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# **GROUP ASSIGNMENT (PROJECT PROPOSAL)**

## **LEVEL 5**

**COMP50001-1 – Commerical Computing**

**IF2161SE**

**Hand Out Date: 27<sup>th</sup> July 2021**

**Hand In Date: 6<sup>th</sup> September 2021**

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## 1 Executive summary

This document identifies requirements provided by FutureSeekers for their new web portal and the proposed solution addressing the specific business requirement. Project timeline, necessary analysis, proposed technologies, and methodologies will be deeply discussed in the bellow sections.

FutureSeekers.lk is a web platform that helps companies and job seekers to get connected easily. The platform aims to create a modern, efficient and effective hiring experience for companies and job seekers.

Companies can post a job opportunity while job seekers can apply for those job opportunities, and both user types must create a user profile. There will be an administrator dashboard for administrative functions.

## 2 Stakeholder Analysis

### 2.1 Stakeholder Matrix

Stakeholder Name	Contact Person	Impact	Influence	What is important to the stakeholder	How could the stakeholder contribute to the project?	How could the stakeholder block the project?	Strategy for engaging the stakeholder
<b>Product Owner</b>	Business Analyst	High	High	A working job portal within the deadline.	By being specific about what kind of features they want and by giving feedback during sprint review meetings.	By withdrawing the project idea.	Sprint Review Meetings.
<b>Scrum Master</b>	Business Analyst	High	High	Finishing the project within the deadline with a satisfied product owner	By leading the scrum team and advising them on how to overcome their obstacles.	By leaving the team or neglecting scrum master responsibilities.	Daily Standup Meetings.
<b>Business Analyst</b>	Scrum Master	High	High	Finishing the project within the deadline with a satisfied product owner	Providing the scrum team with relevant information regarding the product the client wants.	By not explaining to the scrum team about what the client wants properly.	Sprint Reviews

<b>Quality Assurance engineer</b>	Scrum Master	High	High	Finishing the project within the deadline with a satisfied product owner	Deciding whether the product is up to standard and working as intended.	By not checking and finding out errors in the product, the team may run into big problems in the future.	Daily Standup Meetings
<b>Developer</b>	Scrum Master	High	High	Finishing the project within the deadline with a satisfied product owner	The developer will make sure all the functional and non-functional requirements are implemented within the deadline.	By not implementing the relevant functionalities within the timeframe and by making errors when implementing said functionalities.	Daily Standup Meetings
<b>Fresh graduates/ Jobseekers</b>	Business Analyst	High	High	Finding Jobs and finding jobs with good working conditions	By recommending the site to other job seekers and leaving a good review	By not using the site, engaging negatively with employers	Getting feedback from surveys before launch.
<b>Companies that advertise jobs</b>	Business Analyst	High	High	Finding new employees and talented personal for important job roles	By adding new job adverts and attracting new job seekers and fresh graduates	By not posting job adverts and leaving bad reviews about the site at other employers in the same community.	Feedback Form in the web application.

<b>Other job-seeking sites</b>	Business Analyst	High	low	Getting more users than our site.	Since we need to do better than our competitors, we are motivated to add new features to make an easy-to-use site.	Adding new features to their site and attracting the job market than us.	Constantly upgrading the site by adding new features and making the site easy-to-use.
<b>Government</b>		High	High	Reducing the unemployed people percentage of the country.	By providing subsidies to the company and staff working on the site	Sometimes the government can come up with rules or conditions that might block or slow the site's progress.	Attracting more users to the site and improving the job market while following government rules

*Table 1 Stakeholder Matrix*



## 2.2 Communication Plan

Communication Activity	Method	Frequency	Goal	Owner	Audience
<b>Project status report</b>	Email	In the middle of the sprint	Discuss project status and compare with the project plan and review potential risks	Scrum Master	Project team + Product owner
<b>Team standup</b>	Teams meeting	Daily [End of the day]	Discuss what each member did today and what they plan to do tomorrow, and if there are any blockers .	Scrum Master	Project team
<b>Sprint review</b>	Teams meeting	End of each sprint	The team gives a demo of the project and discusses what is finished and what isn't.	Scrum Master	Project team + Product owner
<b>Sprint retrospective</b>	Teams meeting	Start of each sprint	Discuss what went well and wrong in the previous sprint and discuss steps to can be taken to improve the process.	Scrum Master	Project team
<b>Task progress update</b>	Trello board	Daily	Share project progress so that everyone can see what tasks are done and what tasks pending.	Scrum Master	Project team

Table 2 Communication Plan

## 3 Project Charter

### 3.1 Background

This is a web platform that provides services for companies and job seekers. Companies can post a job opportunity while job seekers can apply for those job opportunities. Both companies and job seekers must create a user profile. There will be an administrator dashboard for administrative functions.

### 3.2 Goals

This platform aims to create a modern, efficient and effective hiring experience for both companies and job seekers.

### 3.3 Scope

A web platform that helps companies and job seekers to get connected easily.

### 3.4 Key Stakeholders

Role	Name
Product Owner	Tharanga Peiris
Business Analyst	Mohanraj Kavinkumar Naidu
Scrum Master	Mohamed Azhar Musharraf
Developer	Mohamed Zakkeer Mohamed Faique Inaas
Quality Assurance engineer	Tharindu Darshaka Kathriarachchi

*Table 3 Key Stakeholders*

### 3.5 Project Milestones

Project Milestones	Milestone Delivery
Project Concept	End of the second week
Sprint 01	End of the fifth week
Sprint 02	End of the eighth week
Sprint 03	End of the eleventh week
Final Documentation/ Live Release	End of the twelfth week

*Table 4 Project Milestones*

## 3.6 Project budget

### 3.6.1 Available hosting and Domain plans

Item	Cost
AWS hosting	\$150[per month]
Bluehost dedicated hosting	\$119[per month]
Azure Virtual Machines	\$22[per month]
.com domain from the register.lk	LKR2,000[per year]
.lk Domain from the register.lk	LKR3,000[per year]

*Table 5 Available hosting and Domain plans*

## **4 Requirement Specification**

### **4.1 Functional Requirements**

#### **4.1.1 Employer Requirements**

1. Employers should be able to register themselves into the system by providing their details along with a copy of the payment slip (Registration Fee Slip).
2. Registered Employers should be able to create their company profile by adding the company details.
3. The system should allow the employer to post a new job advertisement in the form of a PDF Document.
4. The employer should be able to delete the company profile if the company decides to remove themselves from the web application.
5. The employer should be able to update the company and the HR Personal details (In case of a change in the HR Personal representing the company).
6. The employer should receive an outlook notification if an applicant sends a CV.
7. The employer should be able to view all the CV's submitted by Job Seekers, for a relevant posting.
8. An employer can schedule Zoom/Teams Meetings with an applicant and should be able to send the link via the web portal to the relevant Job Seeker.
9. The employer should have a dashboard to view a summary of real-time reports showing most preferred job category, most applied category and number of candidates applied for all the different job vacancies.
10. Employers can report any candidate's profile and the profile will be reviewed by the admins and will be blacklisted appropriately.

#### **4.1.2 Applicant Requirements**

1. Applicants should be able to search for job vacancies and filter results as preferred.
2. Applicants should be able to upload a PDF version of their CV to a particular job vacancy.
3. If Applicant is selected for an interview, Job Seeker should receive an invitation link via outlook.
4. Applicants should be able to share the job advert link to their friends.
5. Applicants should be able to chat with an Employer from a particular Company through the web portal.
6. Once Applicant has posted the CV, the web app should recommend suitable jobs relating to his/her CV.

#### **4.1.2 System Admin Requirements**

1. System Admin should be able to accept or reject job advert posts, company profile and applicant profile, before they go live in the web application.
2. System Admin should be able to generate summary reports showing highest reached job adverts, the number of interviews conducted by a company, and most engaged job seeker/company.

## 4.2 Non-Functional Requirements

### Performance:

- **Having a User-Friendly UI:**
  - The UI will have to be simple and user-friendly to learn how to use its functionalities quickly.
  - Proper Implementation of hints must be given to assist the user in performing various functionalities.
- **Improved User Experience:**
  - The web application must have a good response time. That way, the users can perform the functionalities much faster.
  - The Web Application should have a good Color Contrast Ratio.

### Security

- **Defining User Privileges:** User Privileges will be set to eliminate unauthorized access to the user accounts and accidental deletion of data. For example, the Job Seeker will not have the privilege to edit or delete any company-related information such as Company Address, Job Adverts etc.
- **Implement Database Security Methods:** To add an extra layer of security, the passwords will be stored in hashed format within the database.

### Reliability:

- The Web Application has to be up and running 24/7 and should be available for the users to function at any time.

### Maintainability:

- During the web application's maintenance, the website must display an appropriate message, informing its users before any downtime.

## 5 Draft of WBS

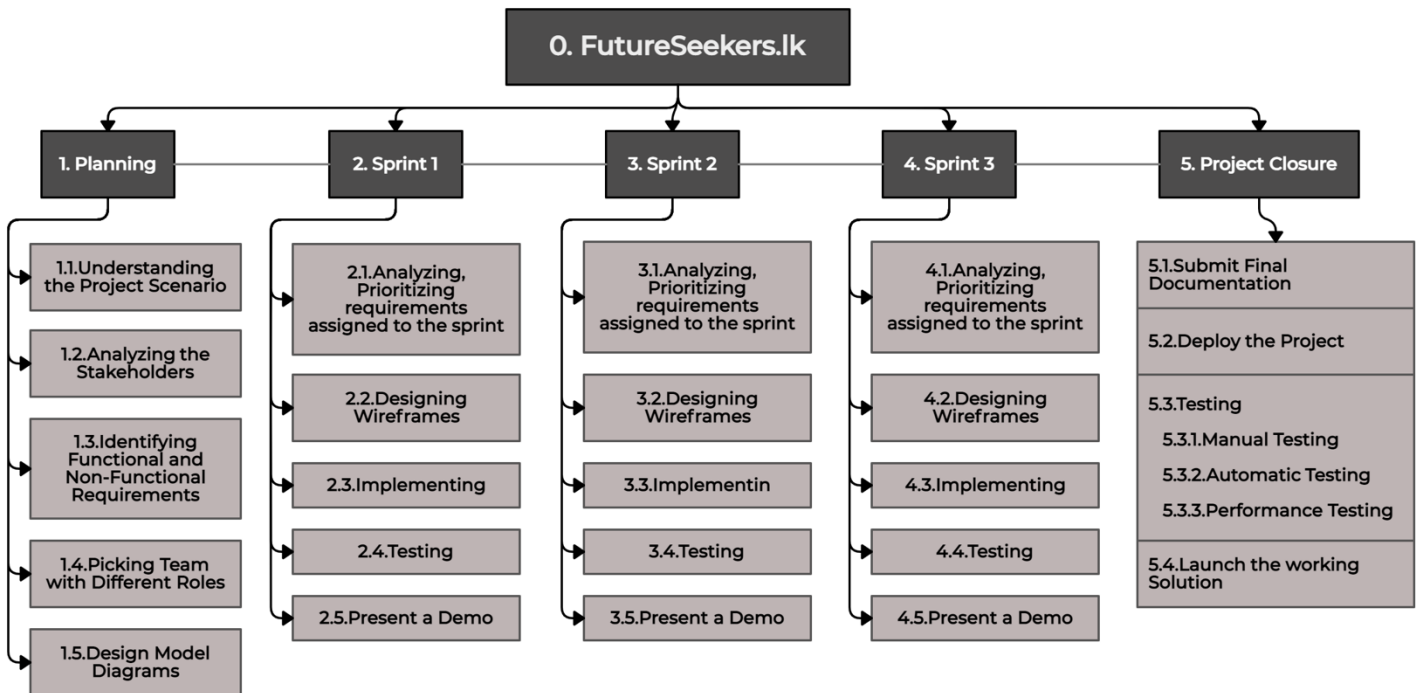


Figure 1 Draft of WBS

## 5.1 WBS Dictionary

### 5.1.1 Identifying Functional & Non-functional requirements

<b>Project Name: Future Seekers.lk</b>	
<b>Work Package ID: 1.3</b>	
<b>Work Package Name:</b> Identifying Functional & Non-functional requirements	
<b>Work Package Description:</b> Using client's specification, Team members will discuss about the functional and non-functional requirements of the project. Functional requirements are the ones that developers must implement to enable users to accomplish their tasks. Non-functional requirements are the ones that are not related to the system functionality, but it defines how the system should perform while user interacts with it. Team will identify and select the most suitable requirements for the project.	
<b>Assigned To: Azhar, Kavim, Inaas, Tharindu</b>	
<b>Date Assigned: July 17<sup>th</sup>, 2021</b>	<b>Date Due: July 21<sup>st</sup>, 2021</b>

*Table 6 Identifying Functional & Non-functional requirements*

### 5.1.2 Writing User Stories

<b>Project Name: Future Seekers.lk</b>	
<b>Work Package ID: 1.4</b>	
<b>Work Package Name:</b> Writing User Stories	
<b>Work Package Description:</b> After Identifying the users of the system, team will come up with the user stories of the functions. User story is an informal and a general explanation of a software feature written from the prospective of the end user. The purpose writing the user story is to show how a software feature will provide value to the customer.	
<b>Assigned To: Azhar and Kavim</b>	
<b>Date Assigned: July 23<sup>rd</sup>, 2021</b>	<b>Date Due: July 25<sup>th</sup>, 2021</b>

*Table 7 Writing User Stories*



## 6 Use Case Diagram

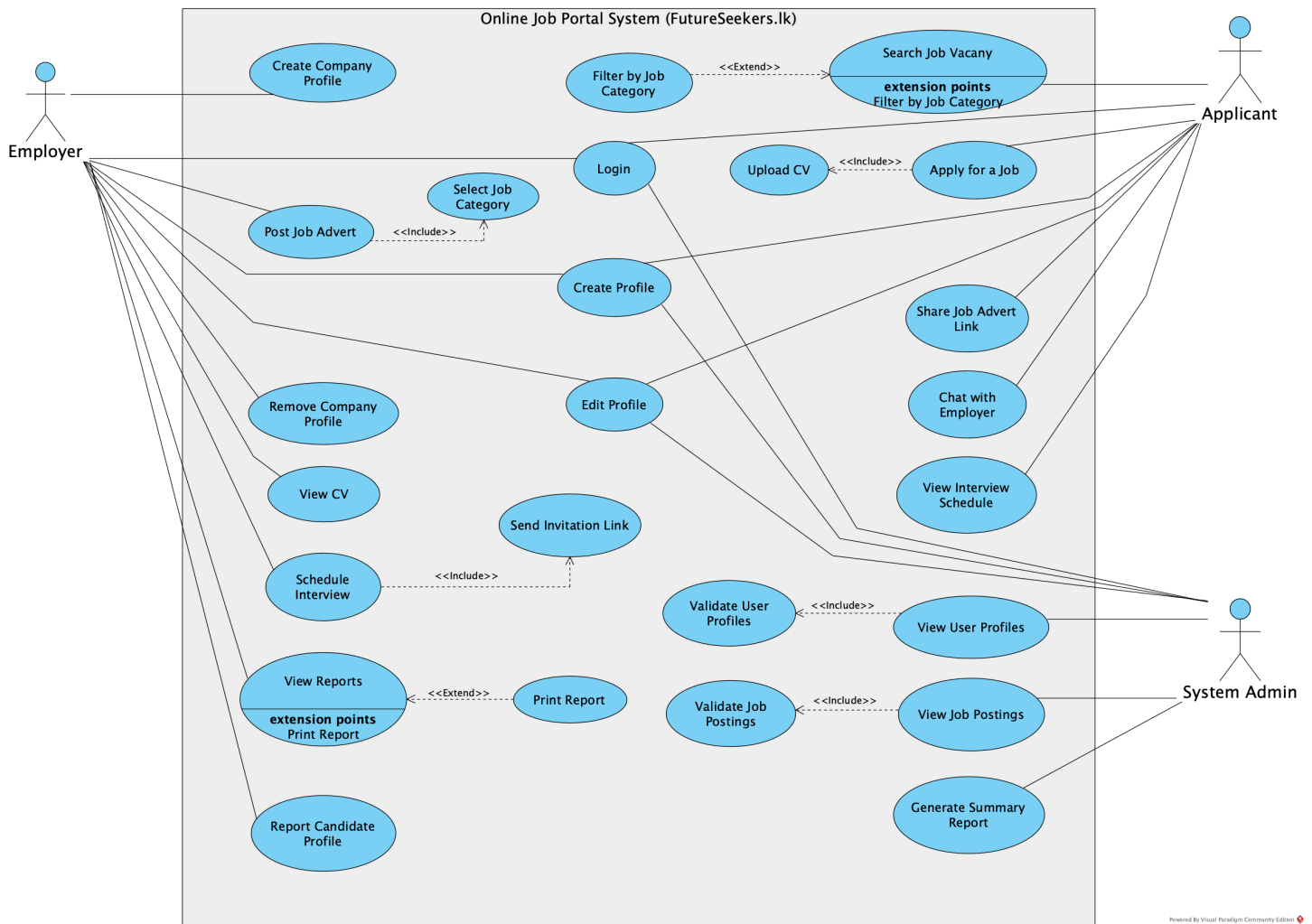


Figure 2 Use Case Diagram

## 7 Entity Relationship Diagram

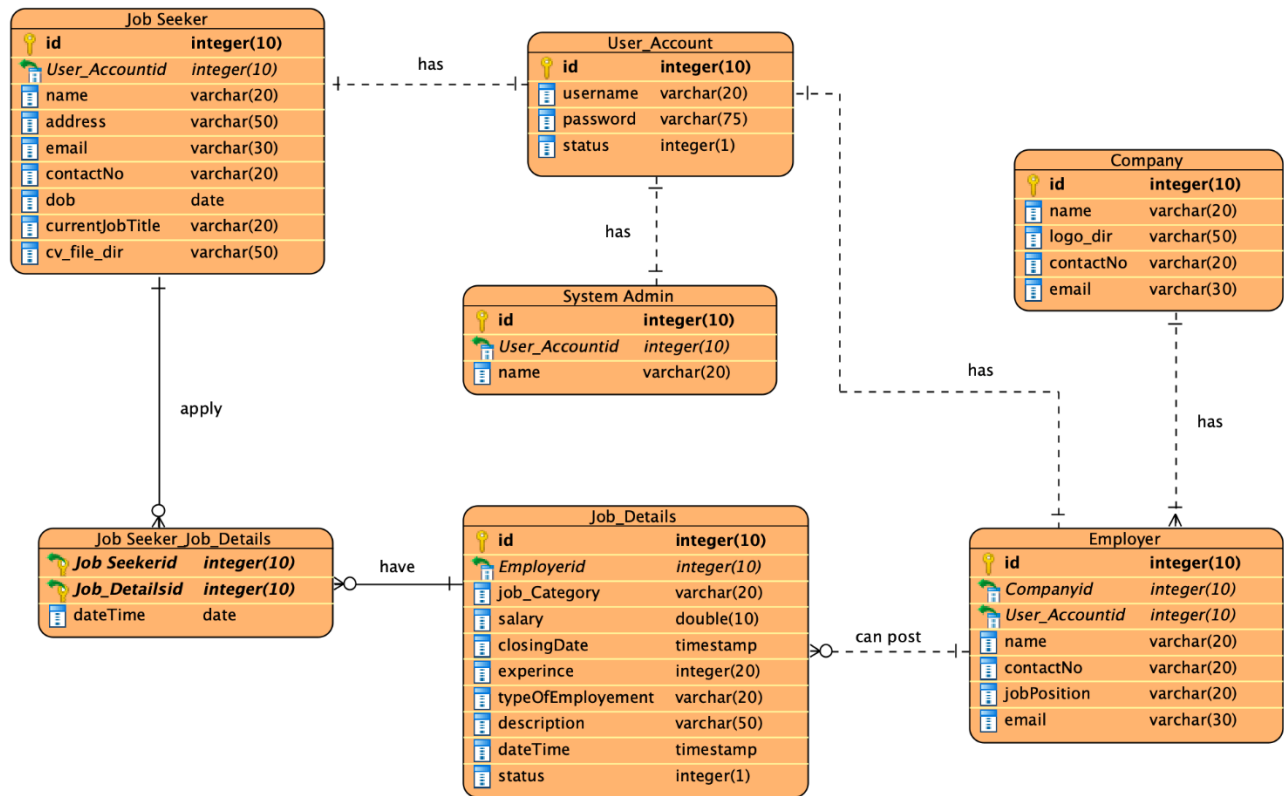


Figure 3 Entity Relationship Diagram

## 8 Solution Overview

The Final Product will be a responsive web application which will be designed, developed and tested using different technologies and tools. The Web Application will be using the MySQL Database to store data.

Following are the languages that will be used to develop the Web Application:

- HTML
- CSS
- JavaScript
- PHP
- MySQL

Following are the IDEs that will be used:

- Visual Studio Code
- MySQL Workbench

Adobe XD will be used to Design the wireframes for the Web Application.

## 9 Risk Analysis

1. Work from home environment can be slightly less productive than normal work environment and consume more time
2. Members can get sick like covid and can affect the timeline of the project
3. Team Members could go out of scope and fail to satisfy the base requirements of the client.
4. Using technologies to develop the solution, that may deprecate in the future.
5. Technologies that used to be free could come at a cost.

No.	Rank	Risk	Description	Category	Root Cause	Triggers	Potential Responses	Risk Owner	Probabil ity	Impact	Status
<b>R2</b>	1	2	Members can get sick like covid and can affect the timeline of the project	HR	Covid	Team Member gets into a situation where he is unable to contribute to the team.	Dividing Workload	Team and its members	Medium	High	Open

<b>R3</b>	2	3	Team Members could go out of scope and fail to satisfy the base requirements of the client.	Scope	Lack of proper communication and failure to clarify doubts with the client.	Fail to take the clients feedback into consideration	Have daily and weekly meetings, get client feedback at the End of every sprint and correct them in the following sprint.	Scrum master and Business Analyst	Low	High	Expected
<b>R1</b>	3	1	Work from home environment can be slightly less productive than normal work environment and consume more time	Time	covid	Frequent Power cuts and Network Connectivity issues that can affect team members productivity.	Having daily standup meetings in teams and zoom to ensure daily goals are met.	Scrum master	medium	Medium	Open

<b>R4</b>	4	4	Using technologies to develop the solution, that may deprecate in the future.	Integration	Lack of proper planning and researching of similar technologies.	Technology becoming deprecated after submitting the solution to the client.	Have a backup plan to switch to another technology incase the current one gets deprecated	Team and its members.	Medium	Medium	Expected
<b>R5</b>	5	5	Technologies that used to be free could come at a cost.	Cost	Due to current global economic crisis (COVID Pandemic), businesses can change their policies and pricings.	A Certain technology that is used in the development stops working due to changes in policy,	Have backup technologies, so chances can be reduced.	Scrum Master	Low	Low	Expected

Table 8 Risk Analysis

## 9.1 Risk Matrix

Probability	High			
	Medium		Risk 1 Risk 4	Risk 2
	Low	Risk 5		Risk 3
		Low	Medium	High
Impact				


Table 9 Risk Matrix

## 10 User Personas

### 10.1 Job Applicant Personas

#### 10.1.1 Job applicant user persona 1

## Amar Kamil



*"I always feel that I would have a better future if I transition into the field of Android Development"*

Age: 24  
 Work: Associate Software Engineer  
 Family: Single.  
 Location: Colombo 07  
 Character: Techie

Techie

Clever

Social

### Goals

- Need a way to filter job advertisements to that he can find a job vacancy that fulfils his specific needs.
- Need a way to attend an interview without meeting the Employer in person.
- Needs an effective way to communicate with the employer in order to gather details if needed.

### Obstacles

- Currently unable to return to Sri-Lanka thereby cannot meet the employer in person for the time being.
- Time Zone differences is a concern thereby could affect interview timings with the employer.

### Bio

Amar is qualified in the field of Software Engineering and is currently working in a company. Currently he is not specialised in any field and he is looking for an opening to fill in the position of a Junior Android Developer. He has good experience in developing Android applications and therefore he is looking to specialise in the field of Android Development.

Currently Amar is in Australia, unable to return to Sri-Lanka due to COVID-19 restrictions and he will be returning to Sri-Lanka in a months time. He is desperate for a job and wants to find a suitable vacancy as soon as possible, so that he can get back to work when he comes back to the country,

Figure 4 Job applicant user persona 1



### 10.1.2 Job applicant user persona 2




Figure 5 Job applicant user persona 2

## 10.2 Employer User Personas

### 10.2.1 Employer user persona 1

## Unilever PLC Sri-Lanka



### Goals

- An easy way to list down all available job opportunities.
- A Platform that communicate to a large number of job applicants.

### Frustrations

- Too many job opportunities to handle.
- Have to train staff and migrate from existing proses.

### Demographics

- Large Multinational Company
- Large Number of Employees
- Have variety of opportunities

### Bio

Large Multinational company that is looking for candidates and welcomes a range of candidates from starters to experienced professionals. Company is looking for a platform where it could evaluate a large number of candidates.

Figure 6 Employer user persona 1

### 10.2.2 Employer user persona 2

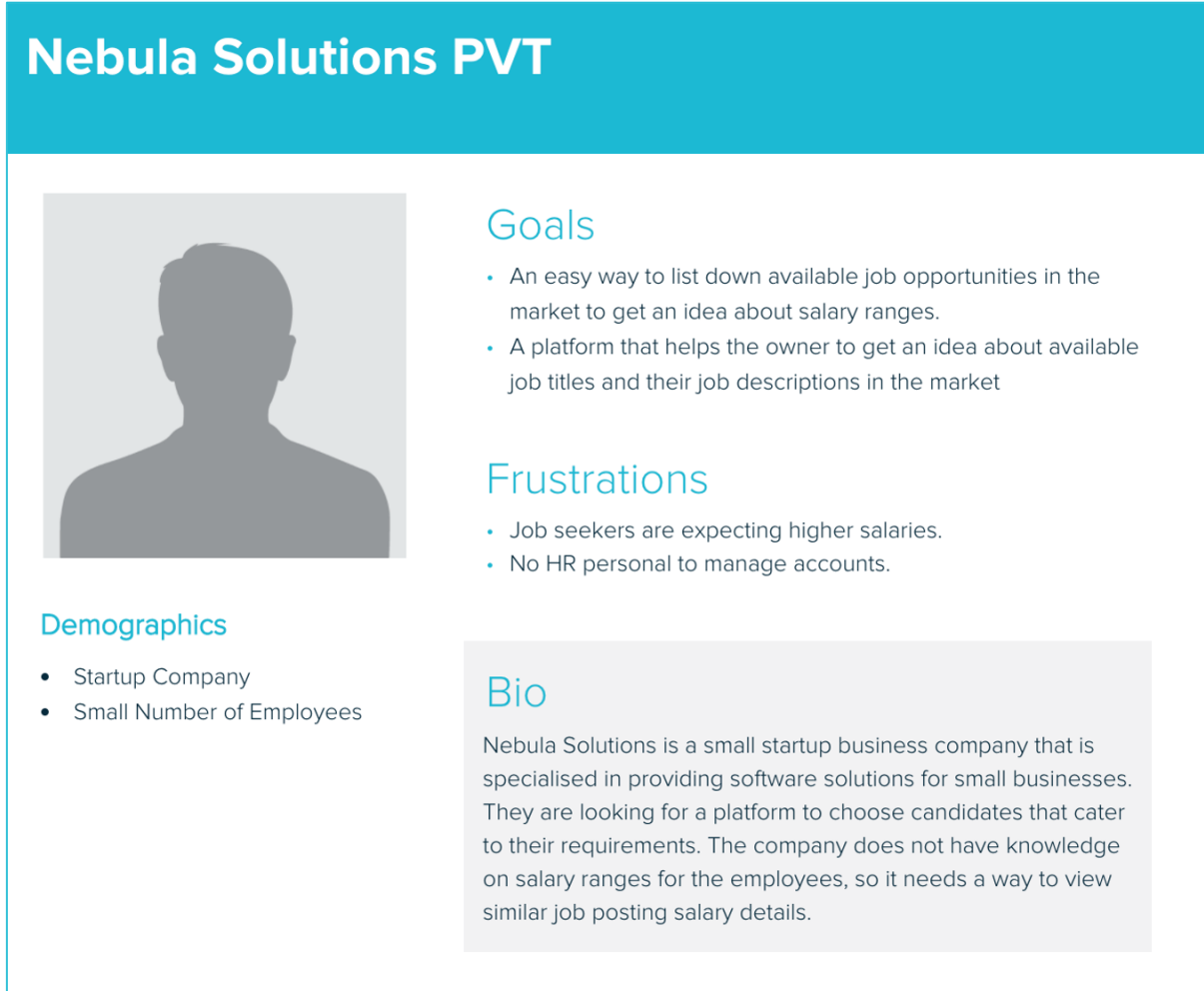


Figure 7 Employer user persona 2

## 11 User Stories and Acceptance Criteria

### 11.1 User Story 1 (Employer's Perspective)

**As an** Employer

**I want** to post job advertisements through the system.

**So that** I can seek suitable candidates for the vacancy.

**Acceptance Criteria:**

- Employer needs to fill all mandatory fields (Job Category, Job Position, Start Date, End Date Job type i.e., Full Time or Part Time etc.) to post a job advert.
- Upload only PDF or Image Format (JPG).

### 11.2 User Story 2 (Employer's Perspective)

**As the** Employer

**I want** to be able to view all the CVs that are submitted for a specific job posting

**So that** I can find out the most suitable one.

**Acceptance Criteria:**

- Need to receive a Mail notification when a CV is submitted for a specific posting.

### 11.3 User Story 3 (Applicant's Perspective)

**As an** Applicant

**I want** to apply for the suitable job offer

**So that** I can get a chance to get interviewed for that job.

**Acceptance Criteria:**

- Applicants should apply for a specific job by uploading a PDF version of the CV.

### 11.4 User Story 4 (Applicant's Perspective)

**As a** Job Seeker

**I want** to be notified instantly when I am selected for an interview

**So that** I can prepare for the interview.

**Acceptance Criteria:**

- Notification must be received via email.
- The Message must contain details of the sender i.e., Sender Details (Company Name, Contact Info), Time of Interview, Venue

## 12 SWOT Analysis

<div>S</div> <div>STRENGTHS</div>	<div>W</div> <div>WEAKNESSES</div>	<div>O</div> <div>OPPURTUNITIES</div>	<div>T</div> <div>THREATS</div>
<ul style="list-style-type: none"> <li>• All the Members in the group have different types of soft skills (Public speaking, Leadership skills etc.) and technical skills (JavaScript, CSS etc.) which can be used during the project timeline.</li> <li>• Members have experience from working in multiple group projects in the past.</li> </ul>	<ul style="list-style-type: none"> <li>• Most of the members are only familiar with waterfall methodology and they are yet to get familiar with agile methodology.</li> <li>• All the members are currently working on multiple projects which can affect the planning of current project.</li> </ul>	<ul style="list-style-type: none"> <li>• Since the project is currently in planning phase and there's some time left till the first sprint for the project, members can work on improving their skills or use the time to learn new skills.</li> <li>• Members can use the resources which are offered by the APIIT institute to improve or come up with solutions for the project.</li> </ul>	<ul style="list-style-type: none"> <li>• Technical Difficulties (Poor internet connection, Hardware malfunctions) could affect progress of the project.</li> <li>• Because of the pandemic, there's a high probability of team members leaving, and it can have a negative effect on the project.</li> <li>• Changes in Stakeholder/Client Management</li> </ul>

Figure 8 SWOT Analysis

## 12.1 Strengths

- **Diversity in skills (JavaScript, Agile methodology, CSS):** Some members of the group are fluent in programming languages such as CSS, JavaScript which can be used to make this web application, while some have soft skills such as presenting and public speaking which can be used to introduce the client to the project, and one of the group members has worked in IT industry and is quite familiar with agile methodology.
- **Member experience from past projects can be resourceful:** All the members in the group have worked on and contributed to numerous group projects and have gained so much experience. Everyone in the Team is good at time management and allocating tasks and working as a team.

## 12.2 Weaknesses

- **Lack of knowledge on Agile Methodology:** Since some members of the team have a lack of knowledge on Agile Methodology and have only worked in projects using waterfall methodology, it might take some time for them to learn and get familiar with agile methodology. Due to this reason the project deadlines may not be met on time.
- **Existing Projects Workload can affect current Project:** All the team members are currently working on multiple projects, and team members might have a hard time finishing the workload in the given time period. Hence, managing time can be challenging.

## 12.3 Opportunities

- **Learning New Skills:** Learning programming languages and frameworks such as PHP, SQL, Bootstrap etc. can be useful for the team to work of the project. Since the team members are working online from home and there's still some time left before the first sprint, this would be a good opportunity for them to learn these new technologies and develop new technical skills. This way, the team will have an opportunity to improve the quality aspects of the solution before demonstrating their prototype to the client.

- **Resources given by the Institution:** Since this semester is conducted online, APIIT is providing students with various resources for the students to use which can be used to improve their knowledge. For example, the Library has updated their site with E-books. So, the students can access them whenever they want. APIIT also provides various software development tools and other applications which could provide an opportunity for the team members to use these applications to come up with high quality solutions. Further APIIT is organizing webinars and workshops which involves guest speakers from the industry. This would provide an opportunity for the team members to get industry exposure and will overall help them interact and learn about new things.

## 12.4 Threats

- **Current Pandemic:** Due to the current pandemic, the team members are required to work from home, and sometimes there may be instances where technical difficulties may arise such as network interferences or power outages. So, during this period of downtime the team member might not be able to participate in critical team meetings, work on the project as a result it could affect the overall productivity of the group and it can affect the progress of the project in a negative way.
- **Team Member Leaving:** There is a chance that team members can leave the team due to sickness or other personal matters, every member of the group is important to the group, this member may have valuable information and skills that maybe needed to complete the project. As a result, other members' work load might increase and could lead to project delays.