Project and Professionalism

(6CS020)

A1: Project Proposal

Job Portal

Student Id : [NP03A180112]

Student Name : [Roshan Dahal]

Supervisor : [Sagar Lamichhane]

Cohort/Batch : 4

WLVID : 2039294

Submitted on : 10-12-2020

Statement of the project detail:

1. Project Title

Job Portal with Recommendation

2. Academic Questions

- What impact does this job portal make on the society?
- How can end user benefit by using this platform?
- What can be done to eliminate the gap between recruiters and seekers?
- What makes this system different from other existing job portals in Nepal?

3. Aims

The main objective of this application is to help make job searching fast, reliable and efficient.

4. Objectives

- To provide best jobs that matches seeker's criteria.
- To provide user friendly experience.
- To simplify the process of applying jobs.
- To make finding employees easier and efficient.

5. Artifacts /Subsystems

- User Management System
- Jobs Management System
- Recommendation System
- Database Management

Table of Contents

Table of Figures

Table of Tables

1. Introduction

1.1 General Introduction

Jobs that best fit the skill sets are hard to find in this competitive age. Not having proper knowledge of the organization's objective, their work culture and current job openings can cause huge problem among job seekers. Besides, finding the right candidate with desired qualifications to fill their current job openings is an important task for the recruiters of any organization. Job portal is a web application which connects employer and job seekers where employers are the source of the resources and the job seeker can find and apply for their targeted job. This web application helps in finding a proper job according to their interest and qualifications. Job Portal is a python-based web application that provides functionalities of e-recruitment on desktop and portable devices like android phones. The web application "E-Jobs", provides a fresh new design that is easy to navigate, provides useful information to people and improves the job finding struggles of job seekers.

2. Project Background

2.1 Problem Domain

Job portals are like the meeting places for recruiters as well as seekers where both want to fulfil their requirements. Job seekers want to find a career opportunity where they can apply their experience, learn new skills and develop as a professional. On the other hand, recruiters try to fill their job openings with the right candidate who has the perfect aptitude and qualifications. So, there must be an open-source where job seekers and job recruiters both can fulfil their requirement criteria.

2.2 Solution to the Problem Domain

To get rid of above-mentioned problems the, job portal app helps the job seekers to list their skills, interests and qualifications and job recruiters can create a vacancy for the post available with required specifications. Job seekers can directly apply for the available job. In the other hand, an AI algorithm suggests the available jobs that match the required criteria of the available job and skill and qualification of the job seekers.

3. Initial Research

3.1 Background research on end users

This Job Portal web application's potential end-users are fresher, interns and job seekers, especially beginners, who are having trouble to find the perfect job according to their skills. So, this application aims to provide job to job seekers and employees to the recruiters. Job Portal is developed to provide an effective means for the employers to post job openings with required qualification to have better penetration into the job market and jobseekers to lookup the job descriptions and qualifications easily. Also, employers can view the reviews provided by the applicants to make necessary improvements in their system if needed.

3.2 Similar systems

The Internet has started to become popular merit to most of the organizations and companies. Many companies use a website to advertise their job vacancies.

E-recruiting has had attractive growth since the late 1990s when the rapid economic changes produced a high demand for qualified candidates that the labor market could not fully satisfy. This

system is chiefly designed to rapidly outreach a huge population and demographics. Job portals and corporate homepage have driven the development of E-recruiting platforms heavily. (T, Otaibi, & Ykhlef, 2012)

It came to my realization that job portals with recommendations can be far better than the simpler websites because job seekers can use it as the gateway to access job and website information whereas a website can just display the online content. Some similar job portal websites that I came to know during the research process are as follows.

i. Mero job

FIGURE 1 MERO JOBS WEBSITE (MERO JOB, 2020)

This web application is used to find jobs, similar to the web application I am building as my project. But the major caveat of this site is the absence of a job recommendation system. Say a user is logged in to a job portal, and uploads his CV and fills his profile, then the system will automatically load the correct and best jobs for the job searcher.

ii. Jobs Nepal

FIGURE 2 JOBS NEPAL WEBSITE (JOBS NEPAL, 2020)

Jobs Nepal is another job searching site based in Nepal. The major feature of this job portal lacks is the recommendation system. The user searching for jobs has to manually find the jobs they are looking for. But after the implementation of the recommendation system, most of the heavy searching is automatically done.

Features	Mero Jobs	Jobs Nepal	This System
Search for job	✔	✔	✔
Filter jobs	✔	✔	✔
See available jobs	✔	✔	✔
Job recommendation using AI			✔

Table 1 Comparison with similar systems

3.3 Algorithm: Content Based Filtering

For building a recommendation system, content-based filtering is used which recommends the items by comparing the content with the user profile. The method we use uses the attributes of the content to recommend similar content.

Subjective filtering (or Content-based filtering) suggests/recommends things depending on the correlation of program content and client's profile. The content of each available item is taken as an object and it is compared with the major details that the client provides during the period of user creation. This method can be used to recommend the jobs that job seeker may be interested in applying. It categorizes items according to features they possess, the most common is to use the keywords which describe each item. This algorithm reads the information of job seeker and recommends the possible available jobs. (Aggarwal & C, 2016)

4. Artefact

4.1 Detailed Subsystems

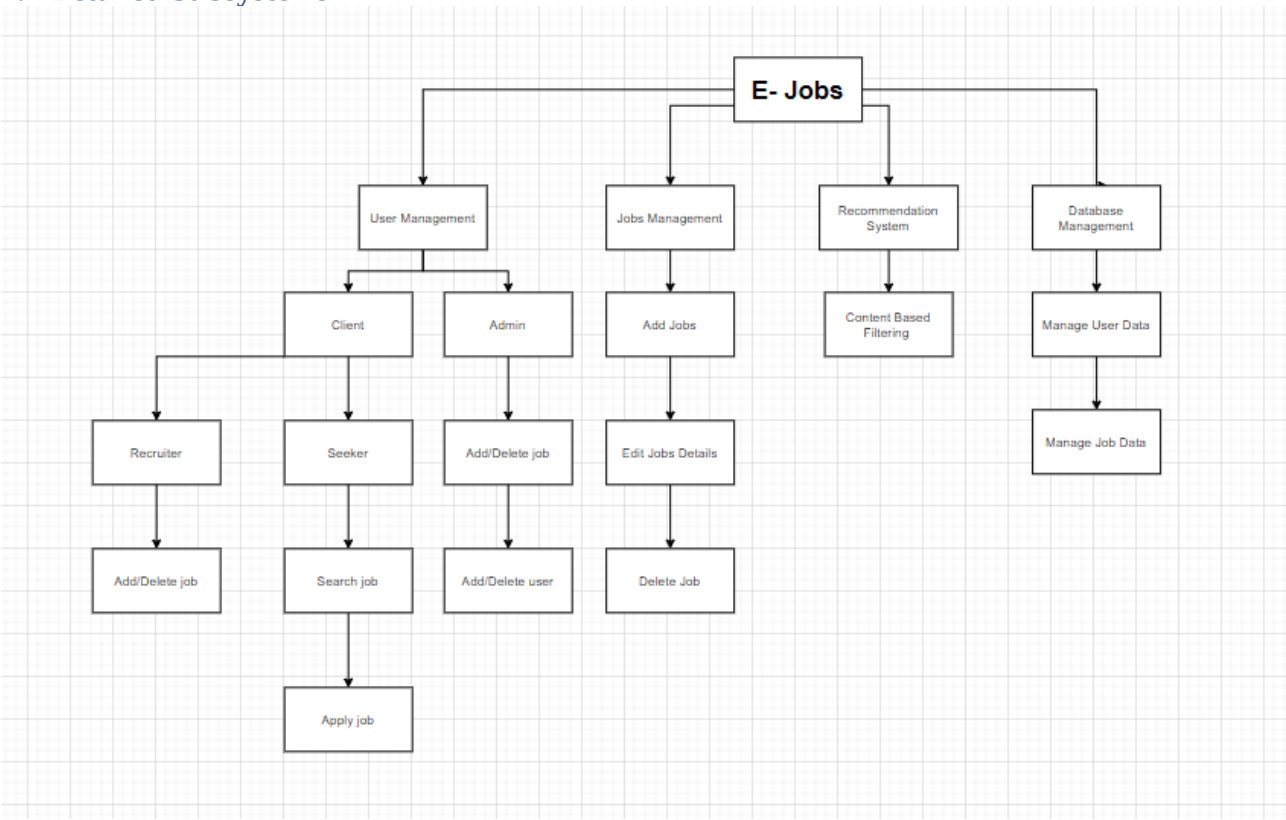


FIGURE 3 DETAILED SUBSYSTEMS

4.1.1 User Management System

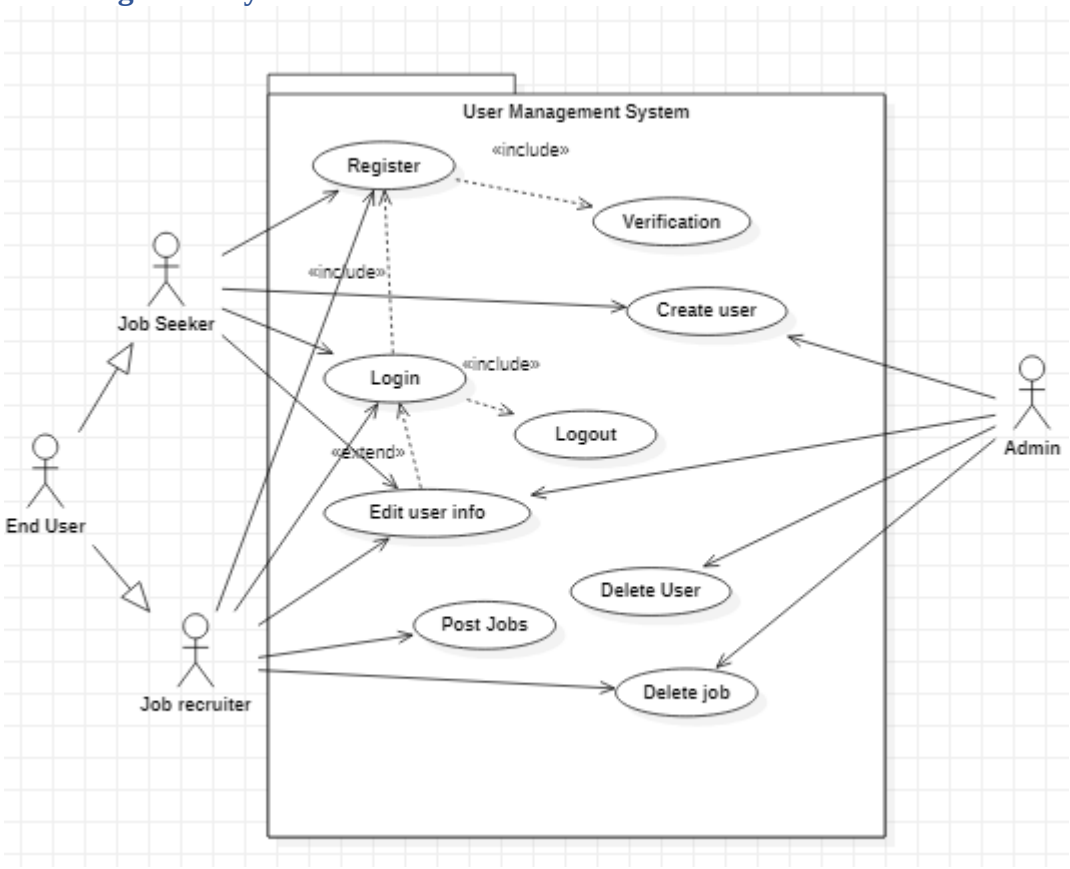


FIGURE 4 USE CASE DIAGRAM OF USER MANAGEMENT SYSTEM

4.2 Level of Users

In this system there are three level of users.

Admin manages the posted jobs, user data, job details and users. Admin has authority to edit job details posted by recruiters. Admin can add or delete jobs as well as he can add and remove users too.

Job recruiters can announce vacancy by posting jobs of certain criteria. Job recruiters receives the job application after client apply for the job that he/she posted. They can also edit their profile.

Job seekers can search for jobs they want to apply. They can upload the documents or certificates they have achieved which makes hiring a perfect employee easier. Job seekers can filter the jobs they want to apply. They can also edit the details they have inserted while creating the account.

4.3. Tools and Techniques

4.3.1 Tools

Tools	Description
Laptop	Specification: Processor: i7 5th generation or above RAM: 6 GB or above Graphics: NVIDIA or AMD 4GB or more Storage: 500GB or above
Modeling Tools	Visio, Draw.io, Smart Sheet for designing the diagrams required for the project
Programming Languages	The Programming languages like Python is used while developing the application.
Microsoft Office Package	Different Microsoft Office Services like Word for documentation, Excel for graphical representation, and PowerPoint for formatting and presentation

Table 2 Tools used in development of the project.

4.3.2 Techniques

Techniques	Description
Case Study	Detail study of the topic in order to get the details of the topic
Literature Analysis	Review other similar project or application and compare with your project.
Survey	Ask the questionaries' and feedback to the users about the application.
Algorithms	Representation of step wise solution like WBS and other algorithms.

Table 3 Techniques used in development of the project.

4.4 Methodology

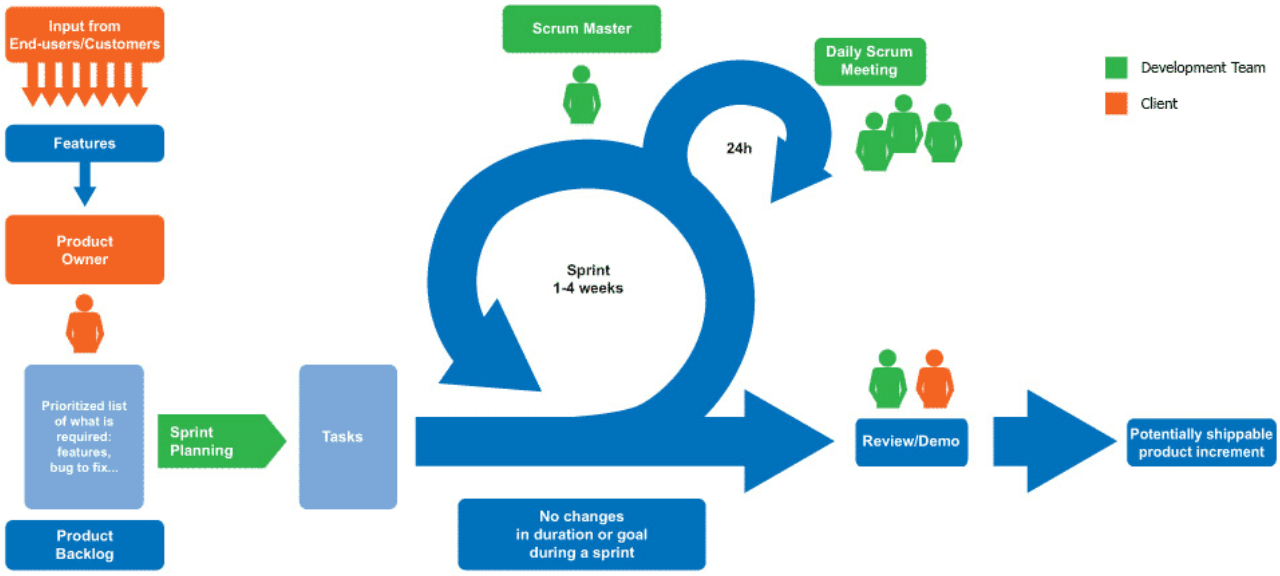


FIGURE 5 SCRUM METHODOLOGY (NUTCACHE, 2020)

Agile Scrum methodology suits the development process of the application. It is an agile project management tool used by software development programs to develop new software features every 2-4 weeks. It is also one of the approaches that inspired the Agile Manifesto including a series of ideals and principles. Despite being developed for accelerated product development, SCRUM has become an agile project management system and is often referred to as an SCRUM project or simply SCRUM development. Any of the famous SCRUM analysis and modification activities are Sprint Preparation, Regular Scrum of Stand Up, Sprint Review, and Sprint Retrospective.

(digital, 2020)

4.4.1 Stages of the selected methodology

Following are the different stages of this methodology:

i. **Initiate:** This process consists of preparing and estimating tasks, including Develop User Stories, Authorize, Estimate, and Commit User Requirements, Creating Tasks, Estimate Tasks, and Create Sprint Backlog.

ii. **Plan and Estimate:** This phase consists of processes related to planning and estimating tasks, which include Create User Stories, Approve, Estimate, and Commit User Stories, Create Tasks, Estimate Tasks, and Create Sprint Backlog

iii. **Implement:** This process refers to the implementation of tasks and events relevant to the development of the result of the project. Activities which are included in the deliverable share of the Frequent Standup Meetings and the commodity backlog management at regular intervals.

iv. **Review and Retrospect:** This process concerns the analysis of the deliverables and the progress that has been completed and the identification of ways to strengthen the procedures and procedures used to carry out the operation of the project.

v. **Release:** This process stresses the implementation of the agreed deliverables to the customer and the recognition, recording and internalization of the lessons gained during the project. (scrumstudy, 2020)

4.5 Testing

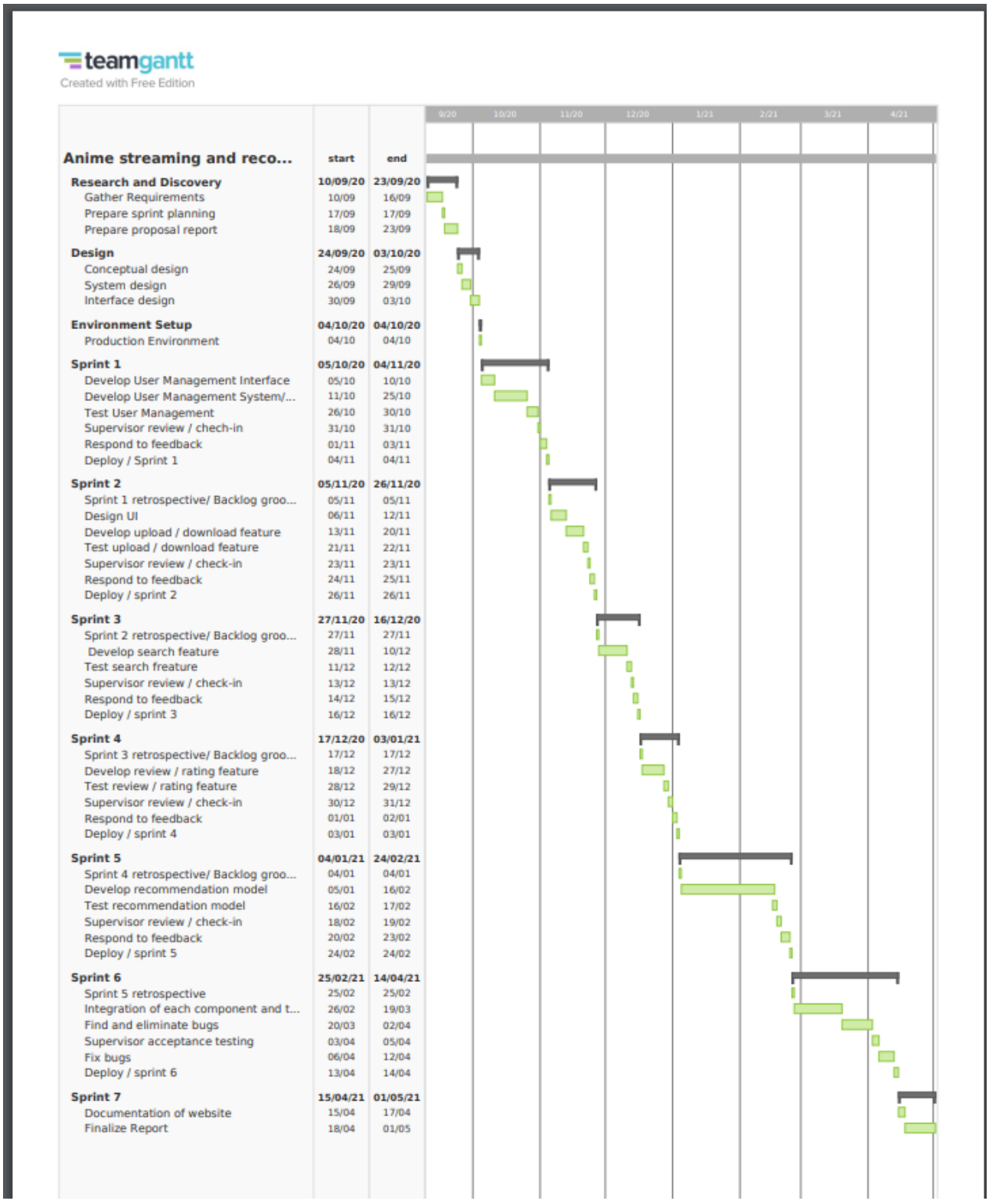
Black box testing method is going to be used in this project. This testing method is done through the end-user perspective. As the testing is based on testing the requirements specification, no code is required for this process. This process helps to know whether the proposed requirements are met or not. All types of inputs are taken to carry out this test. Both invalid and valid inputs are taken to see the functionality of the system.

FIGURE 6 BLACK BOX TESTING (SOFTWARE TESTING FUNDAMENTALS, 2020)

The major importance of this method of testing is that it can be conducted by anyone independent from the developers. It allows an independent body to work on same project without any code knowledge. (software testing fundamentals, 2020)

5. Plan/Schedule

5.1 Gantt Chart



Anime streaming and reco...	start	end
Research and Discovery	**10/09/20**	**23/09/20**
Gather Requirements	10/09	16/09
Prepare sprint planning	17/09	17/09
Prepare proposal report	18/09	23/09
Design	**24/09/20**	**03/10/20**
Conceptual design	24/09	25/09
System design	26/09	29/09
Interface design	30/09	03/10
Environment Setup	**04/10/20**	**04/10/20**
Production Environment	04/10	04/10
Sprint 1	**05/10/20**	**04/11/20**
Develop User Management Interface	05/10	10/10
Develop User Management System/...	11/10	25/10
Test User Management	26/10	30/10
Supervisor review / chech-in	31/10	31/10
Respond to feedback	01/11	03/11
Deploy / Sprint 1	04/11	04/11
Sprint 2	**05/11/20**	**26/11/20**
Sprint 1 retrospective/ Backlog groo...	05/11	05/11
Design UI	06/11	12/11
Develop upload / download feature	13/11	20/11
Test upload / download feature	21/11	22/11
Supervisor review / check-in	23/11	23/11
Respond to feedback	24/11	25/11
Deploy / sprint 2	26/11	26/11
Sprint 3	**27/11/20**	**16/12/20**
Sprint 2 retrospective/ Backlog groo...	27/11	27/11
Develop search feature	28/11	10/12
Test search freature	11/12	12/12
Supervisor review / check-in	13/12	13/12
Respond to feedback	14/12	15/12
Deploy / sprint 3	16/12	16/12
Sprint 4	**17/12/20**	**03/01/21**
Sprint 3 retrospective/ Backlog groo...	17/12	17/12
Develop review / rating feature	18/12	27/12
Test review / rating feature	28/12	29/12
Supervisor review / check-in	30/12	31/12
Respond to feedback	01/01	02/01
Deploy / sprint 4	03/01	03/01
Sprint 5	**04/01/21**	**24/02/21**
Sprint 4 retrospective/ Backlog groo...	04/01	04/01
Develop recommendation model	05/01	16/02
Test recommendation model	16/02	17/02
Supervisor review / check-in	18/02	19/02
Respond to feedback	20/02	23/02
Deploy / sprint 5	24/02	24/02
Sprint 6	**25/02/21**	**14/04/21**
Sprint 5 retrospective	25/02	25/02
Integration of each component and t...	26/02	19/03
Find and eliminate bugs	20/03	02/04
Supervisor acceptance testing	03/04	05/04
Fix bugs	06/04	12/04
Deploy / sprint 6	13/04	14/04
Sprint 7	**15/04/21**	**01/05/21**
Documentation of website	15/04	17/04
Finalize Report	18/04	01/05

FIGURE 7 GANTT CHART

6. References

Aggarwal, & C, C. (2016). *Recommender Systems.* switzerland: Springer.

digital. (2020, 09 20). *Agile 101*. Retrieved from digital.ai: https://digital.ai/resources/agile-101/what-is-scrum

Jobs Nepal. (2020, 9 20). *JobsNepal*. Retrieved from JobsNepal: https://www.jobsnepal.com

mero job. (2020, 9 20). *merojob*. Retrieved from merojob: https://merojob.com/

nutcache. (2020, 09 20). *How to Use Scrum to Boost Teams Productivity*. Retrieved from nutcache: https://www.nutcache.com/blog/how-to-use-scrum-to-boost-teams-productivity/

scrumstudy. (2020, 09 20). *Scrum Phases and Processes*. Retrieved from scrumstudy: https://www.scrumstudy.com/whyscrum/scrum-phases-and-processes

software testing fundamentals. (2020, 09 20). *softwaretestingfundamentals*. Retrieved from softwaretestingfundamentals: https://softwaretestingfundamentals.com/black-box-testing

T, S., Otaibi, A., & Ykhlef, M. (2012). A survey of job recommender systems. *survey of job recommender systems*, 16.

7. Additional info

7.1 Resources

- Visual Studio Code
- Personal computer
- SqLite Database

7.2 Client

Supervisor – Mr. Sagar Lamichhane