaded their CVs. [www14]

cv.lk also helps to employers to find new employees based on their qualifications and a company can advertise their vacancy details with an advertisement fee.

[www.linkedin.com](http://www.linkedin.com): LinkedIn is a social networking site designed mainly for the business community. The objective of the site is to allow registered members to create and document networks for people they know. The site, launched in May 2003, now has 300 million members from 200 countries, representing 170 factories. Microsoft purchased LinkedIn for \$ 26.2 billion in June 2016 which is the most expensive acquisition for Microsoft till the date. [www12]

Not only job seekers find jobs on LinkedIn but also they can connect with new professionals who can help them to get opportunities. A jobseeker's LinkedIn profile can be considered as a complete and interactive application. When they apply for work, they can add a link to the email or their cover letter. Some websites allow them to apply for work that will allow job seekers to connect all of their information to their LinkedIn profile.

There are two types of versions available one is a free version other one is a paid (Pro) version. A free version is adequately effective and helpful but if users need all the advanced features offered by LinkedIn, they can upgrade their account to Premium which a paid version. According to Reid Hoffman, co-founder of LinkedIn, 27 percent of the subscribers are recruiters.

[www.workable.com](http://www.workable.com): Workable is a UK based recruitment which is established recently. More than 6000 companies trust workable software for their recruitment process. It helps the companies to select right candidates that the company doesn't have to create a shortlist the best candidates' instead workable helps to select the right candidates. There is also a feature called 'Candidate comparison browser' in workable software which helps to compare numerous candidate profiles in a single page. These features help companies to save their time since the employee recruiting process consumes so much time. [www13]

Profiles are connected from LinkedIn directly as well as many other third-party applications. Not only they organize the candidates' profile but also they manage to arrange interviews. Workable has few pricing plans where the companies should find the best plan which is appropriate for them.

## Chapter 3: Analysis and Design

### 3.1 Introduction

System Analysis is one of the important phases at system development life cycle. This phase includes requirement gathering and understanding the functional and non-functional requirements of the proposed system. Similar type of systems are analyzed. Structured System Analysis and Design Methodology (SSADM) and high level architectural design diagram are incorporated with this chapter.

### 3.2 Requirements Gathering

In a requirements gathering task, more time and skill should involve in order to collect data from the right source and accurately for system development. Communication skill is much important in order to understand client's requirements and questioning to client regarding system requirements.

Requirement gathering phase should be handled very carefully, otherwise entire project will end up in failure, Business activity modeling will help to define system boundary.

#### 3.2.1 Fact Finding Techniques

##### Research on similar projects

Searched on professional websites, and studied about their current process and access on dashboard in several user roles. Learned about online job portal system procedures by reading some research articles and analyzed them in an efficient way.

##### Interviews

Interview is one of the flexible solution to gain domain knowledge about recruitment process. By interviewing the university students and job seekers can find the interested field of current and future job market.

## Monitoring

By monitoring the process of Human resource department learned about recruitment system procedures. Reading newspaper advertisements is helped to develop skill list for candidate.

## 3.3 Requirement analysis and Management

The gathered requirements need to be validated and analyzed for clear doubts. Requirement is very obvious to meet a goal. Requirements could affect on the project scope and the project cost. Requirement gathering is a critical task in any project. New requirement make by client at the middle of the project can cost more than the budget and also time can exceed than the given time.

## 3.4 Analysis of the ongoing systems

Before initializing system design task, it is essential to evaluate the current process of the system. Clear evaluation of ongoing project will result a successful outcome.

## 3.5 Requirements for the new system

### 3.5.1 Functional Requirements

#### User Registration

- Create profiles for job seekers
- Create profiles for companies

#### Job post

- Enable job posting features for companies
- Candidate can view all posts and apply suitable post

#### Real time job list and candidate list by skill search

- Relevant candidate name list will be display for every skill search
- Generate report or high level design

## Searching

- Search using skills, job title, post, user name, or district
- Job alerts
- Password change
- Forgot password
- Interview schedules
- SMS Alerts

## 3.5.2 Non-Functional Requirements

### Website performance

Website loading speed and optimize script deliver better usability for even ordinary user, site performance is checked using GTMETRIX ([www.gtmatrix.com](http://www.gtmatrix.com)).

### User Friendliness

Human–computer interaction is considered in order to deliver better User Interface (UI) design and User Experiences (UX). User has flexibility to use this website to complete their task.

### Availability

Online job portal is 24x7 available for users.

### Mobility

System is designed for all device compatibility and responsive design using bootstrap for all the browsers and devices.

### Privacy

Users might have facility to protect their data by setting up some privacy option. User roles are clearly defined according to the user level.

### Reliability

If there is no deadline for a job post and that post is available on web all the time, candidate may not trust the content. Always all the job post content must be accuracy and reliable.

### 3.5.3 Hardware and Software requirements

Hardware requirements	
Processor	Intel / AMD – 2.0 GHz or higher
RAM	2 GB or higher
Hard disk for development computer	500 GB or higher
Resolution	At least 1024 x 768
Internet	Broadband with minimum 2.0 Mbps download rate

*Table 2 3.1 Hardware requirements*

Software requirements	
Operating System	Windows 7 or later version
Web Server	Apache 2.4 or above
PHP	Minimum PHP 7.x version
Database	My SQL 5.x version
Web Browsers	Google Chrome (recommended) or any other browser latest version (Firefox , Internet Explorer)
Text Editor	VS code editor, Sublime Text3, Notepad ++

*Table 3 3.2 Software requirements*

## 3.6 System design

### 3.6.1 Introduction

In the System design phase, designed methodology processed using unified modeling language (UML) and rendered UML diagram using source code to implement the User friendly interface. PHP script and MySQL database is used to develop back-end and Twitter Bootstrap framework is used to design responsive user interface design.

### 3.6.2 ER Diagram

Entity–Relationship diagram (ER-diagram) is a pictorial representation of entities and relational connection between them. Basically any application connected with computer information system and used to store data in an organized manner is call database. Database contains collection of tables and table contains several fields. Mostly entities in ER Diagram represents tables in database.



## ER – Diagram

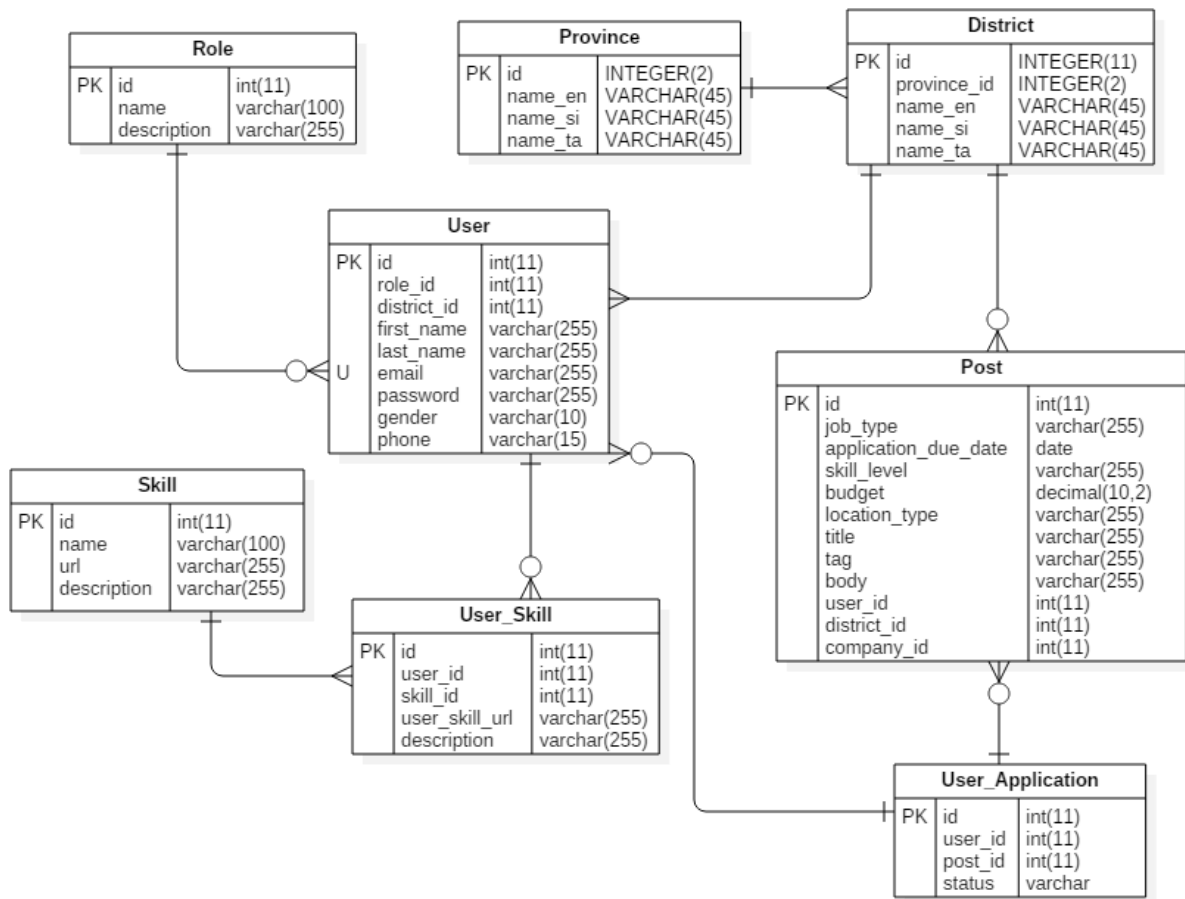


Figure 1: 3.1 Entity Relationship Diagram

### 3.6.3 High level architecture diagram

#### High level architectural diagram

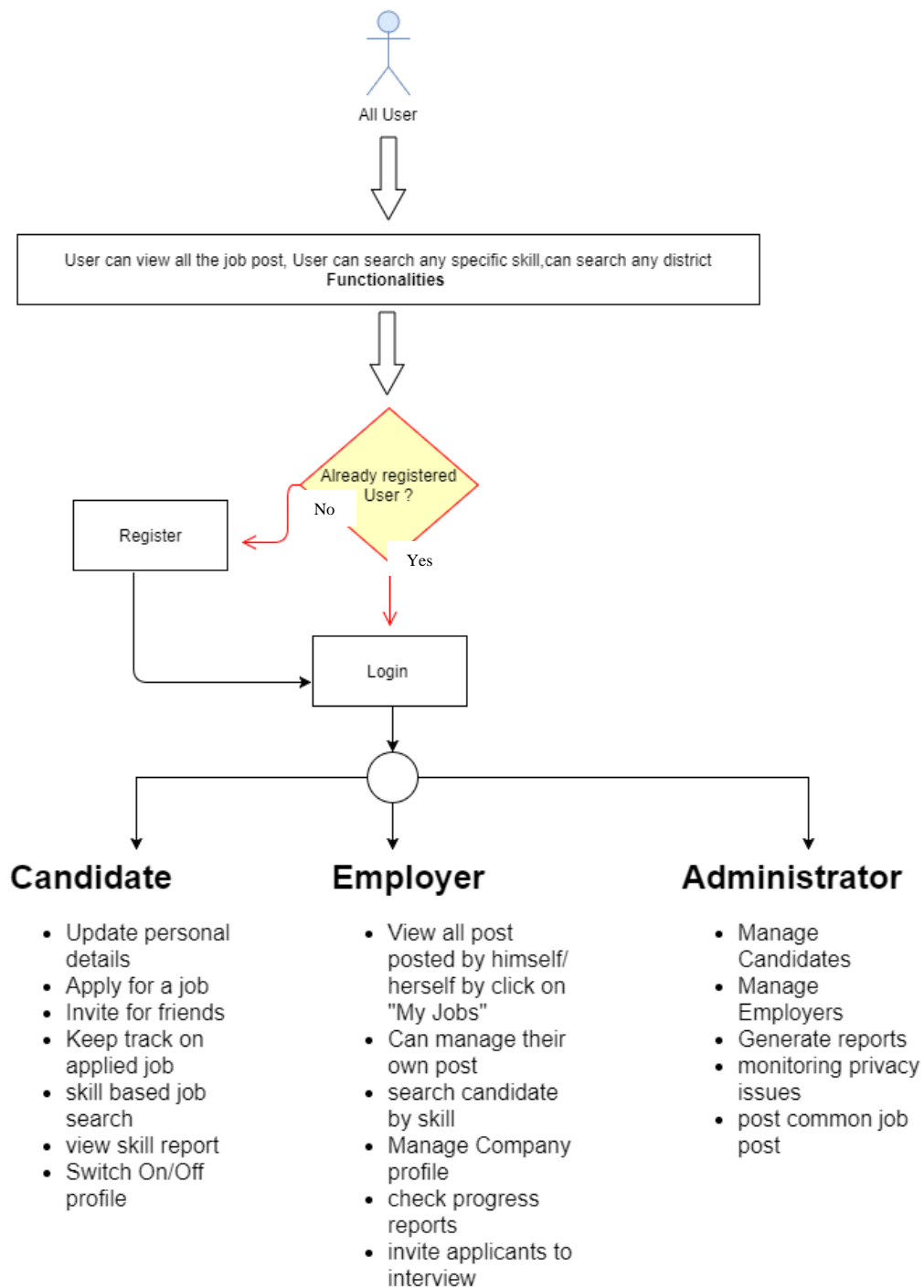


Figure 2: 3.2 High-level architecture diagram

### 3.6.4 UML Diagram

UML (Unified Modeling Language) is one of the methodologies used in system analysis to understand, clarify and organize system requirements. Use case diagram is used in UML, UML clearly shows various user activities in the system that every user can perform and functionalities. Users call in use case diagram as actors.

Use Case	Users registration
Actors	All users
Overview	Provide all required personal information and email
<b>Preconditions</b>	
Needs to have email address and some skills	
<b>Post conditions</b>	
User will be taken a role of Standard user, moderator (Job poster) or Administrator	
<b>Flow of events</b>	
1. Users must provide initial details to register with the system. 2. Users must provide password for the system. 3. Once a guest registered, the guest will get an email notification to confirm the registration with the system.	

*Table 4: 3.3Users registration*

Use Case	Candidate registration
Actors	Candidate
Overview	Candidate to apply for a job, Check the status of applied job
Preconditions	
1. Candidate must register with the system.	
Post conditions	
1. Candidate can apply for a job only once. 2. Receiver employer status.	
Flow of events	
1. Candidate apply for the available job by clicking a button. 2. Candidate will get notified via email once invited for the interview.	

*Table 5: 3.4 Candidate use case*

Use Case	Admin Registration
Actors	Administrator
Overview	Control the Advertiser, seeker, jobs and manage the system
Preconditions	
1. Admin must register with the system.	
Post conditions	
1. Admin is a super user, works as a controller of the whole system.	
Flow of events	
1. Admin controls jobs, and manage candidates. 2. Inform all users if there is any unrelated events or activities.	

*Table 6: 3.5 Administrator use case*

### 3.6.5 UML Use case diagram

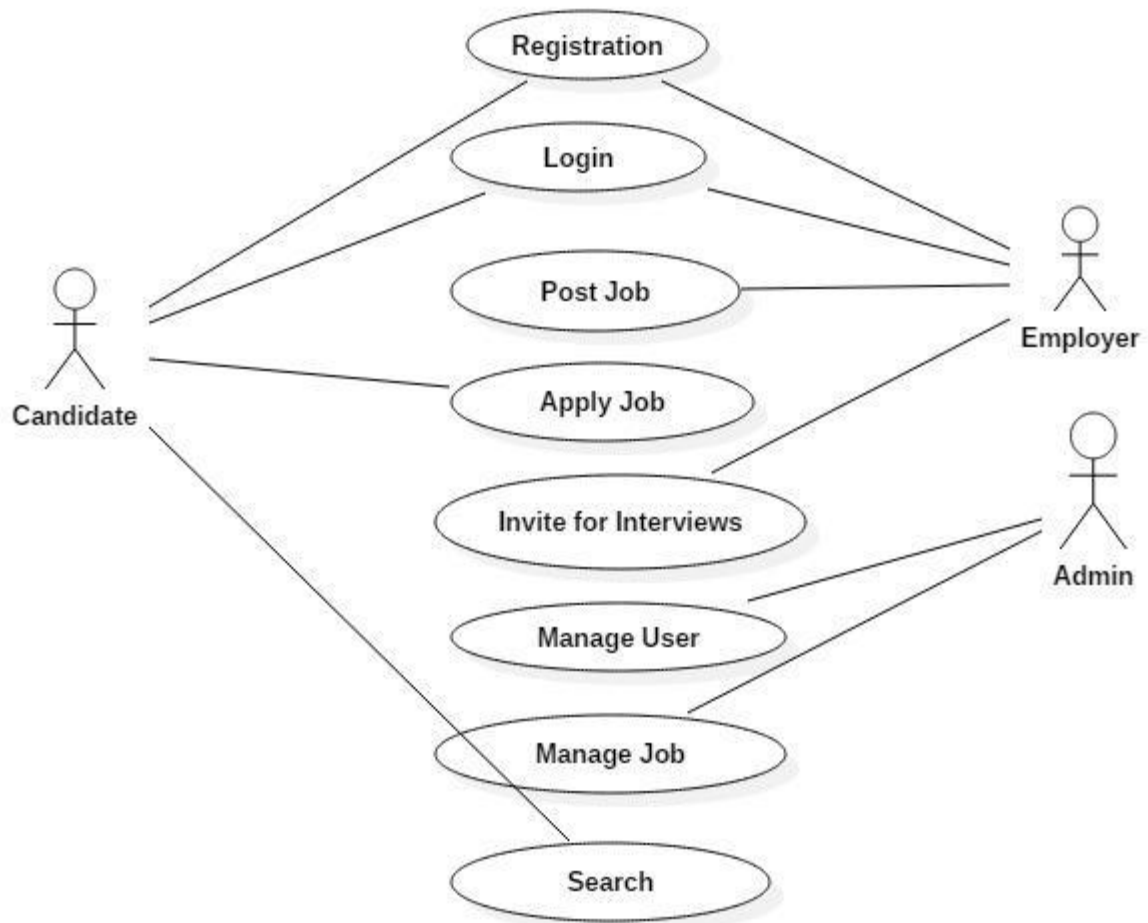


Figure 3: 3.3 UML Use case diagram

### 3.6.6 Sequential diagram for usecase

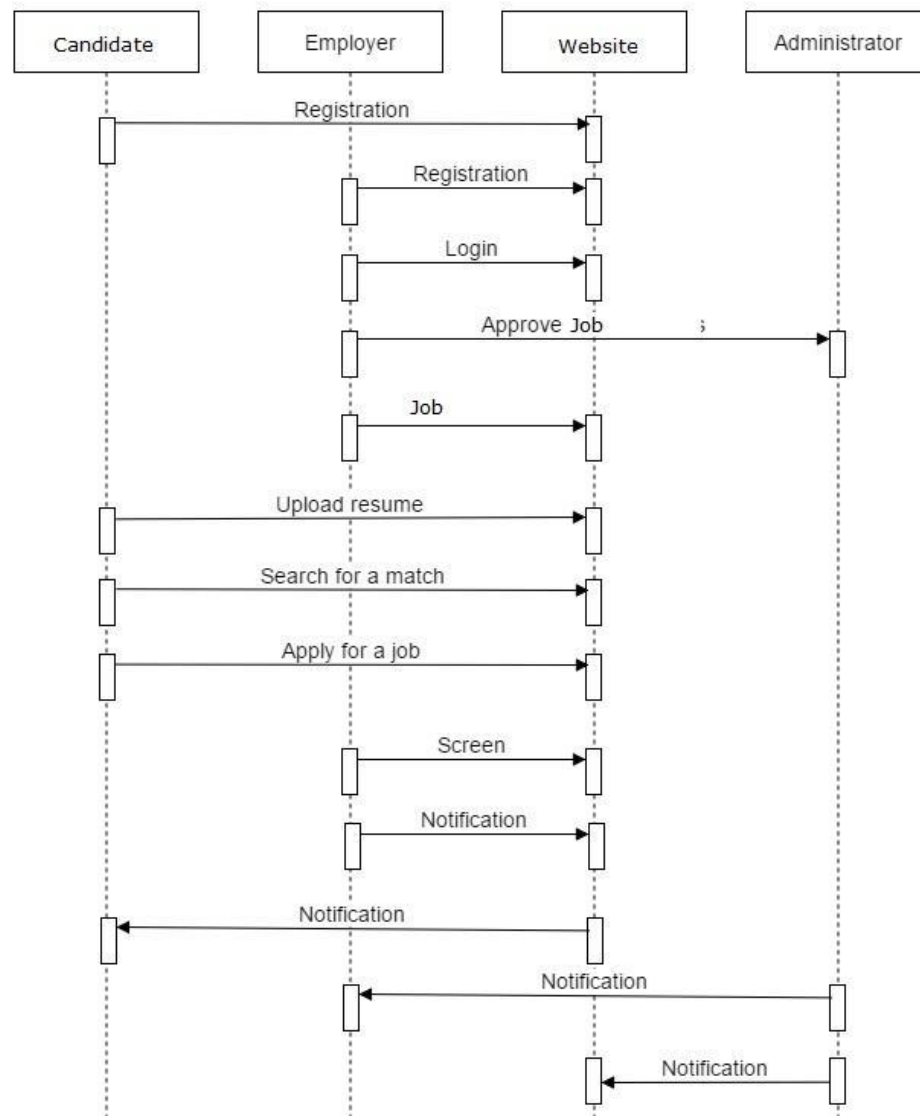


Figure 4: 3.4 Sequential diagram

### 3.6.7 Class diagram

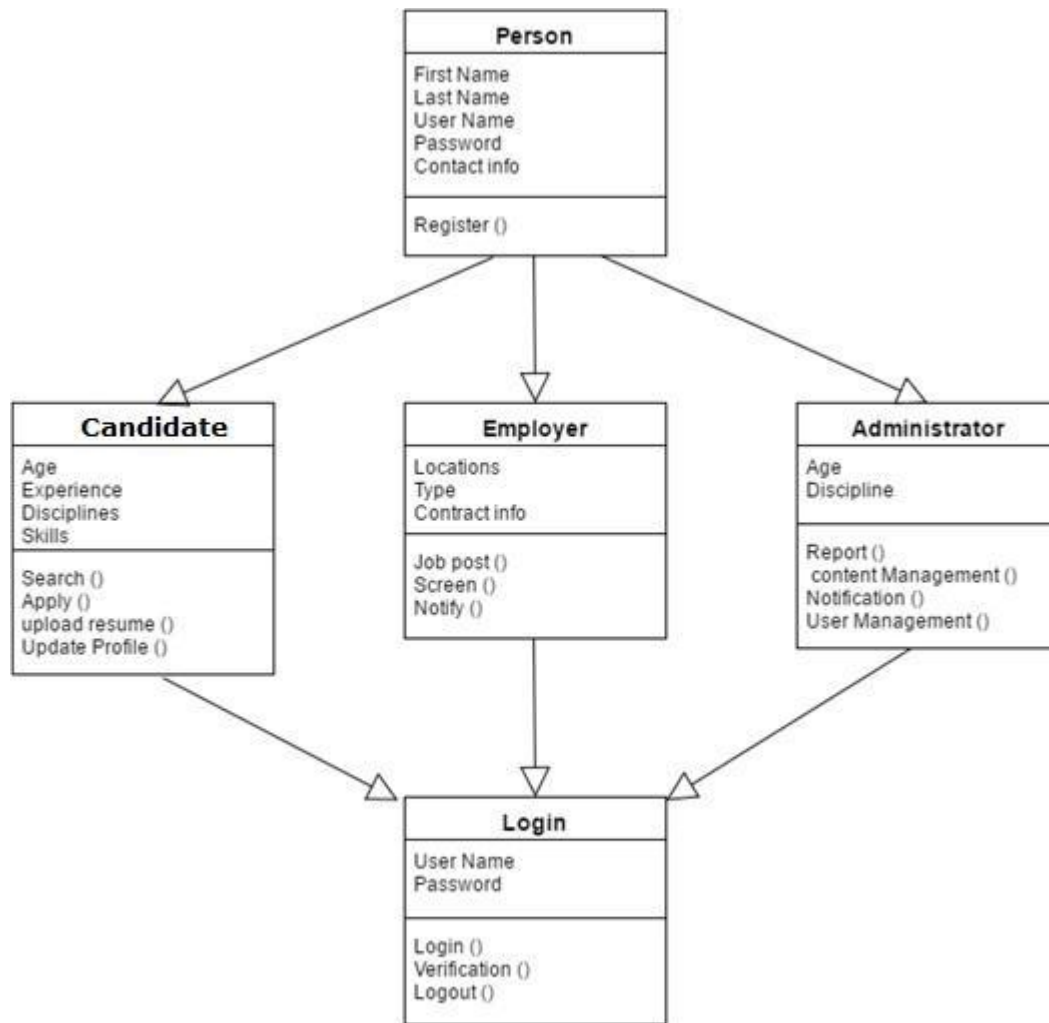


Figure 5: 3.5 Class Diagram

# Chapter 4: Implementation

## 4.1 Introduction

Online job portal is implemented using PHP MYSQL based framework called RawPHP. RawPHP is a framework which is a combination of CakePHP, Laravel and Symfony frameworks. RawPHP is an open source software available in github. Online Job Portal system is implemented to Sri Lankan users only and enhancement of the system will work globally, which is scheduled for future development. There are main 3 roles Administrators, Job posters and Users.

Different user roles have different access levels. Only administrator has power to delete a user or user himself can deactivate. Administrators and Job posters both have access to post a new job, and edit or delete them.

## 4.2 System Overview

### 4.2.1 Homepage

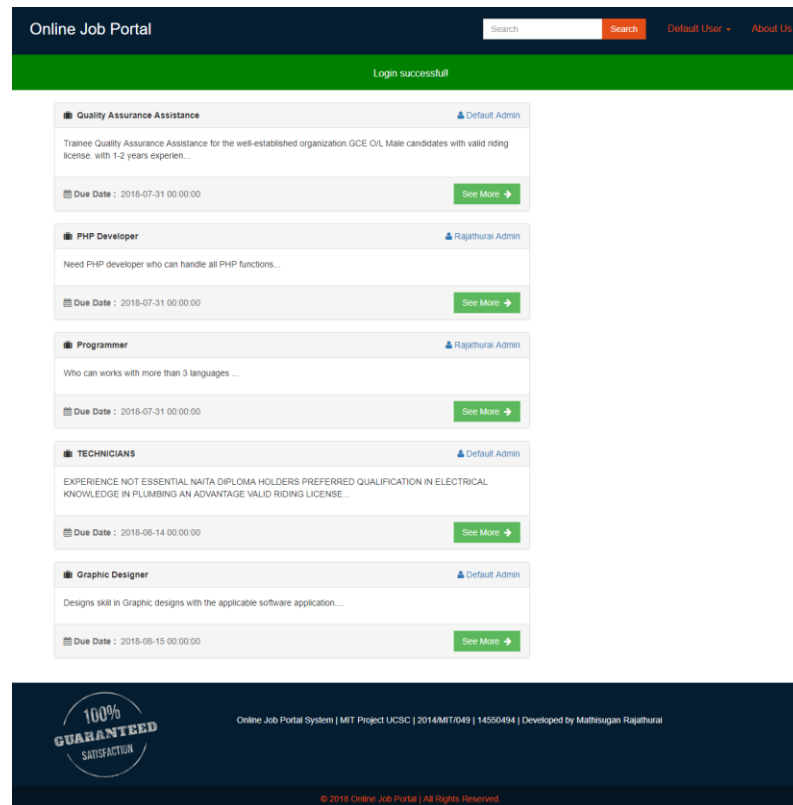
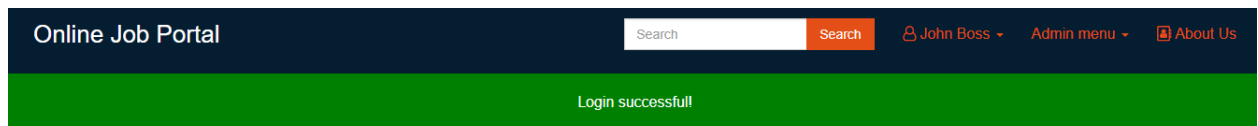


Figure 6: 4.1 Home page

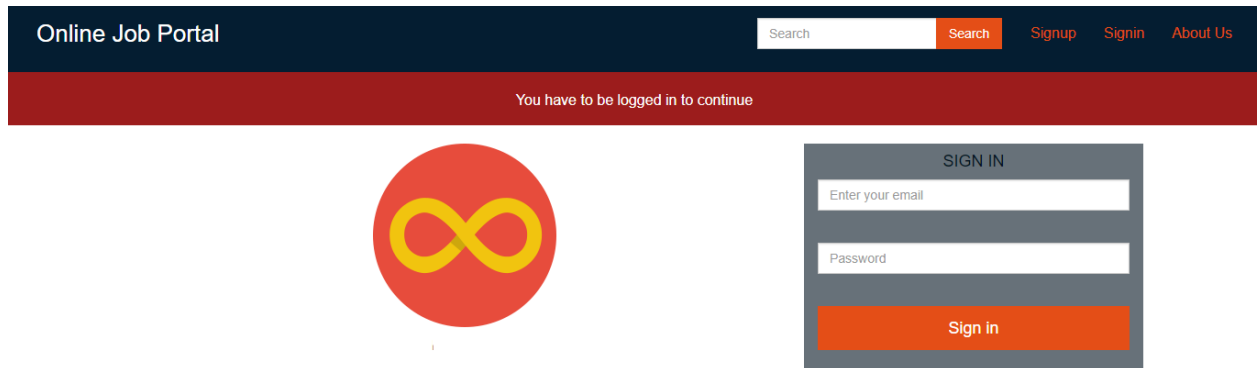


## 4.2.2 Login success alert



*Figure 7: 4.2 Login success alert*

## 4.2.3 Login failure alert



*Figure 8: 4.3 Login failure alert*

## 4.3 Technology and Tools used

### Apache Web Server

Apache web server is locally used by xampp control panel and also used online Linux web server for online job portal application. Apache is one of the best webservers platform in the world. Apache is an open source software was incorporated with eight contributors in February 1995. Most of the websites around the world are running using apache webserver.

### PHP

Hypertext Preprocessor (PHP) is an open source scripting language used in wider range of website development. PHP scripts are processed using PHP interpreter and rendered into HTML document on the web server. After the render, HTML file will be sent to browser through http. HTML code can embedded into PHP and vice versa. PHP scripting is a platform independent scripting language working on all type of operating system.

### MySQL Server

MySQL is a popular relational database management system. It is a widely used database management system for many available open source web applications. PhpMyAdmin is the most popular graphical user interface tool for MySQL database.

### Visual Studio Code Editor

Visual Studio Code is a streamlined code editor. This software is easy to use for debugging, task running and for version control purpose during the development time. This is a very lightweight software. Visual Studio Code editor does not require an installation and this is a platform independent software.

### Notepad++

Notepad++ text editor supports debugging, code editing with several languages including PHP, HTML, CSS and JavaScript. Notepad++ is a lightweight editor.

## 4.4 Software Applications and Hardware Requirements

### 4.4.1 Software Application configuration

- Apache Web Server 2.4.27
- PHP 7.0.23 with PhpMyAdmin
- MySQL server 5.7.19
- Composer version 1.6.2
- npm version 5.6.0
- Visual Studio Code Editor and Notepad ++ Text editor
- Command Prompt
- Secure Shell Client

### 4.4.2 Hardware configuration

- Intel Core i5-6200U Processor CPU 2.30GHz
- 8 GB RAM
- 64-Bit Operating System
- 500 GB Hard Disk Drive
- Monitor 1366 X 768

## 4.5 Server Environment

### 4.5.1 Hardware Configuration

Apache installed Processor 2.0 Hz and above

### 4.5.2 Software/Application Configuration

- Apache Web Server 2.4.27
- PHP 7.0.23 with PhpMyAdmin

- MySQL server 5.7.19
- Composer version 1.6.2

## 4.6 Client side requirement

### 4.6.1 Hardware Configuration

- Minimum 1 Mbps speed internet connected PC
- 2.0 GHz or more powerful processor or any smartphone or tablet connected with internet (3G/4G)

### 4.6.2 Software/Application Configuration

Any web browser with JavaScript enabled

## 4.7 Summary

Technology and tools based analysis is done in Implementation chapter. Online job portal system's server configuration, development environment requirements and client based configuration requirements are analyzed.

## Chapter 5: Evaluation and Testing

### 5.1 Introduction

Audit and validate the software in a system is called software testing. Testing is done by using some software testing automation tools.

### 5.2 Objectives of the Testing

1. In order to ensure that the software is designed according to customer requirements.
2. Deliver an error free system.
3. To ensure validation and data verification is done properly.
4. To ensure the efficiency of the system by checking the quality of the system.

### 5.3 UI Testing

Front end is very important for web based applications. User Interface can be tested by using black box testing methodology.

### 5.4 Browser Testing

Web browser level competencies are highly recommended for any web applications. Application is tested on different web browsers (Google Chrome, Firefox, IE, Opera and etc). Testing should be carried forward to different versions as well.

	Chrome	Firefox	IE	Opera
Home page	Pass	Pass	Pass	Pass
About us page	Pass	Pass	Pass	Pass
Sign up page	Pass	Pass	Pass	Pass
Sign in Page	Pass	Pass	Pass	Pass
Search page	Pass	Pass	Pass	Pass
User Page Add / Update/ Delete	Pass	Pass	Pass	Pass
Skill page Add / Update/ Delete	Pass	Pass	Pass	Pass

*Table 7: 5.1 Web browser testing*

## 5.5 Test cases used to test sign-up/sign-in UI and function

User registration (sign up) process is a basic functional requirement process in the online job portal system. All users should enter their First name, Last name and valid email address along with desired password to register with the system. [www9]

Test ID	Test case	Expected output from system	Success/Fail
1	New user tries to register with blank First name, Last name and email address	Form validation rules reject system input and display error	Success
2	New user input numeric character for First name and Last name	Form validation display error and reject input	Success
3	New user registration details with valid email address and other information	Adds user details with proper validation, and update database	Success
4	User tries existing email address to register	Return login page again to login and validation error occur	Success
5	Forgot password	Forgot password ask to input email address and sends reset password to email	Success
6	User provides invalid username and password	Form verification returns an error and reject to login	Success
7	User tries blank username and blank password to login	Form validation sends error message and login failed	Success
8	User tries with correct username but wrong password	Form verification failed and login rejected	Success
9	User tries with wrong username and correct password	Form verification failed and login rejected	Success
10	Correct email and password	Form verification success and login success	Success

*Table 8: 5.2 Test cases used to test sign-up/sign-in UI and function*

## 5.6 Test cases used to test on search function

Search function is a preliminary task for Online Job Portal. Search box function is created to search any skills, first name, last name, or anything by district.

Test ID	Test case	Expected output from system	Success / Fail
1	Click “Search” button without type anything	Form validation rules reject for search and display error	Success
2	Type unavailable skill, first / last name	Blank page loaded and there is no such a word found message display	Success
3	Type numbers on search box	Form validation rules reject for search and display error	Success
4	Type skill “PHP”	Display all the user name with skill PHP and related skill on screen	Success

*Table 9: 5.3Test cases used to test on search function*

## 5.7 Test cases to post jobs

Job post is the function done by a company human resource person, or job agencies. Once a user posts a job, other users who are searching for a job (candidates) could able to view. Job post user can edit and update or delete if a job is not reliable or expired.

Test ID	Test case	Expected output from system	Success / Fail
1	Click “Submit” button without type anything	Form validation rules reject for post and display validation errors	Success
2	Type numeric value for title of the post	Input box does not accept any numeric value only accepting alphabet characters (A-Z or a-z)	Success
3	Type some alphabet characters for budget field	Input validation does not accept any alphabet value and only accepting numeric (0-9) values	Success
4	Edit and update job posting	By clicking “Edit Post” button user can open the view post in editable mode and after editing when user press “Submit” button, it will update	Success
5	Delete any post	By clicking on “Delete” button confirmation message will be displayed once confirm post get deleted	Success
6	Proofreading before post a job	“Preview” button is available to view post before submit	Success
7	View all the posts made by user	By clicking “My Post” option user can view all the posts made by him/her	Success

*Table 10: 5.4 Test cases to post jobs*



## 5.8 Test cases for Administrator access functions

Administrator role is a high priority role in this system. Administrator can register as a normal user and need to send request to super admin in order to become administrator or super admin can decide to make a user as an administrator.

Test ID	Test case	Expected output from system	Success / Fail
1	Add/Edit/Delete a post	Admin can add/edit/delete job post	Success
2	Add / Edit / Delete Skills	Add new skills, Edit and Update skills or Delete if any irrelevant skills add by other users	Success
3	Interview schedule	Admin can schedule the interview for the user	Success

*Table 11: 5.5 Test cases for Administrator access functions*

## 5.9 User acceptance test

User acceptance test is an important testing method for the system deployment. Instantly got reviews from the end users and other people who used to work with same system domain. Usability test form results will send to the development team to fix errors and modify with better suggestions.

## 5.9.1 Usability test form

### Usability Test form -Online Job Portal

Name

Your answer

1. How is the overall user interface design?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

2. How is the user registration of the system?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

3. How is the user profile and features in the system?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

4. How far the system is user friendly and how is the performance?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐

5. Understandable the error messages ?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

6. Multimedia interaction of the system and quality of content in home website?

1 2 3 4 5

VeryPoor ☐ ☐ ☐ ☐ ☐ Excellent

7. How fast is the page loading ?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

8. Job application functionality?

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

9. Ease of use

1 2 3 4 5

Very Poor ☐ ☐ ☐ ☐ ☐ Excellent

Comments

Your answer

**SUBMIT**

Never submit passwords through Google Forms.

Figure 9: 5.1 Usability test form

### 5.9.2 Review summary of usability test form

	Q1	Q2	Q3	Q4	Q5	Q6	Q7	Q8	Q9
Very Poor	01	01	00	02	01	04	02	03	01
Poor	07	19	21	21	11	11	10	08	04
Average	45	30	28	39	33	45	30	44	36
Good	38	43	39	34	44	32	52	40	54
Excellent	11	09	14	06	13	10	08	07	07

Table 12: 5.6 Review of usability test form

#### 1. How is the overall user interface design?

102 responses

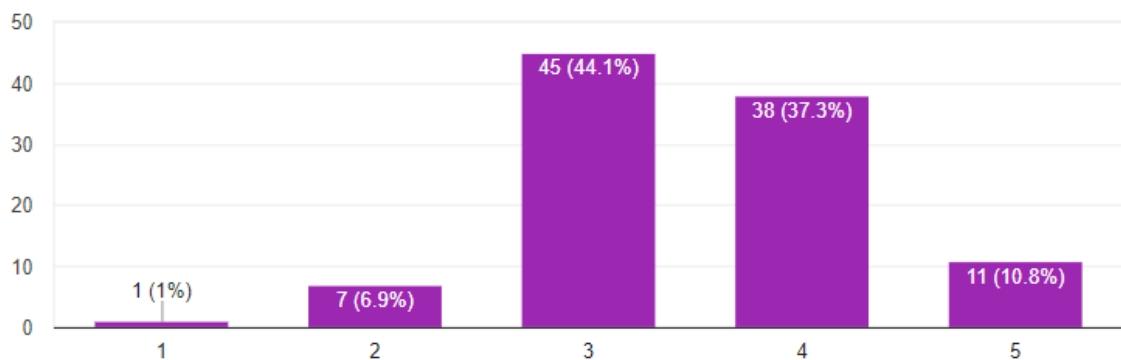


Table 13: 5.7 Result of UI Design

### 5.10 System Strengths

- User friendly environment and smooth access
- Very faster search options
- Easy access for different user levels
- Quicker method to apply for a job
- Responsive design to access from any device
- Candidate gets notifications with application status
- Application filtered by looking at skills automatically

### 5.11 Identified weakness of the system

- Admin cannot delete another admin, only super admin has the power for that.
- Programmer should have a knowledge of RawPHP framework or minimal requirement to know Laravel or Cake Framework for further development.
- Automatic data backup functionality is not available.
- No recovery for delete data by admin.
- Currently no cron jobs setup into server.

## Chapter 6: Conclusion and Future endeavors

### 6.1 Introduction

This chapter concentrate on wrap up the dissertation with a critical evaluation of the system, lessons learned and suggestions for any future enhancements.

### 6.2 Lessons learned

Implementation of this system process brings into gain knowledge in several aspects. Some of them are Requirement gathering, Requirement Analysis and System analysis design, Project planning, Frontend design and backend development, Software testing, Organizing infrastructure and prepare Documentation. This is a full stack development process which is equivalent to process roles of a Project Manager, Technical lead, System Analyst, Business Analyst, Software Developer, QA Tester, Network Administrator, Content Writer and Graphic & UI designer. The self-confidence helps more to complete the project successfully on time. It has been a great challenge for myself and it has been self-satisfactory goal for me. It was a great opportunity to learn the programming PHP and PHP Framework, HTML and CSS using Bootstrap, JavaScript, MySQL and many other important new technologies to lead the way to learn.

### 6.3 Conclusion

Developed Online job portal system is a stable system running on RawPHP framework platform and it has scalable schedule to do changes with its MVC architecture. Any freshman can quickly learn the system with ease to create a new feature.

The main functions that, needed for online job portal systems are mentioned as follows. ‘User Sign up’ is required for the very first access for job seekers and the employers. After the registration, an employer can ‘post new vacancies’. The job seeker can be able to ‘view applied jobs’ which are sent automatically and ‘check the status’ of an applied job also. After shortlisting the applications, the employer can be able to ‘invite candidates’ to the interview. Employers and job seekers can be kept in touch with the system with ‘email notifications’. A ‘user dashboard’ will be there for users’ convenience.

## 6.4 Future enhancement

Some functions need to be included in the system to enhance the portal. Though they are not most prominent ones that they give a more attractive look to the system. Some features can be developed as follows.

- Polymer based UI design: Polymer is a Javascript based library. Its helps to create reusable custom HTML elements for more attractive UI design [www10].
- Online payment for premier job posting: Online payment method for every post or annual subscription charges for regular based job posting agents.
- Cron job functionality to server: Cron setup is an automated functionalities based on timer. Any one of the function can start by server computer to run
- Data backup function : Data backup functionality can be done once cron jobs activated at the server
- Banner management: Organization can use their banner at the homepage to display for visitors in order to give priority for their job post.
- Search Engine Optimization (SEO): Basic SEO techniques already available with current system further more promotions and PPC(Pay Per Click) will be activated later.

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[www13] <https://reviews.financesonline.com/p/workable/>

[www14] <http://cv.lk/cvemployer.aspx>



# Appendices

## Appendix A: System Documentation

Title: Online Job Portal

Date: 20th of December 2017

Version: 1.1

System: Web based application

This documentation provides system implantation information for the developers, Tech leaders, System administrators who involve in further system encasement. Also, those who would like to understand the technical information to install and configure the system successfully.

### Hardware requirements

- Processor - Intel / AMD – 2.0 GHz or higher
- RAM - 2 GB or higher
- Hard disk - 500 GB or higher
- Resolution - At least 1024 x 768
- Internet - Broadband with minimum 2.0 Mbps download rate

### Software requirements

- Operating System - Windows 7 or later version
- Web Server - Apache 2.4 or above
- PHP - Minimum PHP 7.x version
- Database - My SQL 5.x version
- Web Browsers - Google Chrome (recommended) or any other browser latest version (Firefox , Internet Explorer)
- Text Editor - VS code editor, Sublime Text, Notepad ++

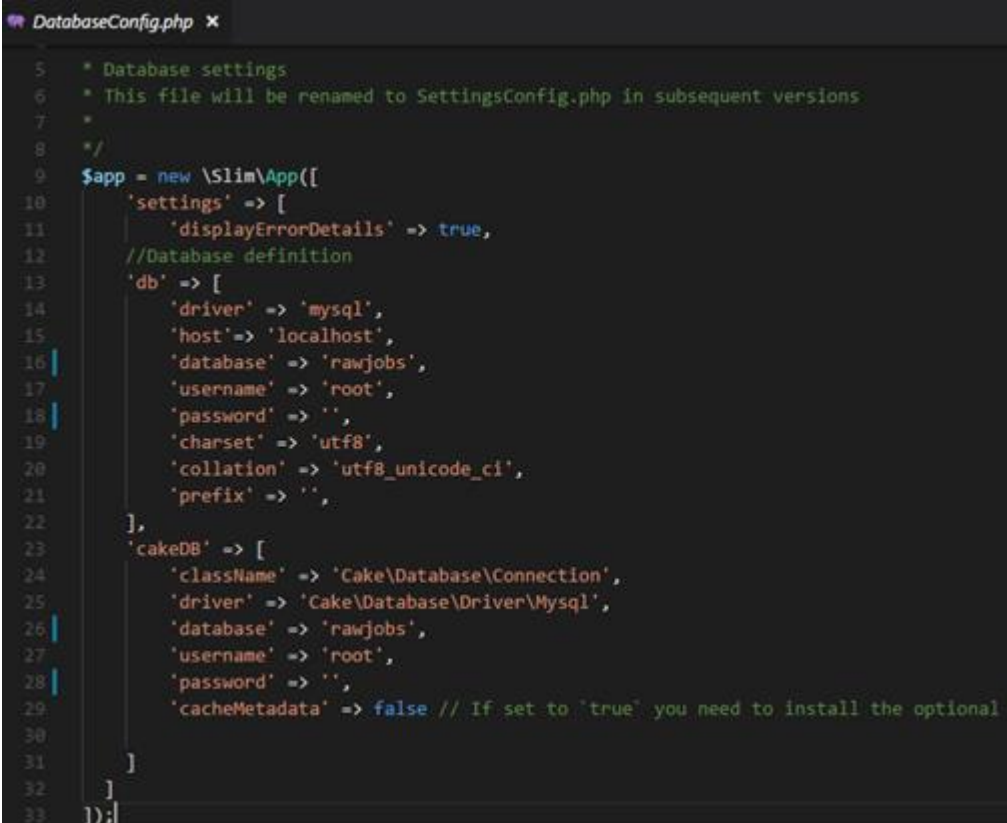
## Configuration of the pre-requisites

Information related to installation, compilation and execution details of the system are as follows

### WAMP server / LAMP Server

WAMP Server (Windows, Apache, MySQL, and PHP) or a LAMP Server (Linux, Apache, MySQL, and PHP) can configure as a local server to work with PHP and MySQL database on Apache server. These are lightweight and open source bundles. WAMP is supporting for a windows based development environment, and LAMP is supporting for Linux based.

1. Once WAMP/LAMP server is installed, run the server.
2. Copy an entire folder call “rawjobs” into “C:\wamp\www\” path.
3. Click and open **rawjobs** folder and then open a folder call **rawphp**
4. Restore database file in MySQL,use phpmyadmin
5. Database configuration at **config\DatabaseConfig.php** file as follows



```
DatabaseConfig.php x
5  * Database settings
6  * This file will be renamed to SettingsConfig.php in subsequent versions
7  *
8  */
9  $app = new \Slim\App([
10     'settings' => [
11         'displayErrorDetails' => true,
12         //Database definition
13         'db' => [
14             'driver' => 'mysql',
15             'host' => 'localhost',
16             'database' => 'rawjobs',
17             'username' => 'root',
18             'password' => '',
19             'charset' => 'utf8',
20             'collation' => 'utf8_unicode_ci',
21             'prefix' => '',
22         ],
23         'cakeDB' => [
24             'className' => 'Cake\Database\Connection',
25             'driver' => 'Cake\Database\Driver\Mysql',
26             'database' => 'rawjobs',
27             'username' => 'root',
28             'password' => '',
29             'cacheMetadata' => false // If set to 'true' you need to install the optional
30         ],
31     ]
32 ]
33 );
```

Figure 10: Appendix 1.1: Database Configuration

6. **Shift + Right click** at free space on the area then select “Open PowerShell window here” option.

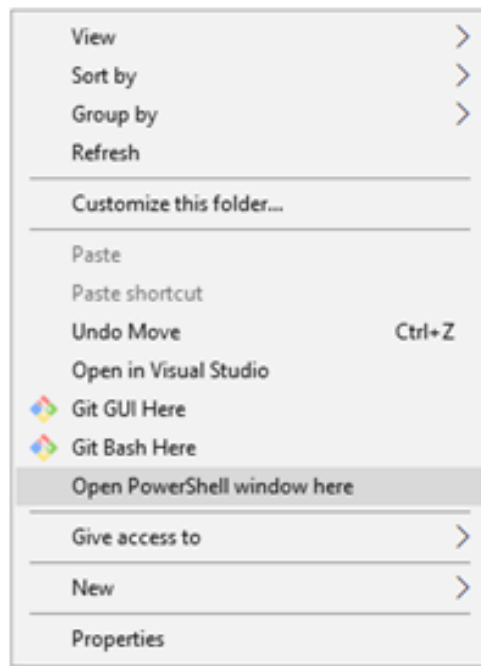


Figure 11: Appendix 1.2 Select PowerShell

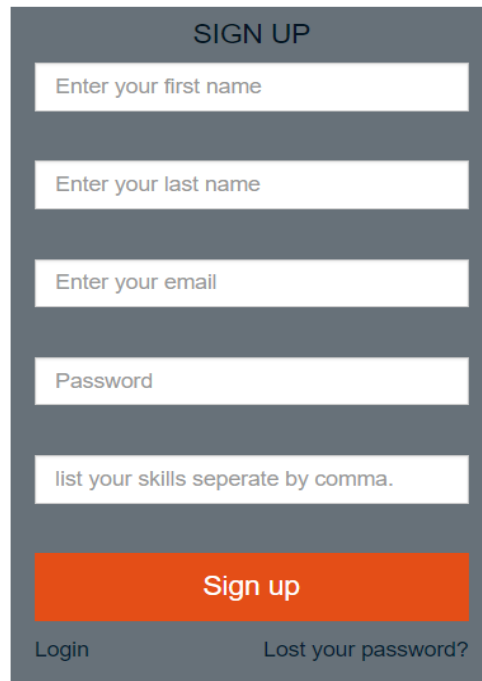
7. Type the following command on the PowerShell window
- php -S localhost:8000 -t public**
8. Finally open a new tab on your web browser and type ***http://localhost:8000***

```
PS C:\xampp\htdocs\rawjobs\rawphp> php -S localhost:8000 -t public
PHP 7.0.23 Development Server started at Wed Mar 21 10:25:07 2018
Listening on http://localhost:8000
Document root is C:\xampp\htdocs\rawjobs\rawphp\public
Press Ctrl-C to quit.
[Thu Mar 22 13:39:47 2018] ::1:62362 [200]: /
[Thu Mar 22 13:39:47 2018] ::1:62363 [200]: /css/custom.css
[Thu Mar 22 13:39:47 2018] ::1:62364 [200]: /css/bootstrap.min.css
[Thu Mar 22 13:39:48 2018] ::1:62365 [200]: /js/vendor/video.js
[Thu Mar 22 13:39:48 2018] ::1:62366 [200]: /js/flat-ui.min.js
[Thu Mar 22 13:39:52 2018] ::1:62374 [200]: /auth/signin
[Thu Mar 22 13:39:52 2018] ::1:62375 [200]: /css/bootstrap.min.css
[Thu Mar 22 13:39:52 2018] ::1:62376 [200]: /css/custom.css
[Thu Mar 22 13:39:52 2018] ::1:62377 [200]: /js/vendor/video.js
[Thu Mar 22 13:39:52 2018] ::1:62378 [200]: /js/flat-ui.min.js
[Thu Mar 22 13:39:52 2018] ::1:62379 [200]: /img/icons/png/Infinity-Loop.png
[Thu Mar 22 13:39:55 2018] ::1:62380 [200]: /auth/signup
[Thu Mar 22 13:39:55 2018] ::1:62381 [200]: /css/bootstrap.min.css
[Thu Mar 22 13:39:55 2018] ::1:62382 [200]: /css/custom.css
[Thu Mar 22 13:39:55 2018] ::1:62383 [200]: /js/vendor/video.js
[Thu Mar 22 13:39:55 2018] ::1:62384 [200]: /js/flat-ui.min.js
[Thu Mar 22 13:39:55 2018] ::1:62385 [200]: /img/icons/png/Infinity-Loop.png
[Thu Mar 22 13:39:58 2018] ::1:62386 [200]: /about
[Thu Mar 22 13:39:58 2018] ::1:62387 [200]: /css/bootstrap.min.css
[Thu Mar 22 13:39:58 2018] ::1:62388 [200]: /css/custom.css
[Thu Mar 22 13:39:59 2018] ::1:62389 [200]: /js/vendor/video.js
[Thu Mar 22 13:39:59 2018] ::1:62390 [200]: /js/flat-ui.min.js
[Thu Mar 22 13:40:03 2018] ::1:62393 [200]: /
[Thu Mar 22 13:40:04 2018] ::1:62395 [200]: /css/bootstrap.min.css
[Thu Mar 22 13:40:04 2018] ::1:62396 [200]: /css/custom.css
[Thu Mar 22 13:40:04 2018] ::1:62397 [200]: /js/vendor/video.js
[Thu Mar 22 13:40:04 2018] ::1:62398 [200]: /js/flat-ui.min.js
[Thu Mar 22 13:40:06 2018] ::1:62399 [302]: /users/view/10
```

Figure 12: Appendix 1.3: PowerShell loading while working

## Appendix B: User Documentation

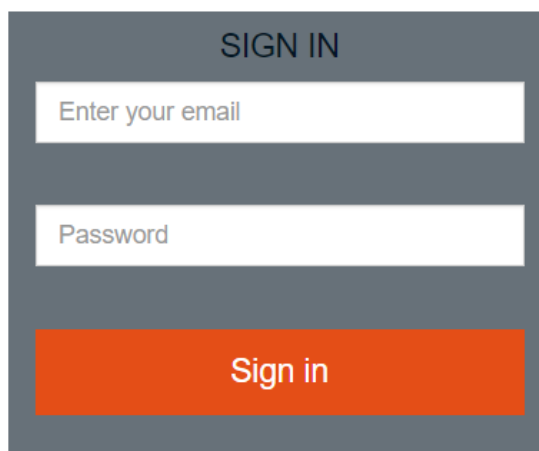
### Signup / Register User option



A vertical form titled "SIGN UP" with a dark gray background. It contains five white input fields stacked vertically: "Enter your first name", "Enter your last name", "Enter your email", "Password", and "list your skills seperate by comma.". Below the fields is a large orange button labeled "Sign up". At the bottom, there are two links: "Login" and "Lost your password?".

*Figure 13: Appendix 2.1 Signup form*

### Sign in User



A vertical form titled "SIGN IN" with a dark gray background. It contains two white input fields stacked vertically: "Enter your email" and "Password". Below the fields is a large orange button labeled "Sign in".

*Figure 14: Appendix 2.2 Sign in User*

## Create new job post

Online Job Portal

[Rajathurai Admin](#) [Admin menu](#) [About Us](#)

Create a new job

Enter a job title

Select an expert level

Intern

Enter job description

Enter skills expectation (commas seperated)

list your skills seperate by comma.

Enter salary

Application due date

mm/dd/yyyy

Company Name

Company Address

Select District to work

Work type

Full Time

Job site

Home based

Submit

100%  
GUARANTEED  
SATISFACTION

Online Job Portal System | MIT Project UCSC | 2014/MIT/049 | 14550494 | Developed by Mathisugan Rajathurai

© 2018 Online Job Portal | All Rights Reserved.

Figure 15: Appendix 2.3 Create new job post

## Search jobs by skills

Search results for "PHP"

The screenshot displays a web interface for searching jobs by skills. At the top, there are two tabs: 'Jobs' and 'Skills'. Below the tabs, five job listings are shown, each with a title and a set of skill tags. The skill tags are represented by blue buttons with a magnifying glass icon and the skill name. The job listings are as follows:

- PHP Developer**: HTML, CSS, Laravel, PHP
- Assistant Project Manager -**: php, mysql, agile
- Quality Assurance Assistance**: QA, Testing, HTML, UI, PHP
- PHP Developer**: html, php, mysql, js, css
- Programmer**: PHP, Java, .NET, Python, C#

Figure 16 Appendix 2.4 Search job by skills

## Appendix C:

### User comments

#### Comments

86 responses

Nice to use this.
System needs some improvement
It's so easy to use this but need some improvement
Interface design is perfect & Ease to also use.
The system & it's interface is so good
The speed of loading is should be take in concern.
User registration of the system wants to get improve.
Multi interaction of the system & quality is so great.
I like the user interface design & also the registration of the system.
The job application functionality is so good & also it's easy to use.
Over all the system is so good & feel so comfortable to use it.
The system should improve in some zones.

Figure 17: Appendix 3.1 User comments

### User feedback overview

	C	D	E	F	G	H	I	J	K	L	M	N	
1	Name	1. How is the	2. How is thi	3. How is th	4. How far the	5. Understand	6. Multimedia	7. How fast is	8. Job applicati	9. Ease of use	Comments		
34	Joyanee	3	4	2	3	4	3	3	4	4	4 Application functionality should improve		
35	Lavanya	4	3	4	3	4	3	4	4	3	3 The system should improve in speed.		
36	Anjalika	4	4	4	3	3	3	3	3	3	3 Job application funcatinality should be appreciated		
37	Dheepak	3	4	2	4	4	4	4	4	4	3 Multi media interaction is so good & it's ease to use also.		
38	Gowthamy	4	5	4	3	4	3	3	5	4	4 The system functionality is so great.		
39	Sneha	4	3	4	3	4	4	3	4	4	4 The system should understand & reply to error messages als		
40	Karthick	2	4	4	4	3	4	4	4	4	4 The system should get improve in user profile.		
41	Saasha	3	4	4	3	4	3	4	4	4	4 Job application functionality should be take as concern.		
42	Sanjay	4	4	4	3	4	3	4	3	3	4 This system wants to get in some places but it is so ease to u		
43	Nikita	4	3	3	4	4	4	3	4	4	4 User friendly is the plus and the speed of loading is the minu		
44	Shenali	3	4	4	5	5	3	4	4	4	4 Features in the system are really good.		
45	Shanon	4	4	5	3	5	4	4	5	4	4 Interface design & registration of the system are good.		
46	Jeron	4	3	5	3	5	3	5	4	4	4 The system functanality & it is really comfort to use the syste		
47	Reshma	4	3	2	3	3	4	4	4	4	4 Job application functionality is so great.		
48	Kajan	4	4	4	3	4	5	3	4	4	4 Loading is so irritating in this system.		
49	Abiram	3	5	3	1	3	2	4	1	3	3 User friendly should get little bit improvemet.		

Figure 18: Appendix 3.2 User feedback overview