Software Requirements Specification

for

Linking Supply and Demand of Skills

Version 1.0 approved

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SKIT

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1.Introduction

1.1   Purpose

Linking supply and demand of skills is a web based application in order to connect the potential employers and the skilled labor force.This web based application shall be available to all employers either in commercial and non-commercial space and the people who seek for work.This application shall capture the information regarding an individual such as personal details, qualification, experience, etc. and make available to all prospective employers. It shall also take information from the employers such as their information and their requirements.The purpose of this SRS document is to elaborate software requirements for the development of the web based application.

Document Conventions

This document uses the following conventions.
Main Section Titles:

Font: Times New Roman
Face: Bold
Size: 18
Sub Section Titles:

Font: Times New Roman
Face: Bold
Size: 14
Other Text Explanations

Font: Arial
Face: Italic
Size: 11

1.2   Intended Audience and Reading Suggestions

The intended users of this document are
-Users of the application
-Development team
-Validation and verification team

1.3   Product Scope

The purpose of the project id to create a convenient and easy to use application to ease the communication between the potential employers and the skilled/semi skilled workers seeking for

jobs and thus help in reducing unemployment. Both the client side and the worker side shall be connected by a database.Above all, we hope to provide a comfortable user experience.

2.   Overall Description

2.1   Product Perspective

-The system provides features to link the prospective employers of skills to those with skills.
-It includes all the details of the employer and their requirements.
-The system provides a functionality to keep user's record as confidential.
-A moderate level of computer literacy is required for the users of the application.

2.2   Product Functions

-The system shall let the user see all the options and details of the prospective employers and their requirements.
-It must provide a timely reply from the employer to the user.

Data-Flow   Diagram:
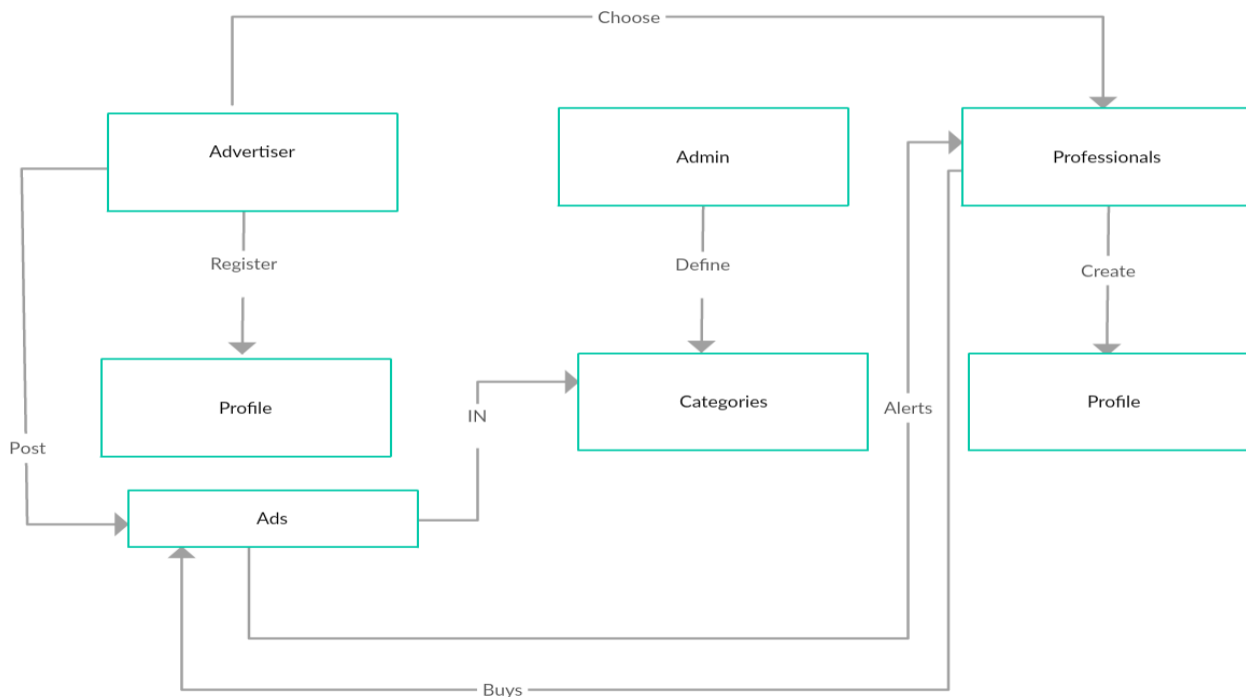
General Use Case Diagram:
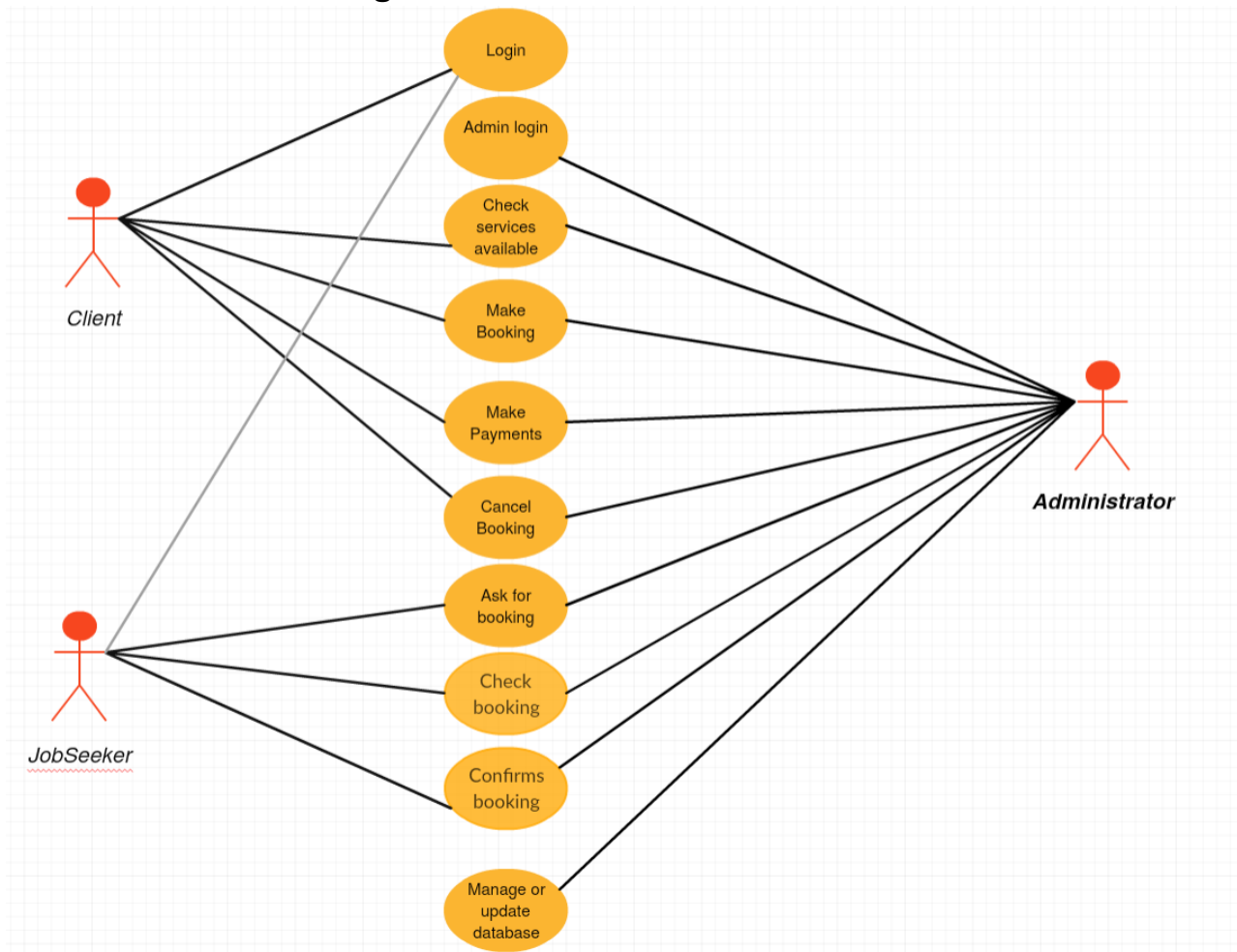
2.3   User Classes and Characteristics

-Client: They login at the client level and this is to get access to the Internet at the client level. They can also view their account status in the client system.

-Administrator: They are the core users and are able to add new users to the system and permit them to access the Internet resources. They can also view in real time what a user is performing right now. They can also get the overall report of the user sessions.

-Job seeker: They will be in a position to permit access to the users in the Internet and acknowledge their account status.

REGISTERED USERS

Menu	Sub-Menu (If any)	Description
Home		It will be the landing page of the website
My Account	- View Profile - Edit Profile - Change Password	Can view and edit the profile.
Login		User can login into the system, after logged in it will disappear.
Contact Us		It shows the enquiry form to contact the Admin.

ADMINISTRATOR

Menu	Sub-Menu (If any)	Description
Dashboard		It shows the needed info in brief like no. of registered users, requests for invitations, no. of posts, no. of cities/ demographic locations, no. of Hotels, etc.
People		It shows the listing of the registered users with the name, points earned, city, country.
My Account	Change Password	Can change the password.
Requests		From here admin can view the requests and reply to the users.

HANDYMAN REGISTER:

User will register into the site by filling register form containing following fields.

Filed Name	Field type	Required	Value type	Remarks
Username	Text box	Yes	Alpha-numeric	It is to add the desired username. This will be used as login and should be unique.
First Name	Text box	Yes	Alpha-numeric	This field is to enter the First Name of the user.
Last Name	Text box	Yes	Alpha-numeric	This field is to enter the Last Name of the user.
Gender	Radio Button	Yes	Male Female	It is to select the gender of the user.
Date of Birth	Calendar	Yes	Date	It is to select the birthday of user.
Password	Text box	Yes	Alpha-numeric	It is used to enter the password to login into the system. Its textmode should be password.
Confirm Password	Text box	Yes	Alpha-numeric	It is used to re-enter the password for confirmation.
Email Address	Text box	Yes	Correct email format.	It is to provide email address for further communication of info.
Country	Ajax Suggester	Yes	Alpha-numeric	As per the above city selection, it will come automatically in non-editable format.
City	Ajax Suggester	Yes	Alpha-numeric	This is to select the city name as per the post, if type initials for any city then it will give the suggestions of all matching cities to select.
Profile Image	File Uploader	No	Take image only.	It will be a non mandatory field to upload profile image.
Mobile Number	Textbox	No	Valid mobile number	It will be a non mandatory field to take mobile number.

Provide service	Ajax Suggester	yes	Alpha-numeric	This is the service which will be provided by the Handyman.
Submit	Button	N/A	N/A	Clicking on submit button user will get registered in website and able to access other modules of website. It will also be shown in the user listing shown in Admin.

CLIENT REGISTER:

User will register into the site by filling register form containing following fields.

Filed Name	Field type	Required	Value type	Remarks
Username	Text box	Yes	Alpha-numeric	It is to add the desired username. This will be used as login and should be unique.
First Name	Text box	Yes	Alpha-numeric	This field is to enter the First Name of the user.
Last Name	Text box	Yes	Alpha-numeric	This field is to enter the Last Name of the user.
Gender	Radio Button	Yes	Male Female	It is to select the gender of the user.
Date of Birth	Calendar	Yes	Date	It is to select the birthday of user.
Password	Text box	Yes	Alpha-numeric	It is used to enter the password to login into the system. Its textmode should be password.
Confirm Password	Text box	Yes	Alpha-numeric	It is used to re-enter the password for confirmation.
Email Address	Text box	Yes	Correct email format.	It is to provide email address for further communication of info.
Country	Ajax Suggester	Yes	Alpha-numeric	As per the above city selection, it will come automatically in non-editable format.

City	Ajax Suggester	Yes	Alpha-numeric	This is to select the city name as per the post, if type initials for any city then it will give the suggestions of all matching cities to select.
Profile Image	File Uploader	No	Take image only.	It will be a non mandatory field to upload profile image.
Mobile Number	Textbox	No	Valid mobile number	It will be a non mandatory field to take mobile number.
Submit	Button	N/A	N/A	Clicking on submit button user will get registered in website and able to access other modules of website. It will also be shown in the user listing shown in Admin.

LOGIN: It is a usual login form to login in the website having fields define in the below table:

Filed Name	Field type	Required	Value type	Remarks
Username	Text box	Yes	Alpha-numeric	This is to enter the unique user name.
Password	Text box	Yes	Alpha-numeric	This is to enter the correct password.
Submit	Button	N/A	N/A	If entered username & password is correct then clicking on submit button will logged in the user to the website otherwise it will give the below error message: "Either Username or Password is incorrect"
Forgot Username/ Password	Link	N/A	N/A	Once clicked will ask the registered email address, and upon clicking on the Send button will send a unique link to the

				entered correct email address. Upon clicking on that link will open a page to change the password as defined in the change password section below.

MY ACCOUNT: It will be having profile and general info about the registered users and will allow them to edit and update few details.

VIEW PROFILE

It is used to view the profile having the below options:

Title	Description
Username	Shows the unique username of the user.
Full Name	Shows the full name of the user.
Image	Shows the image if added otherwise shows any default image as per the gender selection.
Gender	Shows Male or Female as per the selection while registration.
Date of Birth	Shows the birth date as per the selection while registration.
Email Address	Shows the email address as per the selection while registration.
City, Country	Shows the city and country.
Mobile number	Shows if entered by the user else N/A.
Edit	A link to open the edit page of profile to update the value if needed.

EDIT PROFILE

It will open the edit page of profile with the below defined fields and values.

Filed Name	Field type	Required	Value type	Remarks
Username	N/A	N/A	Unique username of the user.	It cannot be changed.
First Name	Text box	Yes	First name of the user.	It can be updated.
Last Name	Text box	Yes	Last name of the user.	It can be updated.
Gender	Radio Button	Yes	Male Female	As selected during registration.
Date of Birth	Calendar	Yes	Birth date of user.	It can be updated.

Email Address	Text box	Yes	Email ID of the user.	It can be updated.
Country	Dropdown	Yes	Country selected by user	It can be updated.
City	Dropdown	Yes	City selected by user.	It can be updated. If selected country is changed then city list will bind again.
Profile Image	File Uploader	No	Image uploaded by the user.	It can be updated.
Mobile number	Text box	No	Valid mobile number.	It can be updated.
Update	Button	N/A	N/A	Clicking on update button, updated the profile with the updated values.

CHANGE PASSWORD: It is to change the password of the user. This link will open the form having the below fields:

Filed Name	Field type	Required	Value type	Remarks
New Password	Text box	Yes	Alpha-numeric	This is to enter the new password.
Confirm Password	Text box	Yes	Alpha-numeric	It is used to re-enter the password for confirmation.
Change Password	Button	N/A	N/A	Clicking on submit button will give a success message and an email will be sent to the User's email address with the changed password.

Contact Us: It's a normal enquiry form to contact the admin with any query/ feedback/ suggestion. Below table will define the fields having in this form:

Filed Name	Field type	Required	Value type	Remarks
Name	Text box	Yes	Alpha-numeric	This is to enter the full name.

Email Address	Text box	Yes	Correct email format.	It is to provide email address to reply this message.
Message	Text Area	Yes	Alpha-numeric	This is to enter the message, remark, feedback, query, suggestion, etc.
Submit	Button	N/A	N/A	It will give a success message and an email with the entered info will be sent to the Admin.

ADMIN

Admin can login from the backend system of the website from where it can manage the needed data, users, values, etc as defined below:

Dashboard: the landing page of the backend system and will give the below info:

Object	Description
Registered Users	<Total number of registered users>
Requests	<Total number of requests, both attended & unattended>
	Rest page will contain the quick links to the inner links of backend.

Dashboard: the landing page of the backend system and will give the below info:

Object	Description
Registered Users	<Total number of registered users>
Requests	<Total number of requests, both attended & unattended>
	Rest page will contain the quick links to the inner links of backend.

PEOPLE: It shows the listing of the registered users in a tabular structure with the fields as defined in below table:

Column Name	Description
Full Name	Shows full name of the user as a link, once click will open the **Detail View** of the user as defined below after this table.
Email Id	Shows email address of the user.
Mobile No.	If available else N/A.
City	Shows the current city selected for the user.
Country	Shows the current country selected for the user.

| Action | Edit: An icon, once clicked will open the edit profile page of user. |
| | Deactivate: An icon, once clicked will deactivate the user after confirming the warning message. After deactivating user will not be able to login in front end. |

Detail View:

Title	Description
Username	Shows the unique username of the user.
Full Name	Shows the full name of the user.
Image	Shows the image if added otherwise shows any default image as per the gender selection.
Gender	Shows Male or Female as per the selection while registration.
Date of Birth	Shows the birth date as per the selection while registration.
Email Address	Shows the email address as per the selection while registration.
Mobile	Shows mobile number of the user.
Edit	A link to open the edit page of profile to update the value if needed except username.

MY ACCOUNT: It will be having the below option for admin:

CHANGE PASSWORD: It is to change the password of the admin. This link will open the form having the below fields:

Filed Name	Field type	Required	Value type	Remarks
New Password	Text box	Yes	Alpha-numeric	This is to enter the new password.
Confirm Password	Text box	Yes	Alpha-numeric	It is used to re-enter the password for confirmation.
Change Password	Button	N/A	N/A	Clicking on submit button will give a success message and an email will be sent to the Admin's email address with the changed password.

REQUESTS: It shows the listing of the users who submitted the contact us form . Below table will define the listing shown in this page:

Column Name	Description
Name	Show the name of the people contacting.
Email Address	Shows the entered email address.
Status	Pending Viewed
Message/Query	Shows the entered message.
Action	Reply: It will open a pop up box to write a message and send button. Empty message cannot be send and once message is sent to the user status will change to viewed.

2.4 Operating Environment

-distributed database
-client/server system
-Operating system: Windows.
-database: sqlite
-platform: Java/PHP

2.5 Design and Implementation Constraints

Each user must keep their password as confidential. More over the user must have individual ID for creating a login in the system.
Only Administrator can control user addition and deletion in the system. Also this group could only go through their profiles.

2.6 User Documentation

The product is under development stage and requires a complete implemented prototype to explain the user documentation. Once the prototype is designed and implemented online manuals, user manuals can be provided.

2.7   Assumptions and Dependencies

-Each User must have a UserID and password.
-There is only one Administrator.
-Server must always run under Windows system.
-Internet connection is a must.
-Proper browsers should be installed.
-Text readers should be installed to view the help files.
-Booths must be installed at places for help.

3.   External Interface Requirements

3.1   User Interfaces

The user interface will work on Windows Operating System through a browser.
-Front-end software: html,css,javascript,bootstrap
-Back-end software: SQLite,Java,php

3.2   Hardware Interfaces

-System,Windows.
-A browser which supports CGI, HTML & Javascript.

3.3   Software Interfaces

-Operating system: We have chosen Windows operating system for its best support and user-friendliness.
-Database: To save the records we have chosen SQL database.
-Java/php:To implement the project we have chosen Java/php language for its more interactive support.

3.4   Communications Interfaces

- e-mail
- web browser
- network server communications protocol
- electronic forms.

3.5   Functional Requirements

In this part, main functions of Linking of Demands and Supply of Skills System is given below.

4.   System Features

4.1   Authentication

4.1.1   Description and Priority

The system offers access to Internet at client level and access to server resources at server level only by validating the user with the unique username and password.

4.1.2   Stimulus/Response Sequences

The response/stimulus for the different classes of users are:
1) Consumer/Labourer: - Login,update information.
2) Administrator: Adding new accounts, giving account status, getting & sending reports.

4.1.3   Functional Requirements

All system should have the client for program running. The server should identify individual systems by their name.
Input: *User name and password*
Output: *Profile,Job Notifications*

5.   Other Nonfunctional Requirements

5.1   Performance Requirements

-The system shall be able to archive database records to prevent long term speed concerns. The solution must also feature functionality for efficient retrieval of archived data.
-Application shall have the capability to complete all requests (e.g., store, retrieve, update / lagging of new data, etc.) without any data loss.
The important aspects of software is time constraint. It is real time and hence should be performed in minimum requirements. The accountability is a vital feature and this could only be assured if the system is working in full capability. So uninterrupted power supply is needed.

5.2   Safety Requirements

The data handled in this system is very vital. The server should always be confirmed to run properly and the data are saved to the database at consecutive intervals. Power is a significant feature and the power supply should be always taken care of. An Uninterrupted Power Supply is always recommended.

5.3   Security Requirement

The security system features from having a login for all the users to access the software. The login details will be used in the system also. So the chances of the software getting intruded are very less.

5.4   Software Quality Attributes

4.1 Reliability

-Application shall support the re-validation of performance capabilities whenever an element(s) upgrade / enhancement is made, which may cause a change in performance.

4.2 Availability

- Application shall run on a continuous basis.
-Functionality necessary for scheduling of application to certain days, dates or time of day, shall be provided.

4.3 Maintainability

-The system shall have ability to customize user menus and screens based on user access authority.
-Application shall be designed to permit the easy insertion of new modules and new enhancements.

4.4 Portability

-The product must be responsive on all systems.

4.5 Reusability

-DB code should reusable and exported into a library.

4.6 Interoperability

- All config data stored in XML. Data stored in a SQL DB. No DB triggers.

4.7 Capacity

-Product must handle 20 Million Users while maintaining performance objectives!

4.8 Manageability

-System should support system admin in troubleshooting problems.

4.9 Access Security

-The extent to which the system is safeguarded against deliberate and intrusive faults from internal and external sources.

4.10 Accessibility

The extent to which the software system can be used by people with the widest range of capabilities to achieve a specified goal in a specified context of use.

4.11 Confidentiality

-The degree to which the software system protects sensitive data and allows only authorized access to the data.

4.12 Efficiency

-The extent to which the software system handles capacity, throughput, and response time.

4.13 Integrity

-The degree to which the data maintained by the software system are accurate, authentic, and without corruption.

4.14 Survivability

-The extent to which the software system continues to function and recovers in the presence of a system failure.

4.15 Modifiability

-The degree to which changes to a software system can be developed and deployed efficiently and cost effectively.

4.16 Scalability

-The degree to which the system is able to expand its processing capabilities upward and outward to support business growth.

4.17 Verifiability

-The extent to which tests, analysis, and demonstrations are needed to prove that the system will function as intended.

5.5   Business Rules

-Illegal duplication of reports should be strictly dealt with. The administrator should have full details of the user while the user is getting registered to the system.

6.   Technology

6.1

The project base will involve use of various technologies.

Front-end or User Interface involves using of the following:-
-HTML
-Bootstrap
-CSS
-JavaScript

Database used is SQLite.

Back-end involves Python application using Django Framework.

6.1.1 About Bootstrap: -

Bootstrap makes front-end web development faster and easier. It's made for folks of all skill levels, devices of all shapes, and projects of all sizes.Bootstrap is open source. It's hosted, developed, and maintained on GitHub.Bootstrap (currently v3.3.5) has a few easy ways to quickly get started, each one appealing to a different skill level and use case. Read through to see what suits your particular needs.

Preprocessors: -

Bootstrap ships with vanilla CSS, but its source code utilizes the two most popular CSS pre-processors, Less and Sass. Quickly get started with precompiled CSS or build on the source.

One framework, every device: -
Bootstrap easily and efficiently scales your websites and applications with a single code base, from phones to tablets to desktops with CSS media queries.

Full of features: -
With Bootstrap, you get extensive and beautiful documentation for common HTML elements, dozens of custom HTML and CSS components, and awesome jQuery plugins.

6.1.2 About JavaScript: -

JavaScript gives you superpowers. The true programming language of the web, JavaScript lets you add behaviour to your web pages. No more dry, boring, static pages that just sit there looking at you—with JavaScript you're going to be able to reach out and touch your users, reach t to interesting events, grab data from the web to use in your pages, draw graph ices right in your web pages and a lot more. And once you know JavaScript you'll also be in a position to create totally new behaviours for your users.

JavaScript is a lightweight, interpreted programming language. It is designed for creating network-centric applications. It is complimentary to and integrated with Java. JavaScript is very easy to implement because it is integrated with HTML. It is open and cross-platform.

· JavaScript is the scripting language of the Web.

· All modern HTML pages are using JavaScript.

· This tutorial will teach you JavaScript from basic to advanced.

· JavaScript is the world's most popular programming language.

· It is the language for HTML, for the web, for servers, PCs, laptops, tablets, phones, and more.

· A scripting language is a lightweight programming language.

· JavaScript is programming code that can be inserted into HTML pages.

· JavaScript code can be executed by all modern web browsers.

·   JavaScript is easy to learn.

6.1.3 About HTML: -

·   HTML is a language for describing web pages.

·   With HTML you can create your own Website.

·   This tutorial teaches you everything about HTML.

·   HTML is easy to learn - You will enjoy it.

●   HTML stands for Hyper Text Mark-up Language.

●   HTML is a mark-up language

●   A mark-up language is a set of mark-up tags

●   The tags describe document content

●   HTML documents contain HTML tags and plain text

●   HTML documents are also called web pages

HTML Tags

HTML mark-up tags are usually called HTML tags

●   HTML tags are keywords (tag names) surrounded by angle brackets like <html>

●   HTML tags normally come in pairs like and

●   The first tag in a pair is the start tag, the second tag is the end tag

●   The end tag is written like the start tag, with a forward slash before the tag name

●   Start and end tags are also called opening tags and closing tags

HTML Elements

"HTML tags" and "HTML elements" are often used to describe the same thing.

But strictly speaking, an HTML element is everything between the start tag and the end tag, including the tags.

6.1.4 About CSS: -

- CSS stands for Cascading Style Sheets

- Styles define how to display HTML elements

- Styles were added to HTML 4.0 to solve a problem

- External Style Sheets can save a lot of work

- External Style Sheets are stored in CSS files

Styles Solved a Big Problem:-

HTML was never intended to contain tags for formatting a document.

HTML was intended to define the content of a document, like:

<h1>This is a heading</h1>

<p>This is a paragraph.</p>

When tags like <font>, and color attributes were added to the HTML 3.2 specification, it started a nightmare for web developers. Development of large web sites, where fonts and color information were added to every single page, became a long and expensive process.

To solve this problem, the World Wide Web Consortium (W3C) created CSS.

In HTML 4.0, all formatting could be removed from the HTML document, and stored in a separate CSS file.

All browsers support CSS today.

CSS Saves a Lot of Work: -

CSS defines HOW HTML elements are to be displayed.

Styles are normally saved in external .css files. External style sheets enable you to change the appearance and layout of all the pages in a Website, just by editing one single file!

CSS Syntax: -

A CSS rule has two main parts: a selector, and one or more declarations:
The selector is normally the HTML element you want to style.

Each declaration consists of a property and a value.

The property is the style attribute you want to change. Each property has a value.

right;

font-size:20pt;

}

If the page with the internal style sheet also links to the external style sheet the properties for h3 will be:

color:red;

text-align:right;

font-size:20pt;

The color is inherited from the external style sheet and the text-alignment and the font-size is replaced by the internal style sheet.

Multiple Styles Will Cascade into One

Styles can be specified:

●   inside an HTML element

●   inside the head section of an HTML page

●   in an external CSS file

Even multiple external style sheets can be referenced inside a single HTML document.

6.2 Back End and Databases

6.2.1 SQLite:-

SQLite is a software library that implements a self-contained, serverless, zero-configuration, transactional SQL database engine. SQLite is the most widely deployed SQL database engine in the world. The source code for SQLite is in the public domain. This tutorial will give you a quick start with SQLite and make you comfortable with SQLite programming.

- SQLite does not require a separate server process or system to operate (serverless).

- SQLite comes with zero-configuration, which means no setup or administration needed.

- A complete SQLite database is stored in a single cross-platform disk files.

- SQLite is self-contained, which means no external dependencies.

- SQLite transactions are fully ACID-compliant, allowing safe access from multiple processes or threads.

- SQLite supports most of the query language features found in SQL92 (SQL2) standard.

- SQLite is written in ANSI-C and provides simple and easy-to-use API.

- SQLite is available on UNIX (Linux, Mac OS-X, Android, iOS) and Windows (Win32, WinCE, WinRT).

6.2.2 Python:-

Python is a multi-paradigm programming language. Object-oriented programming and structured programming are fully supported, and many of its features support functional programming and aspect-oriented programming (including by metaprogramming and metaobjects (magic methods)).Many other paradigms are supported via extensions, including design by contract and logic programming.

Python uses dynamic typing, and a combination of reference counting and a cycle-detecting garbage collector for memory management. It also features dynamic name resolution (late binding), which binds method and variable names during program execution.

Python's design offers some support for functional programming in the Lisp tradition. It has filter(), map(), and reduce() functions; list comprehensions, dictionaries, and sets; and generator expressions. The standard library has two modules (itertools and functools) that implement functional tools borrowed from Haskell and Standard ML.

The language's core philosophy is summarized in the document *The Zen of Python* (*PEP 20*), which includes aphorisms such as:Beautiful is better than ugly

7. Explicit is better than implicit
8. Simple is better than complex
9. Complex is better than complicated
10. Readability counts

6.2.3 Django:-

Django is a high-level Python Web framework that encourages rapid development and clean, pragmatic design. Built by experienced developers, it takes care of much of the hassle of Web development, so you can focus on writing your app without needing to reinvent the wheel. It's free and open source.

Ridiculously fast:Django was designed to help developers take applications from concept to completion as quickly as possible.
Reassuringly secure: Django takes security seriously and helps developers avoid many
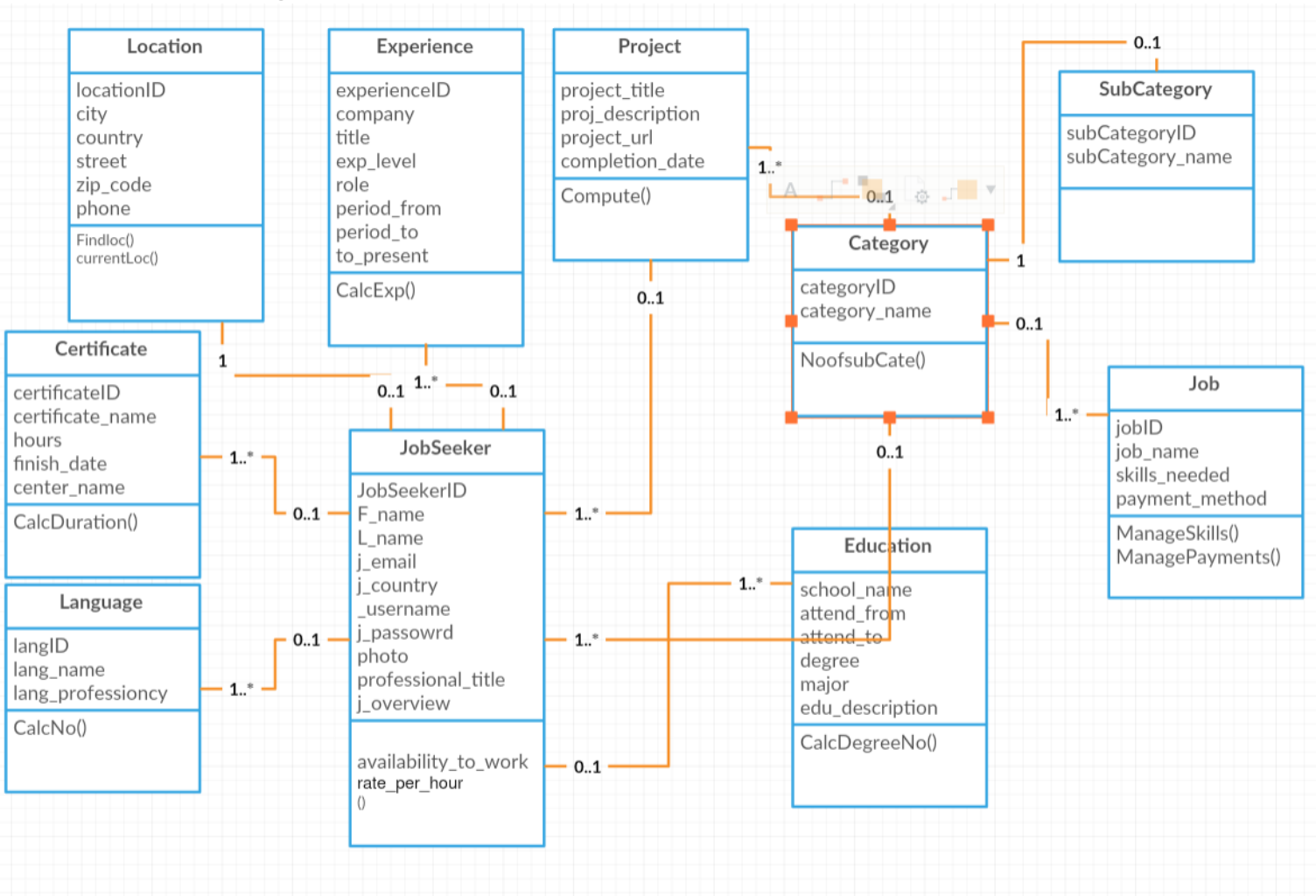
common security mistakes.

Exceedingly scalable: Some of the busiest sites on the Web leverage Django's ability to quickly and flexibly scale.
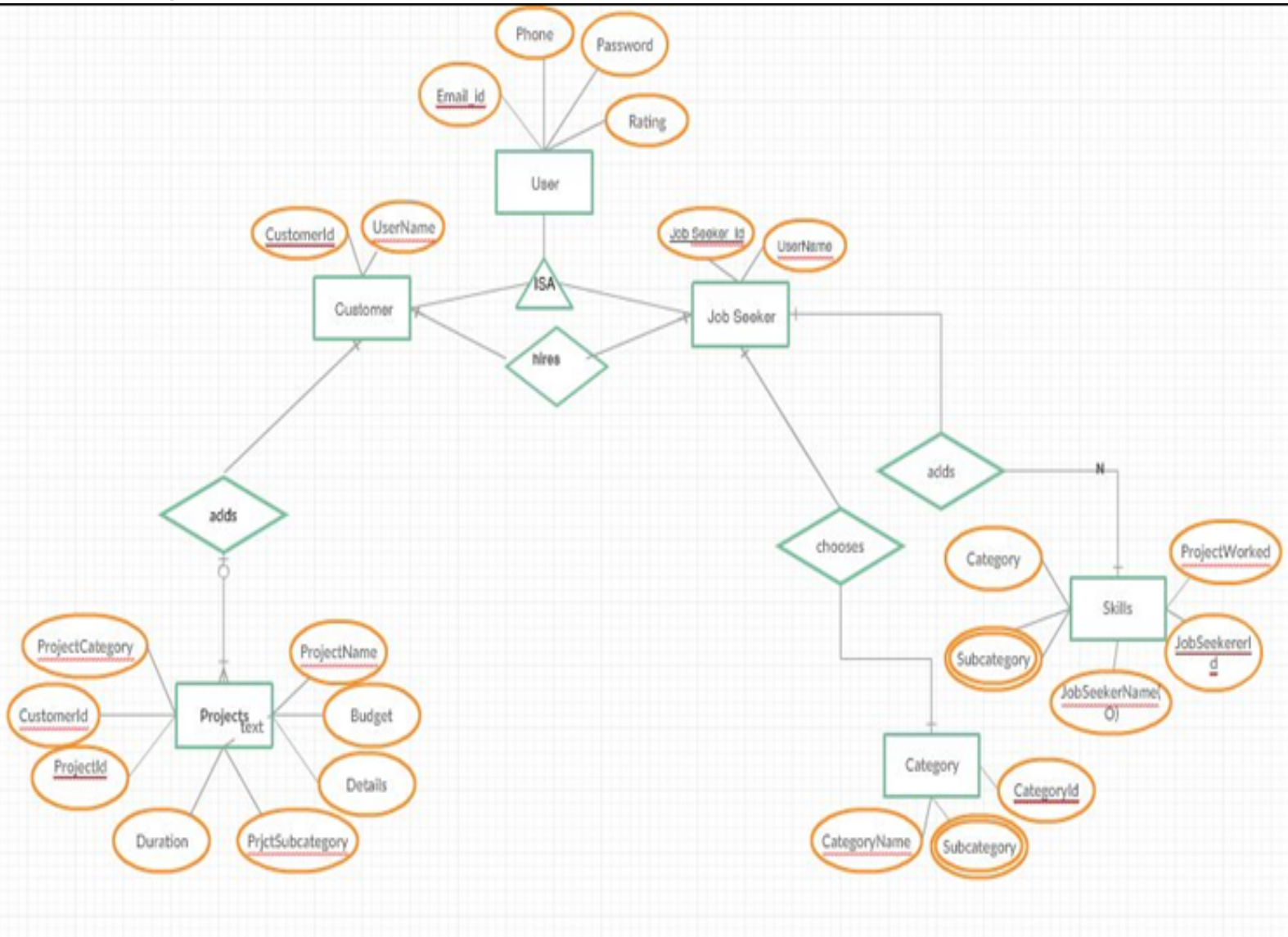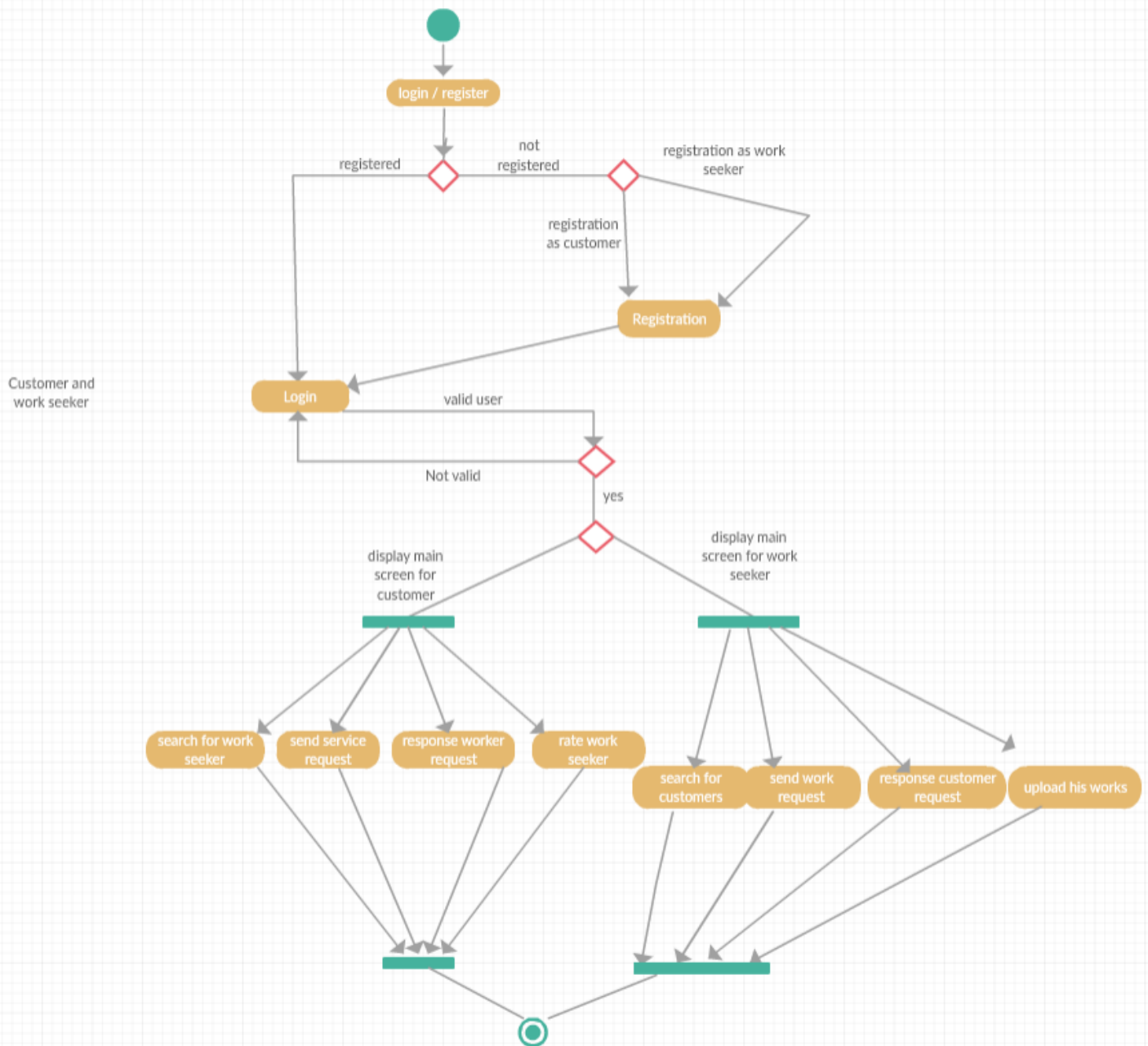
7. Other Requirements
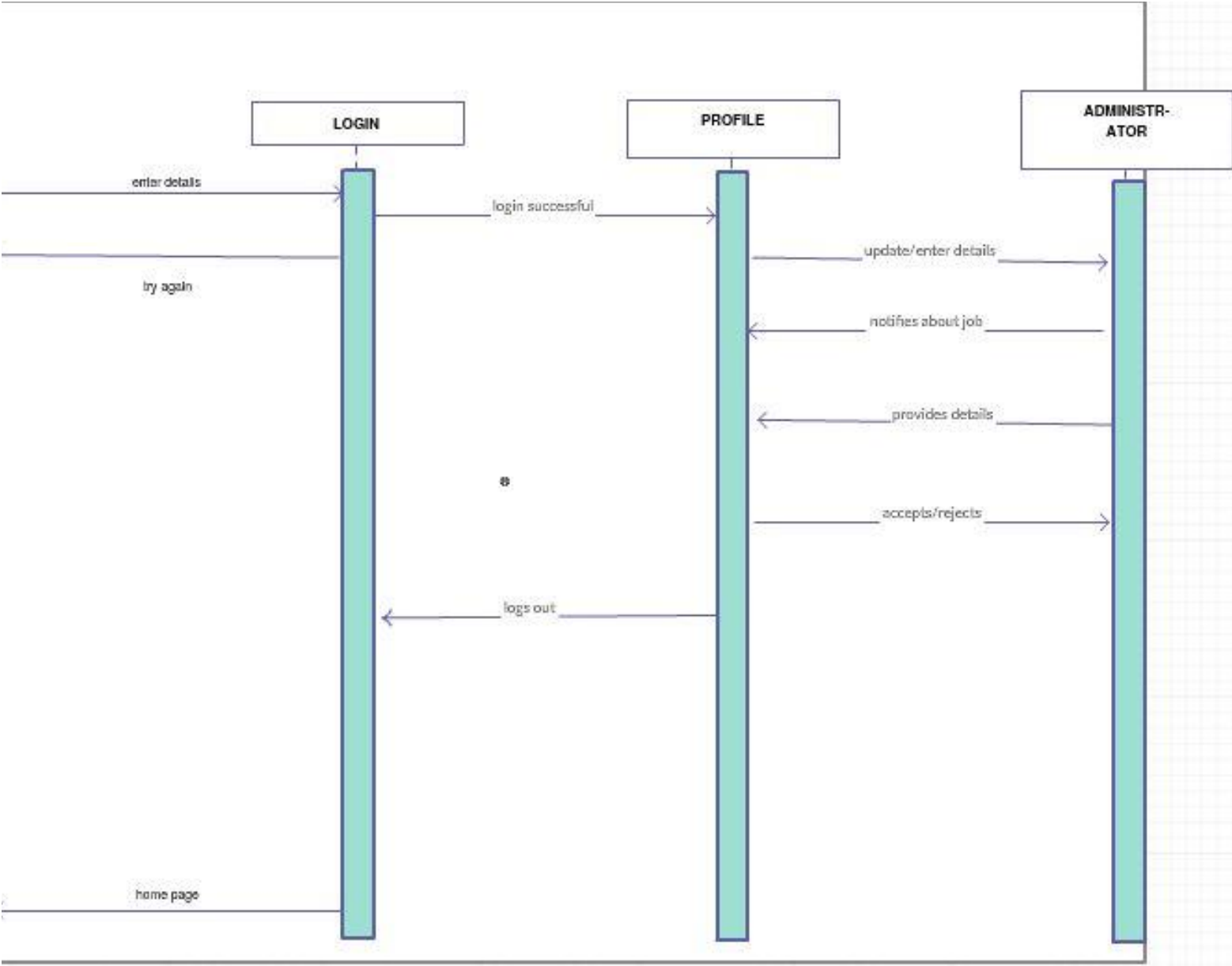
Appendix A: Analysis Model

Class   Diagram:

ER   Diagram:

Activity

Sequence Diagram:

| LOGIN | PROFILE | ADMINISTR-ATOR |

- enter details
- login successful
- update/enter details
- try again
- notifies about job
- provides details
- accepts/rejects
- logs out
- home page

Component   Diagram: