COMSATS University Islamabad (CUI)

Project Proposal

For

PlatformX
Version 1.1

By

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SCOPE DOCUMENT REVSION HISTORY

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Project Category:

○ **B -** Web Application ○ **I-** Industrial Project ○ **J-** Academia Project ○ **E-** Smartphone Application

Abstract

PlatformX will be a web-based application. Its purpose is to facilitate the students and the organizations, with a centralized platform where they can look up to each other for projects which can be considered as Final Year Project(s) for the students in the future. PlatformX will provide a solution for students in saving their time, effort and enhancing their learning. It will also facilitate the organizations in achieving maximum throughput in minimum time and in cost efficient way. Students will be able to choose project as their Final Year Project, participate in Hackathons, team up with other students to increase their productivity level. For organizations, they will be able to post projects and organize Hackathons. By designing and developing this project, team members will be able to learn programming algorithms, database management, UI/UX designing and version controlling. PlatformX will be a modern solution for the students in learning industrial skills, saving up their time and efforts.

1 Introduction

One of the major problems of Final Year Students is to struggle with their FYP ideas, industrial skill learning and to compete with other students. The main objective of PlatformX is to facilitate the students and the organizations, with a platform where they work with each other on projects. PlatformX will provide a solution for students in saving their time, effort and enhancing their learning. It will also facilitate the organizations in achieving maximum throughput in minimum time and in cost efficient way. PlatformX will consist of major functionalities such as student's assessment, interest-based project, and Hackathon recommendations. It will provide an easy and efficient way for organizations and students in assisting each other.

2 Problem Statement

Students face a lot of problems while deciding their FYP idea according to market requirements. A lot of research, time and effort is necessary to design and develop industrial level of FYP. Meanwhile, organizations also want to gather fresh and emerging talent in their team. Today, organizations arrange many events to hunt the talent required via various incubators, startups, and open houses. Also, newly admitted students in Institutes find it hard to learn and grow as a team. Hence, there is a necessity for a time and cost-efficient system that would bring students and organizations at one point.

3 Problem Solution

PlatformX will be a web and mobile based application that will facilitate students to develop their skills as per required in the job market and the organizations will have the opportunity to merge the talented students in their team structure. PlatformX will enable the students to take their FYP's to industrial level, grow their technical skills by participating in various Hackathons and collaborating with each other for improving their soft skills. Organizations will highlight the talented students using PlatformX by providing them the opportunity to work with them. PlatformX will be a user-friendly, accessible, and reliable for both the users (students/organizations).

4 Related System Analysis

Following are the related system for analysis. The reason of choosing these systems is that they are top rated in google search results.

Table 1: Related System Analysis with PlatformX.

Application Name	Weakness	Proposed Project Solution

DevPost (Web Application)	• No Chat Service • No Projects for Final Year Students • No Workshops	• PlatformX will have a Chat Service. • PlatformX will have projects for Final Year Projects. • PlatformX will have workshops.
Hackster.io (Web Application)	• No Chat Service • No Hackathons • No Workshops	• PlatformX will have a Chat Service. • PlatformX will have hackathons. • PlatformX will have workshops.

5 Advantages

Following are the major advantages of PlatformX.
- It will save time and energy of students in research.
- By doing organization's projects, student will be able to learn technical skills as per market requirement.
- It will be accessible on devices as it will be developed in latest tools and technologies.
- Students doing organizations projects will have the opportunity to get hired easily. Hence increasing the hiring rate.
- It will provide quality project ideas to Final Year Students.

6 Project Scope

PlatformX contains two type of users: Organization and Student. Both the users will sign up for the account using their credentials. Organizations will post Final Year Projects for the students on PlatformX. Students will apply for the projects. They can apply either in groups or solo. Students will also provide their portfolio to the organization. The organizations will then prepare a sample project to those applicants as an assessment. They will consider the results of all the applicants and their portfolio to choose the best applicants based on their selection criteria. Students will then be informed about their selection. An agreement will be signed between them. After that, students will work on the project as their FYP under the guidance of that organization. The Organizations will also host different Hackathons for the students. Students will apply on those challenges to gain experiences. Organizations will then award the winners of those Hackathons. Students can also work with each other on a project by posting a project publicly and finding the interested ones to work with.

Below are the minor and major modules for PlatformX:

6.1   Module 1: User Profile Management

This module will facilitate the Users to manage their profile. Following will be the functionalities of User Profile Management.

M1F1: Sign Up
M1F2: Sign In
M1F3: Sign Out
M1F4: Disable Account
M1F5: Activate Account
M1F6: Delete Account
M1F7: Forgot Password
M1F8: Change Password
M1F9: Edit Profile
M1F10: Follow/Unfollow user

6.2   Module 2: Interest Based Feed

6.2.1   XEed (Global Posts)

Students will be provided with feed section containing projects, hackathons and idea sharing posts. The feed will be based on user's interest. System will recommend projects/hackathons to students based on their search queries as well as their interest. Collaborative Filtering is a technique that can filter out items that a user might like based on reactions by similar users. It works by searching a large group of people and finding a smaller set of users with similar interest.

   M2F1: Post a XEed.
   M2F2: View XEed
   M2F3: Edit XEed.
   M2F4: Delete XEed.
   M2F5: Share XEed.
   M2F6: Like a XEed.
   M2F7: Comment on XEed.
   M2F8: Vote Up/Down XEed.
   M2F9: Vote Up/Down Comments on XEed.
   M2F10: Report XEed.
   M2F11: Favorite a XEed.

6.2.2   Articles

Articles will be shown to the user according to his interest. Web Scrapping will be used for this purpose. Different suggestions of articles will be posted on user's dashboard.

6.3   Module 3: Chat Service
Chat Service will consist of two sub modules:

6.3.1   Module 3.1: Chatbot

To respond to queries of Students and organizations, a separate feature of Chatbot will be provided by PlatformX for this purpose. Neural Networks will be used in the development of Chatbot. They are the series of algorithms intended to recognize patterns and make predictions. Libraries such as TensorFlow, Scikit-learn have predefined models such as Sequential model, Functional model that will be trained based on the dataset provided. Long Short-Term Memory (LSTM) is an algorithm that will be used in model training. LSTM's have skills to remember the information for a long period of time.

6.3.2   Module 3.2: Live Chat

Live Chat will also a feature where Students and organization will directly contact with each other to ask their questions and get immediate replies. Following are the functionalities of this submodule:

M3F1: Send Message.
M3F2: Receive Message.
M3F3: Send Links.
M3F4: Add Attachments.

6.4   Module 4: Hackathon
Hackathon, an online competition, will also be available on PlatformX. It will allow the students to compete and enhance their skills. Major functionalities of this module are as follows:

M4F1: Add Hackathon.
M4F2: View Hackathon.
M4F3: Edit Hackathon.
M4F5: Delete Hackathon.
M4F6: Share Hackathon.
M4F7: Participate in Hackathon.
M4F8: Favorite a Hackathon.
M4F9: Follow a Hackathon.
M4F10: Announce Hackathon Results.
M4F11: Automated Form Filling.

6.5   Module 5: Online Payment
Online Payment will facilitate the organizations to pay students in doing a project. It will have following features.
M5F1: Stripe Payment Gateway.
M5F2: Generate Invoice.
M5F3: Save Invoice.
M5F4: Payment History.

6.6　Module 6: Applicant Assessment

Organizations sharing their ideas on PlatformX will have the control to assess all the applied applicants and then find out the best suitable match of student(s) based on their talent and work experience. Following are the functionalities that this module will consists of

M6F1: Add Basic Info (Memo, Resume/CV file, Skills, GitHub Link).
M6F2: View Applications.
M6F3: Accept/Reject Applications.
M6F4: Add Sample Project.
M6F5: Edit Sample Project.
M6F6: View Sample Project.
M6F7: Delete Sample Project.
M6F8: Submit Sample Project.
M6F9: Notify Applicant.

6.7　Module 7: Search, Filter and Notifications

Search filters will facilitate the students to search projects, hackathons, organizations, other students. Search will be provided with some filters such as

6.7.1　Search

Below are the features for Search submodule:
M7F1: Search in Feed (XEed).
M7F2: Search Projects.
M7F3: Search Hackathons.
M7F4: Search Students.
M7F5: Search Organizations.

6.7.2　Filter

Below are the features for Filter submodule:

M7F6: Filter by Location
M7F7: Filter by Prize Money
M7F8: Filter by Technology
M7F9: Filter by Hackathon Type (online/remote)
M7F10: Filter by Status (upcoming, ongoing, ended)
M7F11: Filter by Duration
M7F12: Filter by Paid Tasks (projects)
M7F13: Filter by FYP's (projects)

6.7.3　Notifications

Below are the features for Notification submodule:
M7F14: Enable/Disable Notification.
M7F15: Notification by SMS.

M7F16: Notification by email.

6.8   Module 8: Configurations

Configuration module will consist of following sub modules.
6.8.1   Settings

Following will be the functionalities for Settings.
M8F1: Toggle Dark/Light Theme of the Application

6.8.2   Guide

Following will be the functionalities for Guide.
M8F2: Report a problem.
M8F3: Feedback
M8F4: FAQ's
M8F5: Contact Us
M8F6: Privacy & Policy.

6.9   Module 9: Admin Dashboard

Admin Dashboard will facilitate the PlatformX Team to hold the system and facilitate them with the following features.

M9F1: Delete user account.
M9F2: View User
M9F3: Edit User
M9F4: View Payment
M9F5: Delete Comment
M9F6: Delete Post
M9F7: View Hackathon Results
M9F8: View Problems
M9F9: View Feedbacks
M9F10: Answer the queries
M9F11: Edit Privacy and Policy

6.10 Module 10: Workshops

Following are the functionalities of this module:

M10F1: Add Workshop
M10F2: View Workshops
M10F3: Delete Workshop
M10F4: Apply to a Workshop
M10F5: Bookmark a Workshop

M10F6: Workshop Histories
M10F7: Report Workshop
M10F8: Share Workshop

7　System Limitations

The main constraints of PlatformX are as follows:
- Only verified organizations will have the access to use PlatformX.
- File type of CV's must be .pdf type.
- System will only handle the selected applicants for a specified time (one week). After that time, the applicant will get disqualified in case of no response from him/her.

8　Software Process and Design Methodology

The Software Design Methodology that will be used in the development of this System will be Object Oriented (OOP). The reason to choose OOP is that it is a development approach of a system that facilitates and encourages the reusability of software components.
There are other advantages of using Object Oriented programming such as:

- Reuse of code through inheritance.
- Flexibility through polymorphism.
- Effective problem solving.
- Modularity for easier troubleshooting.

The Software Process Methodology that will be used in the development of this System will be Iterative. This is because it can be used to continuously improve a concept, design, software system, or product and it is more flexible, less costly and it is easier to test and debug smaller iterations. Also, it is easier to manage the risk as minor details undergo observations during every iteration. So, each iteration is easily managed.

9　Tools and Technologies

Following are the Tools and Technologies that will be used in the development of PlatformX.

Table 2: Tools and Technologies for PlatformX.

	Tools	**Version**	**Rationale**
Tools And Technologies	Microsoft VS Code	2015	IDE
	MS Word	2019	Documentation
	MS Power Point	2019	Presentation
	Figma	3.0.4	Mockups
	Adobe XD	36.1	External Design
	Technology	**Version**	**Rationale**
	Javascript	-	Programming Language

Python	2.7.13	Programming Language
Django		Programming Framework
React	17	Library
Node	15.3.0	Run Time Environment
Firebase	26.2.0	Notifications
PostgreSQL		Database
Html	5	Web Development
CSS	3	Web Development
Bootstrap	4	Library
Git	2.29.2. windows.3	Version Control

10 Project Stakeholders and Roles

Following are the Stakeholders for PlatformX:

Table 3: Project Stakeholders for PlatformX.

Project Sponsor	*COMSATS University Islamabad*
Stakeholder	**Supervisor** • Mr. Taimur Shahzad **Team Members** • Muhammad Asnan Bhatti • Muhammad Saif Waheed Raja

11 Team Members Individual Tasks/Work Division

Following is the Work Division per Module according to the Team Members:

Table 4: Team Member Work Division of PlatformX.

Student Name	Student Registration Number	Responsibility/ Modules
• *Muhammad Asnan Bhatti*	• *SP18-BCS-102*	• *Back End Development* • *Mobile Application Development* • *Module 1, 2, 3, 4*
• *Saif Waheed Raja*	• *SP18-BCS-123*	• *Web Application Development* • *Graphic Designing* • *Testing*

		• *Module 5, 6, 7, 8*

12 Data Gathering Approach

Following are the Data Gathering Approaches:

- **Brainstorming**
  Brainstorming is a situation where a group of people meet to generate new ideas and solutions around a specific domain of interest by removing inhibitions. People can think more freely, and they suggest as many spontaneous new ideas as possible.

- **Interviews**
  Interviews involve asking someone a set of questions. Often interviews are face-to-face, but they do not have to.

- **Questionnaire**
  Series of questions designed to elicit specific information from us. The questions may require different kinds of answers: some require a simple Yes/No, others ask us to choose from a set of pre-supplied answers.

- **Focus Groups**
  Interviews tend to be one on one and elicit only one person's perspective. It can be very revealing to get a group of stakeholders together to discuss issues and requirements.

13 Concepts

Following are the concepts that will be learnt while designing and developing PlatformX.

13.1 Web Application Development

Web Application Development will the major domain of this project. PlatformX will be developed using latest tools and technology in the market such as ReactJS, NodeJS, Python.

13.2 Machine Learning

Machine Learning is a technique that is used to make the system learn through some experience. Machine Learning will be a major part in the system. It will be used for recommending projects/hackathons to the Student based on their interest.

13.3 Application Programming Interface (API) Integration

Application Programming Interface (API) is an interface that allows multiple software systems to communicate with each other and respond to each other's requests for data. API will be integrated in the system for various purposes. For online payment, API such as stripe will be used. For authenticating the user, API of Gmail will be used.

13.4 No SQL Database Management

Database Management allows a system to store, edit and retrieve data. It will help the system to access data that will be stored online. Database such as PostgreSQL will be used in the development of PlatformX. Furthermore, Firebase will be used for push notifications.

13.5 Version Control

Version control is a system that records changes to a file or set of files over time so that you can recall specific versions later. Git is a version control system that will be used in the development of PlatformX.

13.6 Payment Gateway Integration

Payment gateways are software and servers that transmit transaction information to acquiring banks and responses from issuing banks (such as whether a transaction is approved or declined). Stripe, an online Payment Gateway, will be integrated. It is a suite of payment APIs that powers commerce for online businesses.

14 Gantt chart

Following is the Gantt Chart for PlatformX:
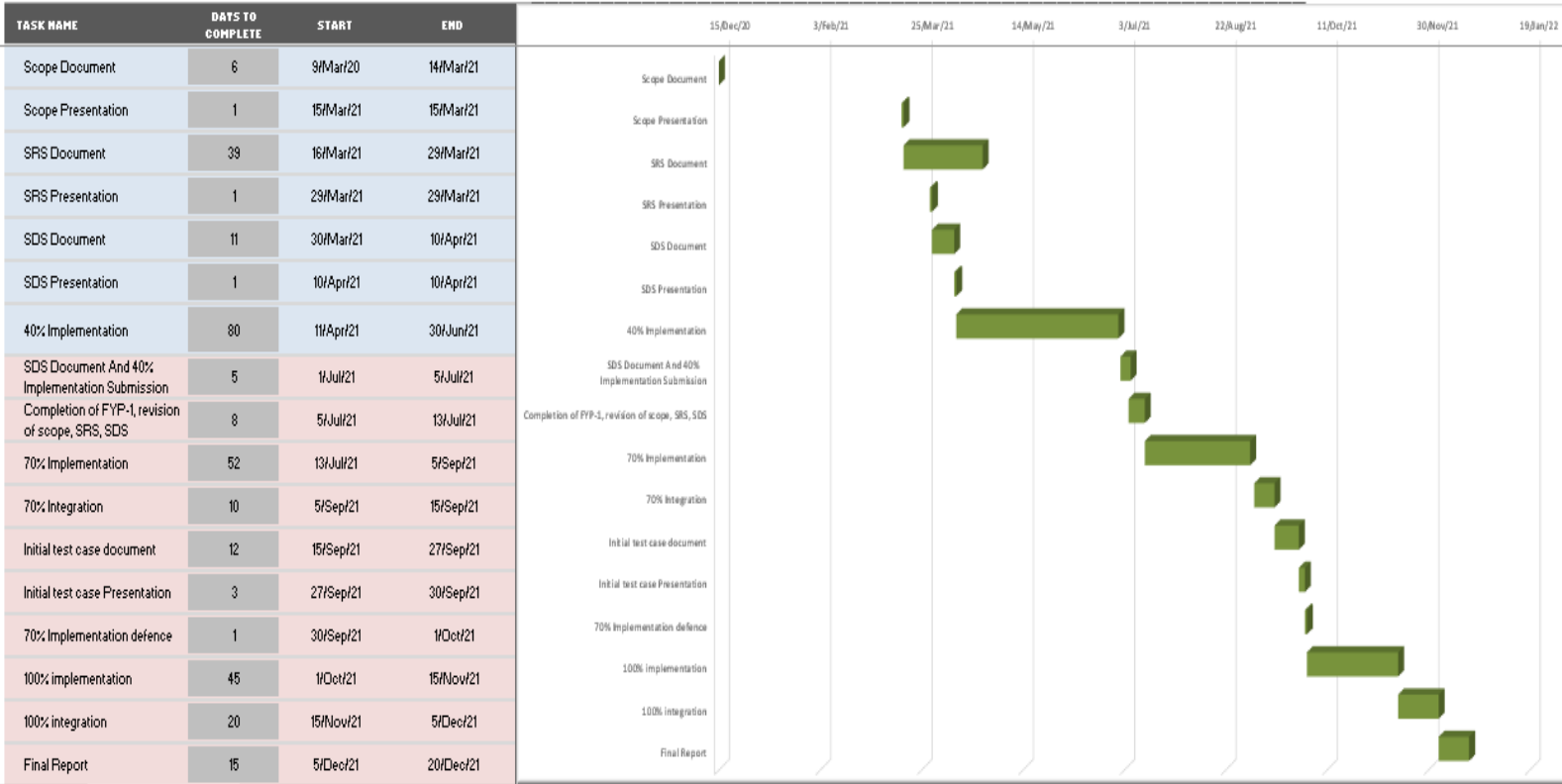
Figure 1 : Gant Chart of PlatformX

15   Mockups

Following are the Mockups for PlatformX.
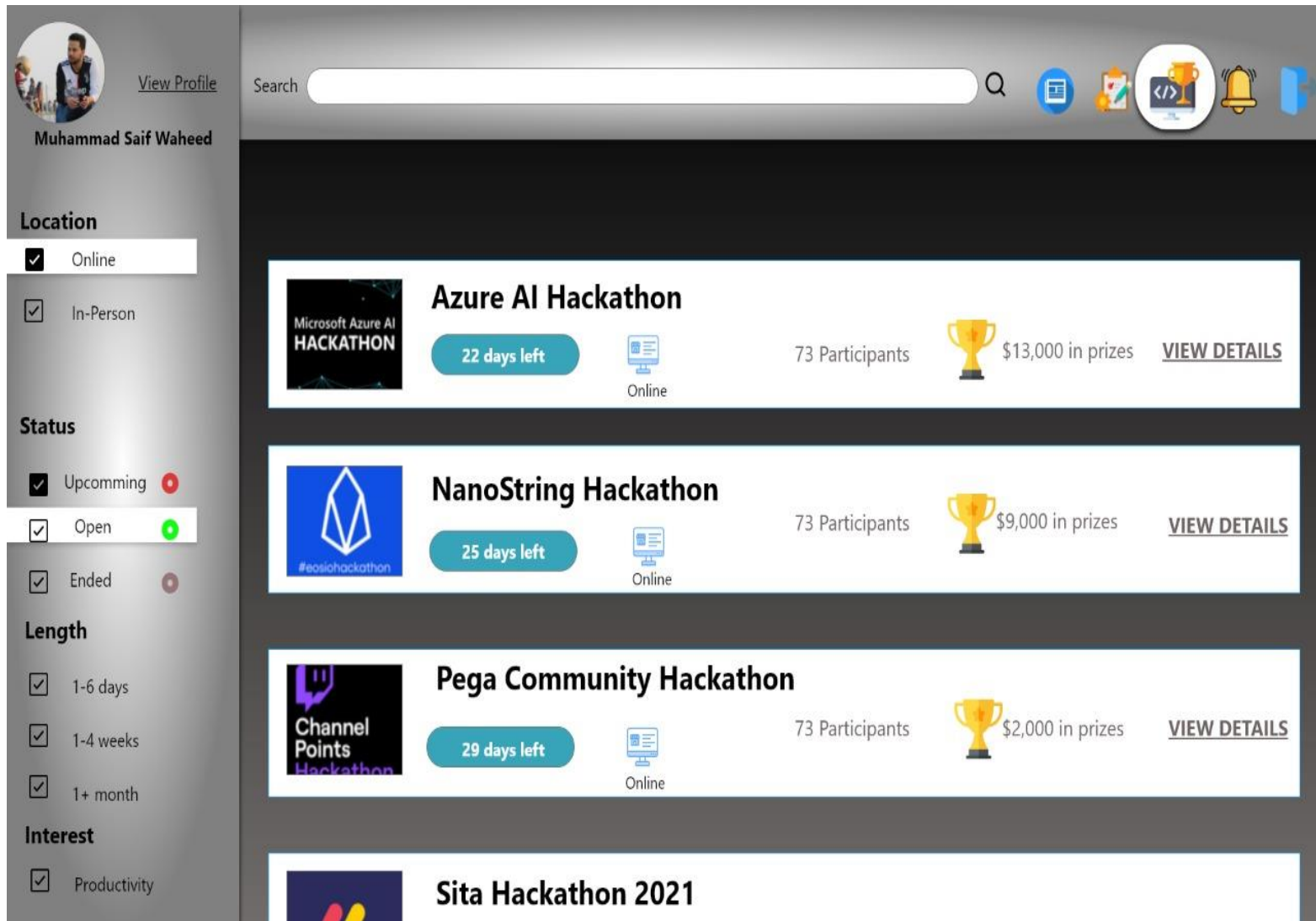
Figure 2: Student Dashboard
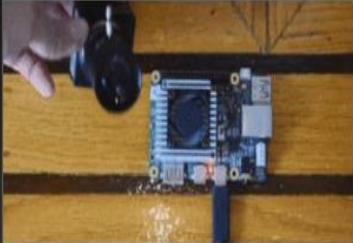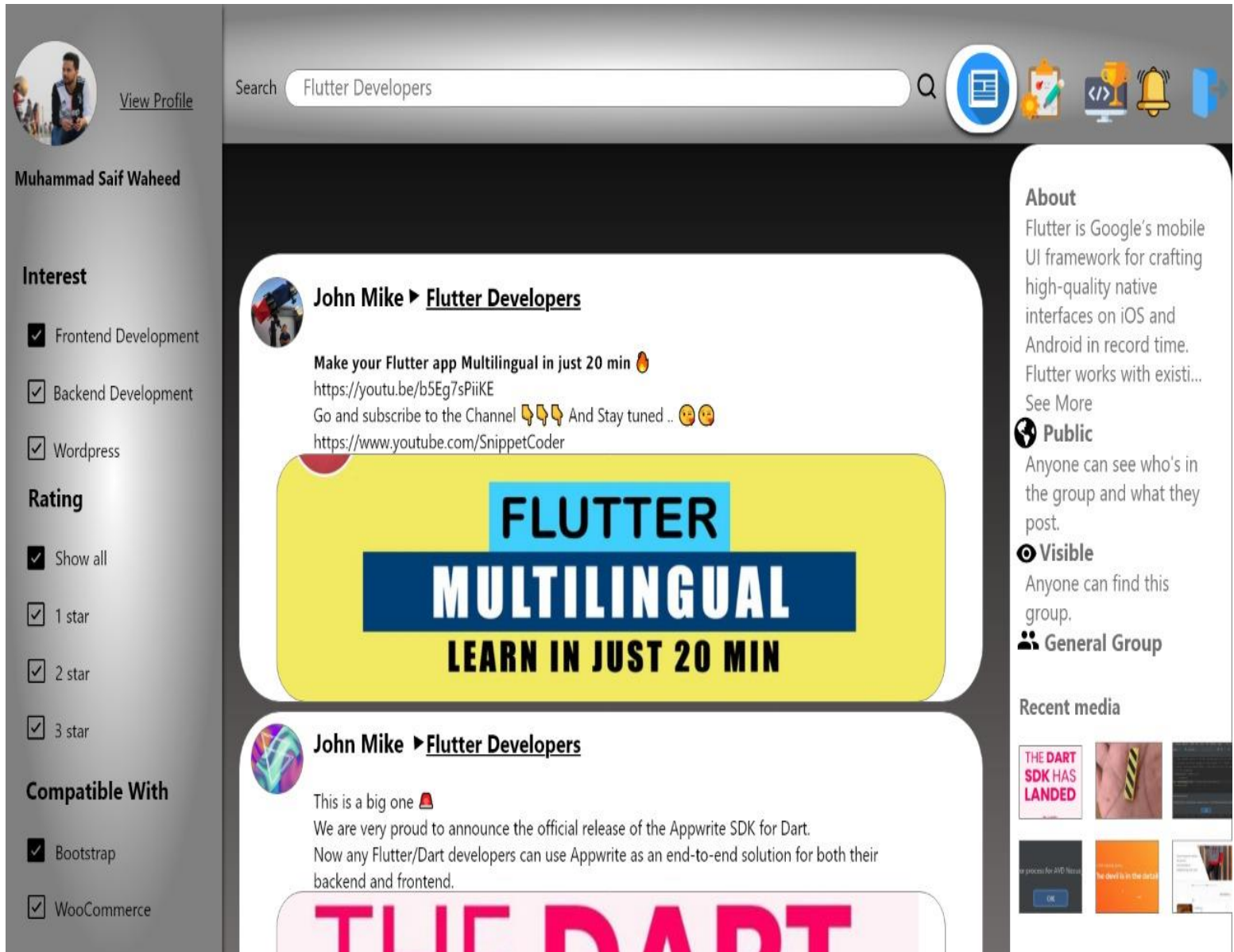
Figure 3: Student Dashboard

Figure 4: Packages Screen

16   Conclusion

In this scope document, we have discussed the detail overview of a PlatformX. All the requirements, functionalities, advantages, required tools, process model, stakeholders, scope, module, and limitations of the proposed project have been highlighted and mentioned in detail. We will try our level best to design and develop PlatformX within the allocated time.

17   References

Following are the References for PlatformX.

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4.   **https://www.python.org/**

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