

PIPLANS: AN ANDROID APP TO CONNECT IDOL

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This Report Presented in Partial Fulfillment of the Requirements for the
Degree of Bachelor of Science in Computer Science and Engineering

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APPROVAL

This Project titled “PIPLANS”, submitted by Sanjida Rahman, ID No: 162-15-8242 and Ananya Das, ID No: 162-15-8235 to the Department of Computer Science and Engineering, Daffodil International University has been accepted as satisfactory for the partial fulfillment of the requirements for the degree of B.Sc. in Computer Science and Engineering and approved as to its style and contents. The presentation has been held on 8th October 2020.

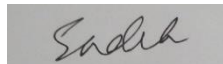
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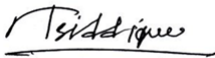
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DECLARATIONS

We hereby declare that, this project has been done by us under the supervision of **Mr. Shah Md Tanvir Siddiquee, Assistant Professor, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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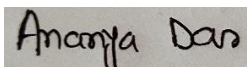
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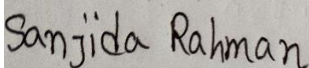


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ABSTRACT

There are about 170 universities all around Bangladesh including 53 government and about 120 private universities. A large number of students graduate every year. To complete the graduation program it is mandatory to complete a heavy project and submit. After graduation, the projects are kept unused. But, it is easily noticeable that a huge number of heavy problems be solved by this process. On the other hand, many companies, organizations, or persons need working systems and that might be solved by any graduate student before. The discussing project is built as a connecting bridge between a project developer and a project seeker. Android is widely used by all people in Bangladesh. So, an android application can be a great solution to solve the problem. The discussed project a common platform for showcasing projects and sell them.

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CHAPTER 1

Introduction

1.1 Introduction

This report will express about the highlights and procedure to build up the application that we thought and worked well ordered to reach in the last accomplishment. This declaration especially holds in subtleties for the targets, structure display, scope, essential prerequisites, and by end announcing and watching techniques which are taken.

Any successful project finds it's the destination by a proper implementation. Besides that, every businessman needs a ready and working solution in a short time as possible. Additionally, if various organizations or persons needs any system to solve their problem will love to get any working and already developed and checked systems. In this case, our idea is to connect both developer and project seeker in the same platform so that any developer can showcase their idol projects done for final year project submission or other perspectives and project seeker can find out. There is a hypothesis that the project seeker may not find their desired solution. Then, our system has problems uploading arraignment. Any developer may contract with the problem submitter to solve the problem. So, any user can upload their projects or submit any problem. Thus the connection can help both project developers and project seeker.

There are 53 government universities and 126 private universities in Bangladesh that graduate a very big number of students. To complete the graduation every student must complete the final year project and the idea is to target those huge numbers of idol

projects to be implemented in factory production. Additionally, it can make job scope for fresh graduates, where a job for a fresh graduate is a massive problem in our Bangladesh.

1.2 Motivation

Knowledge must be kept in practice. Every idol asset is a waste of time, money, and value. But every year a lot of projects and research are developed for final year project submission because of the graduation program. Our main motivation is to make proper use of idol completed projects done by a lot of graduate students. On the other hand, if any company or person needs a solution it can be found ready and searched by category. Thus both sides can be helpful to make proper use of completed idol projects.

1.3 Objectives

Till May 2019 there are 2.5 billion persons use android os [3] and it is the widely used os all around the world. That is why our objective is to develop an android app as a platform to showcase every idol project developed by many students. If someone wants to buy the project he/she can contract directly by. Additionally, if anyone does not find the desired solution he/she can easily upload the problem so that any developer can pick any problem and contract with the problem submitter. Thus, both sides can be helpful by using our bridging platform.

1.4 Expected Outcome

The developed project works as a connection bridge between developer and project seeker. They can contract and fulfill their desire. The system has an individual chatting platform where anyone can chat with each other.

1.5 Report Layout

This project contains six-chapter. In the first chapter named Introduction, we will talk about Introduction, Motivation, Objectives, Expected Outcome, and Report Layout. In the second chapter titled Background, we will write about project Introduction, Related works, Comparative Studies, Challenges of our project. The third chapter named Requirement specification. It contains Business Process Modeling, Requirements Analysis, and collection, Use Case Modeling and Description, Design Requirement of our project. In the fourth chapter named Design Specification, where we will talk about Front-end Design, Back-end Design, and Implementation Requirements of our project. In the fifth chapter, which name is Implementation and Testing. Here we will discuss Implementation of Database, Implementation of Interaction, and Testing Implementation. In our sixth chapter, also, the final chapter named Conclusion and Future scope of our project. In this chapter, we will talk about Discussion and Conclusion and Scope for Further Development.

In this report, we talk about our application and its various problem, solution, and use of the project.

CHAPTER 2

Background

2.1 Introduction

The world is developing very fast. Time and technology are the most important catalyst to change the world. That is why it is a must to find a technical solution as less time as possible. Our developed idea is mainly aimed to cure this way that a lot of developed solutions to various problems can be showcased. Thus, whenever anyone just needs any technical solution. He/She can find in the least possible time just by using our system. Our idea based on Android os just because the maximum number of persons all around the world uses this highly reputed os. So the Android can be perfect os to be based on.

2.2 Related Works

Various systems are available to share the activities of developers.

Toptal is a website and provides the best level of work in a perfect budget. The developers are must complete projects within a proper deadline. Sometimes clients pay more than the proper amount.

Gun.io may seem like a typical self-serve marketplace, but the primary focus of Gun.io is to help clients quickly recruit more resourceful engineering team. This service is also provided by a website.

Hired is another website for hiring developers. Hired have branded themselves to be a bit more inclined towards finding developers. Developers can work as a company to work on this site.

X-team is a website that aimed to relate clients with developers. All programmers who work as a member of the Team are vetted and screened for performance and quality of coding. They are also screened for dealing with different project problem scenarios before they are taken on board. This makes the (x)-team more agile and better equipped to deal with unique issues that might arise when your project is being executed.

Fiverr Pro is more of a platform which you would come across conventionally if you are looking for cheap jobs, the only difference – you get vetted mobile app developers who have a proven track record and at what they do (hence why PRO), rather than the ones who you find on the usual Fiverr gigs .



Figure 2.1: Related Applications

2.3 Comparative Studies

When our main idea is to make getting a job easier for developers we are planning to make the system more available and closer to have. Because a client always wants to get a response from the developer as fast as possible. If it is hard to get the market it

will cause late to be connected easily. As shown in para 2.2 there are several existing systems to connect developers with clients but all of these existing systems are developed as a website. The website is hard to maintain regularly.

On the other hand, a mobile app can be used so easily by mobile and mobile is available with everybody these days. So that our developed mobile app will be a great solution to be in touch with clients. Additionally, other existing systems works from one end that the only developer creates Gig and developer choose from Gig or some system allows clients to create a post. But, our developed system allows from both ends. If there is any developer he or she can show-case their project to be sold. On the other hand, the client will be able to create problems to find an appropriate developer.

2.4 Challenges

Facing challenges make every system more appropriate. We have found several challenges to face and thus we can be more perfect to serve. The projects must be showcased as attractive as possible. So that, it can attract real project seekers. The searching process should be more specific. And additionally, at the very beginning, the number of showcased projects might not be satisfactory to project seeker. Thinking about all we have to make the interface more attractive and make the perfect marketing to students who have idol projects.

CHAPTER 3

Requirement Specification

3.1 Business Process Modeling

Business process modeling is the analytical representation or put simply an illustration of an organization's business processes. Modeling processes is a critical component for effective business project management.

The project is aimed to help developers to showcase there developed projects and if any client wants to upload a problem to hire a developer. The Process begins with the Login or Sign Up option. If the user is new he/she must registrar with a valid e-mail and a strong password. Without valid email, no one can create an account. After Sign Up or if have an account before then the user will log in to get the service.

After log in any user will be able to view projects and problems. Then the user will be able to check is any new message or not. If there are any new messages received user will see new messages only otherwise he/she will check all messages.

If the uploaded problems or projects are not helpful then the user will be able to upload a new problem or project. Then wait for a new message as a response.

If any viewed projects or problems be liked by the user, the user will be able to check the uploader's profile. If every single part is liked by the user and wants to proceed on. Then he/she can message the uploader to talk much about the project or problem. Thus,

both side the developer and client will be connected by using this mobile application. After all the process ends. Thus, this mobile application can help developers to get new work or sell their existing projects and clients can be able to hire the desired developer or buy any existing project in a very short time.

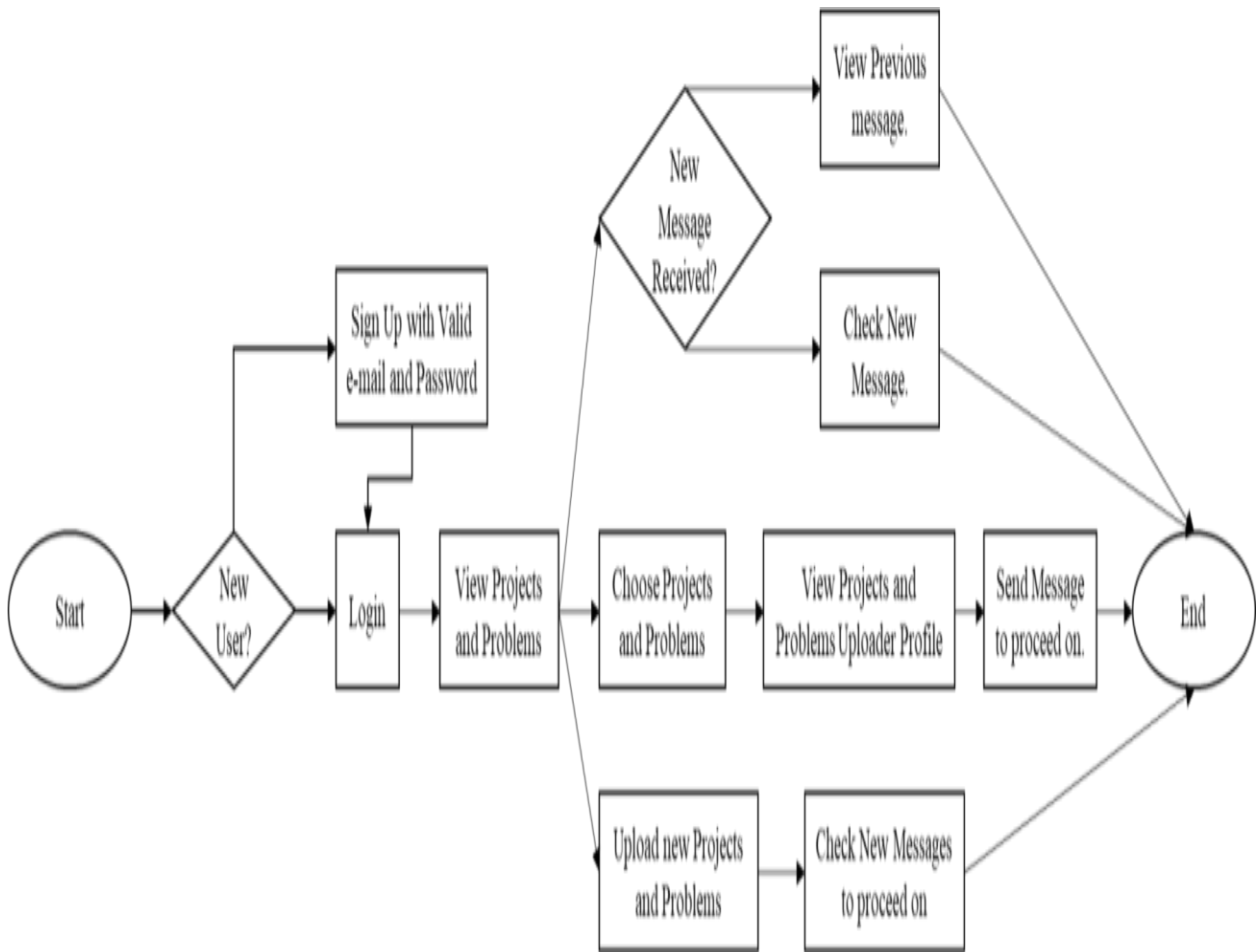


Figure 3.1: Business Process Model

3.2 Requirement Analysis and Collection

3.2.1 Software Requirements:

- ✦ Android Studio IDE: Android Studio is Android's official IDE. It offers tools custom-tailored for Android developers, including rich code editing, debugging, testing, and profiling tools.
- ✦ Android Virtual Device: An Android Virtual Device (AVD) is a device configuration that runs on the Android Emulator. It provides virtual device-specific Android Environment in which we can install & test our Android Application.
- ✦ Database (Firebase): Firebase Cloud Messaging (FCM) provides a reliable and battery efficient connection between your server and devices that allows you to deliver and receive messages and notifications on iOS, Android, and the web at no cost. You can send notification messages (2KB limit) and data messages (4KB limit).
- ✦ Adobe XD: Adobe XD is the Adobe prototyping tool for user experience and interaction designers. Adobe XD features are used for creating wireframes, prototypes, and screen designs for digital products such as websites and mobile apps.

3.2.2 Hardware Requirements:

- Operating system: Windows
- Android supported device
- Computer configuration:
 - RAM-8GB (min)
 - Hard Disk- 150GB (min)
 - Processor- 1.5GHz (min)

3.3 Use Case Modeling and Description

A use case model is a graphic description of the interactions among the elements of a system. A use case is a methodology used in system analysis to identify, clarify, and organizing system requirements. Figure 3.2 shows the use case modeling of the application.

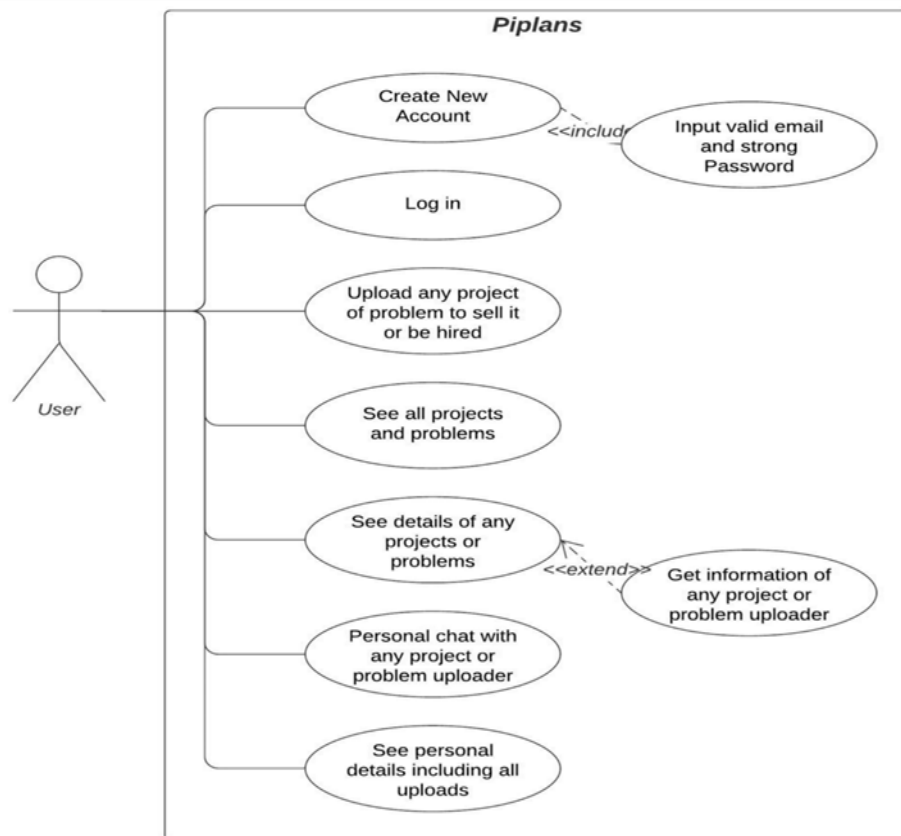


Figure 3.2: Use Case Diagram

3.4 Use case details:

Table: 3.1: Use case of S Create New Account

Use case name	Create a New Account
Use case details	Every user has to register to use this application.
Pre-condition	Input a valid email and strong password and otherwise, the account will not be created.
Actor	“User”
Post-condition	

Table: 3.2: Use case of Upload any projects or problems to sell it or be hired

Use case name	Upload any projects or problems to sell it or be hired
Use case details	User can showcase their developed projects or submit any desired problems.
Pre-condition	
Actor	“User”
Post-condition	

Table: 3.3: Use case of Share Post

Use case name	See details of any project or problems
Use case details	Users are allowed to check out every detail of any project or problem so that he/she can proceed forward.
Pre-condition	
Actor	“User”
Post-condition	Get information about any project or problem uploader

CHAPTER 4

Design Specification

4.1 Front-end Design

There are two parts of an android app: the design part (XML) and the back end (Java & database). The design part is visible to the users and while using the app the user interacts with it and is written in using XML.

4.1.1 Splash Screen

The app starts with a splash screen with the logo of the app first, then the login procedure starts. Users must input the correct email and password to be logged in. For the new users, the user must sign up first.

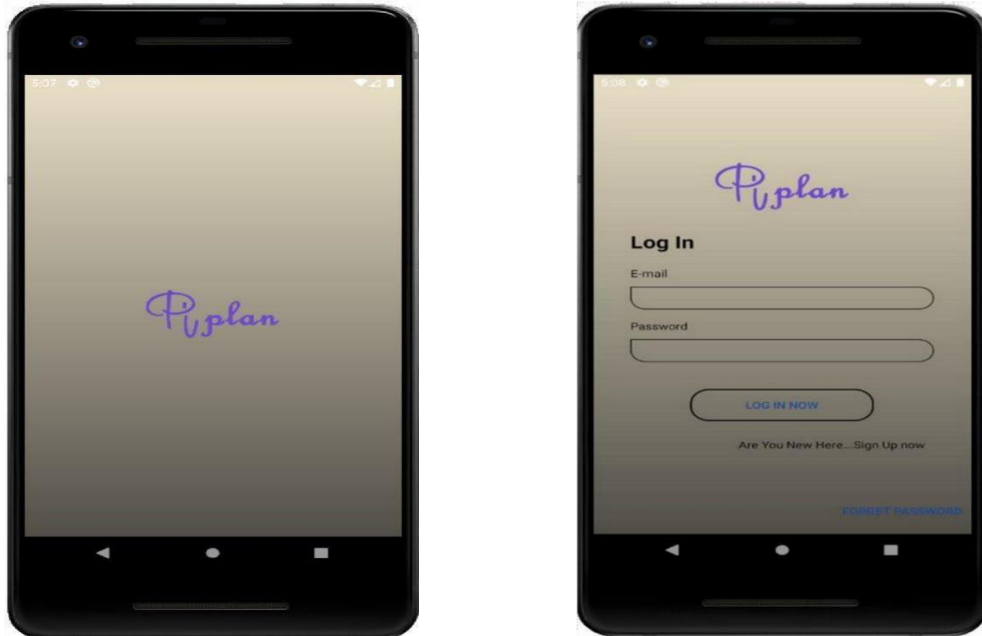


Figure 4.1: Splash Screen and login option

4.1.2 Sign Up Form

Every user must submit their personal basic information to be signed up with this app. The information is required to connect with the user again. The information is all about his/her name and designation with organization, contact information, personal information. Name and designation with the organization will allow other users to be confirmed about the capability of this user to complete or solving any problem. On the other hand, the contact information will let another person contact him/her.

While creating a new account a new user must input an exactly valid email. If the system finds the email invalid it will warn and not proceed. Besides that, the system also requires a strong and long password to allow the user for creating a new account.

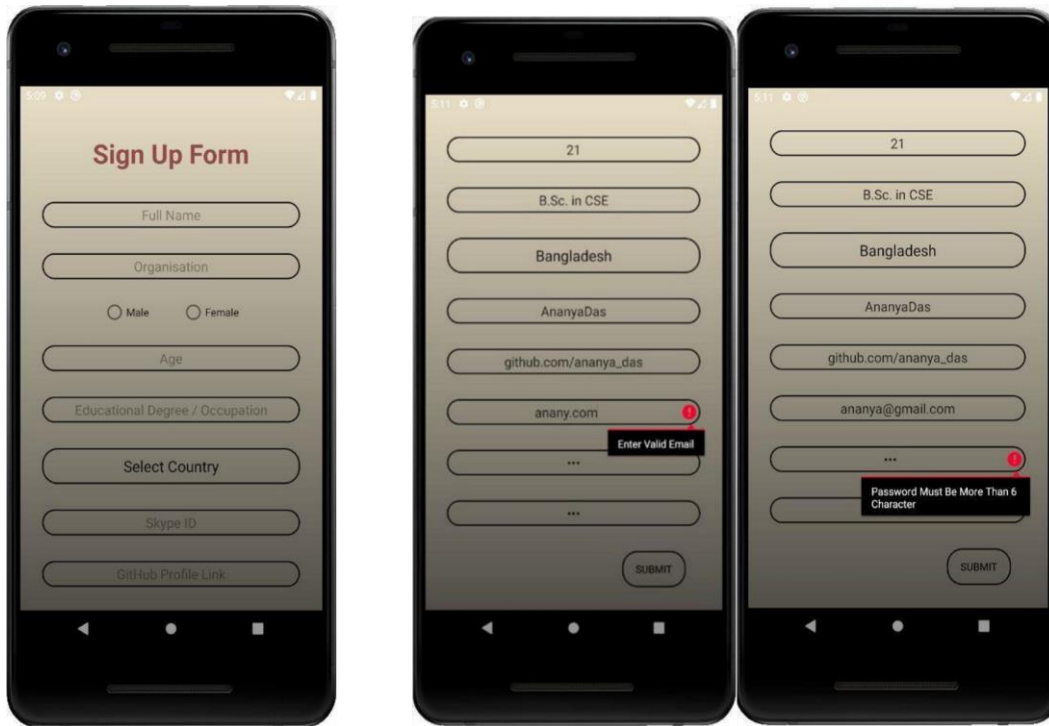


Figure 4.2: Sign Up Form

4.1.3 Log In

After creating a new account user must log in to get the complete service of the application. During being logged in the user needs to input his/her registered email and password. If the email and password do not match it will not allow the user to be logged in. The 'login' activity is the very first activity of the application. From this activity, the developed app has a user-friendly interface.

Users can interact easily with the interface throughout the whole app.

As the creating new account process, the email has to be formatted wrong the system will warn the user, and the though while creating the account user must select a strong password so that here if the password is not strong the system will also warn. Thus the user cannot make mistake in the subconscious mind.

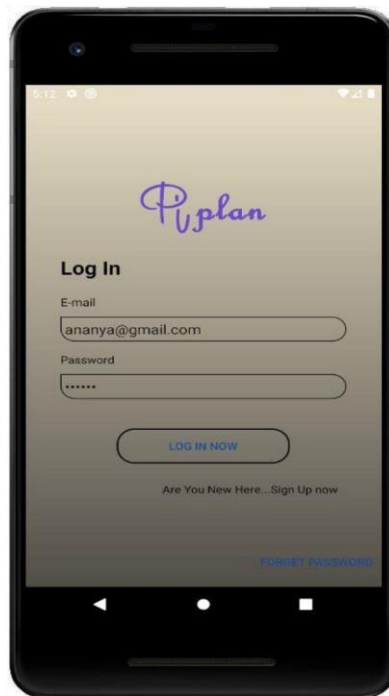


Figure 4.3: Log in Process

4.1.4 Home Page

The home page is designed to complete the main purpose of the application. This activity shows every list of projects and problems. If any new project or problem be found the page will show that in the category. Any client will find projects from here and any developer can find problems here to develop. The projects and problems aligned side by side. So that any user can swap easily.

The page also contains 3 buttons and they are.

1. Message button
2. Add Project or Problem Button
3. Details Button

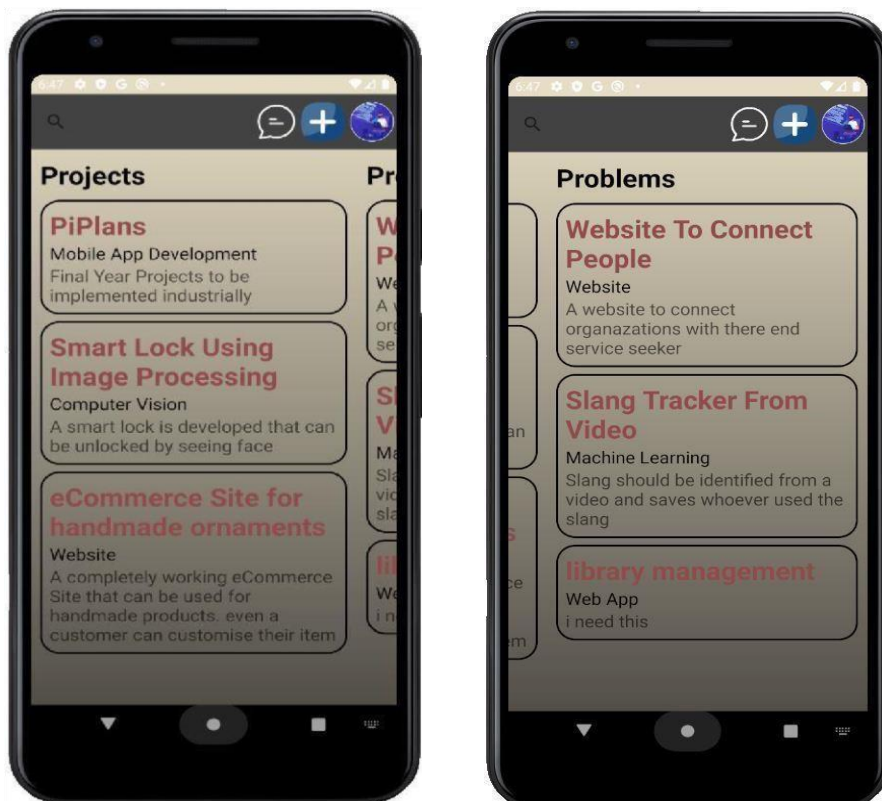


Figure 4.4: Home Page

4.1.5 The Header

The header contains 3 buttons on the home page. The buttons have three different purposes.

1. Message Button: This button will allow users to check messages. The new messages and all messages are arranged differently.
2. Add Button: The Add button will allow users to add a new project or problem. If any user wants to add a new project or problem this button will lead toward the form that to fill up to add new.
3. Options Button: This button gives some more options like “Go To Profile”, “About” and “Log Out”.



Figure 4.5: The Header

4.1.6 Message Button

The message button will allow users to check messages. If any client wants to buy any project or any developer wants to work for any client anyone can send a message and

the other one will check that. If there is any unread new message the message symbol will show an extra circle that says that new messages are waiting.

Except that the message button will show all messages.

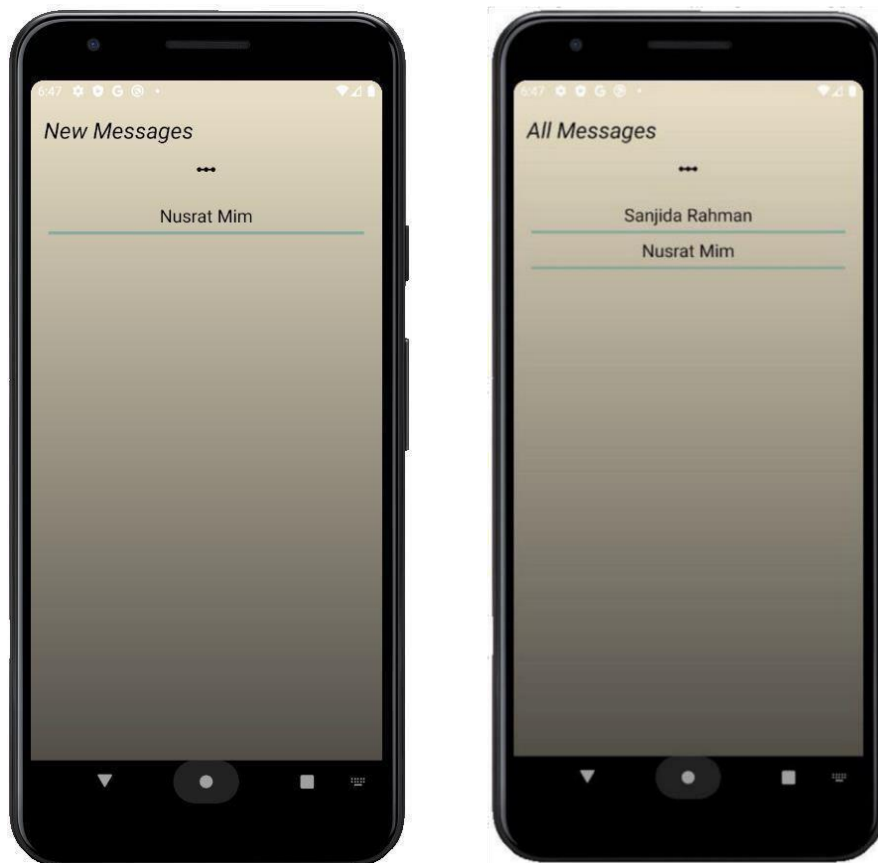


Figure 4.6: Message Details

4.1.7 Personal Chat

To make any deal perfectly users must talk to each other. That is why our developed system is embedded in a messaging system. If any project is liked by any client to buy or any problem is liked by any developer to develop then visiting other's profiles anyone can make new messages.

The new message will be entered into the message list of that other user. Thus anyone will be able to meet with each other at any time after the first conversation.

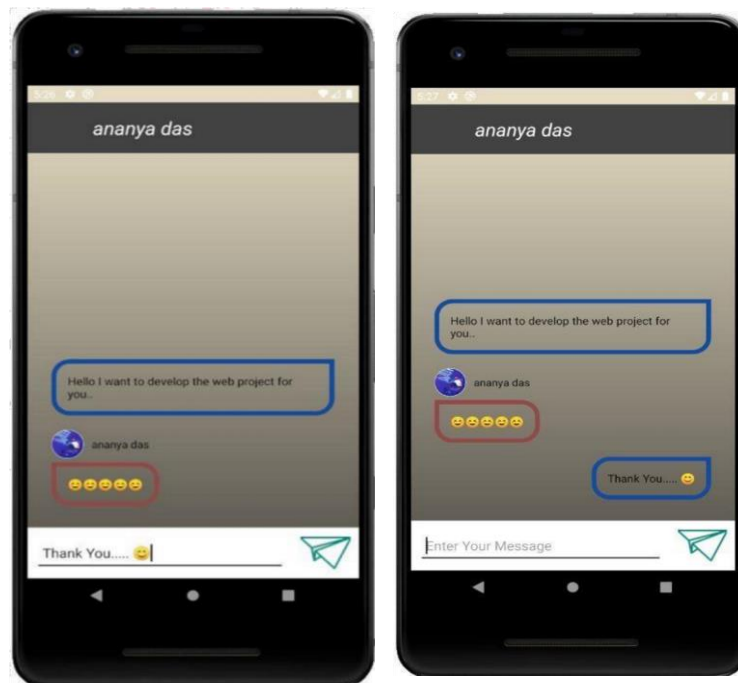


Figure 4.7: Personal Chat

4.1.8 Add Button

The Add button will allow users to add a new project or problem. Users can choose “Upload A

Project” or “Submit A Problem”. As per their choice, a different form will be shown The forms are designed to get proper information about the project or problem.



Figure 4.8: Choice to upload a project or problem

The project uploading form will require every detail related to the project. Like the Title, Category, Short Description, Detailed Description, Programming Language, Database, Framework, etc.

These all will help any client to have a proper concept about the project.

On the other hand, the Submitting Problem form will require Title, Short Description, Detailed Description, and the process of making the deal. Thus any developer will get enough information about what to do. If any developer is agreed to work with, he/she can direct message the client to be hired or to sell a project for one time.

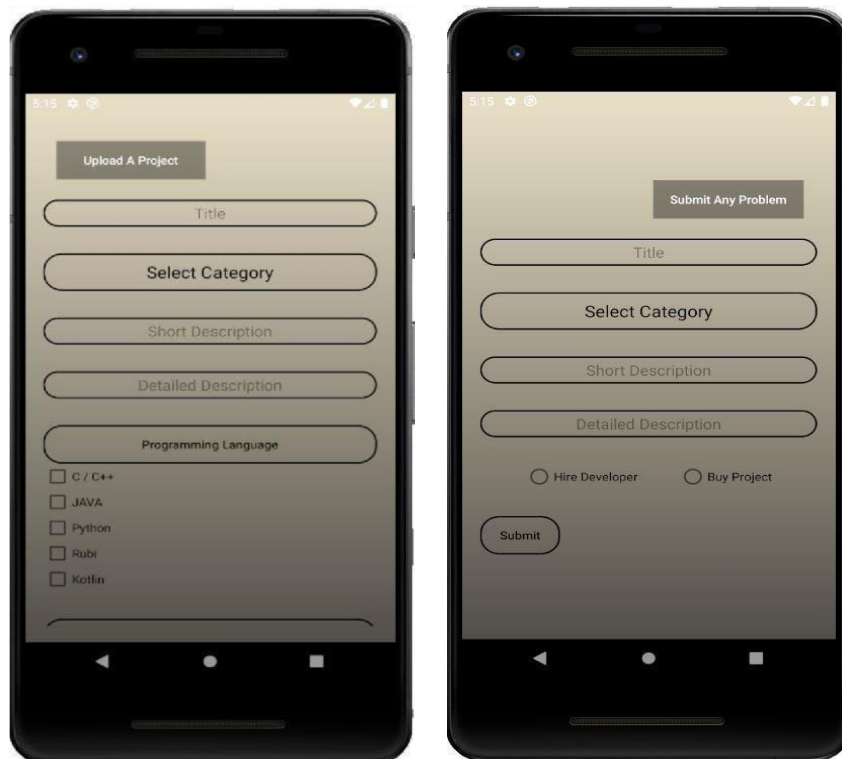


Figure 4.9: Forms for uploading project and submitting a problem

4.1.9 Options Button

The options button will lead to various options related to the app. There are 4 options.

1. Go To Profile: The user will be able to visit his/her profile. Every single detail will be shown in the profile
2. Setting: Settings option is about changing language.
3. About: The basic information about the app will be shown.
4. Logout: To change the account, the user can log out from here.

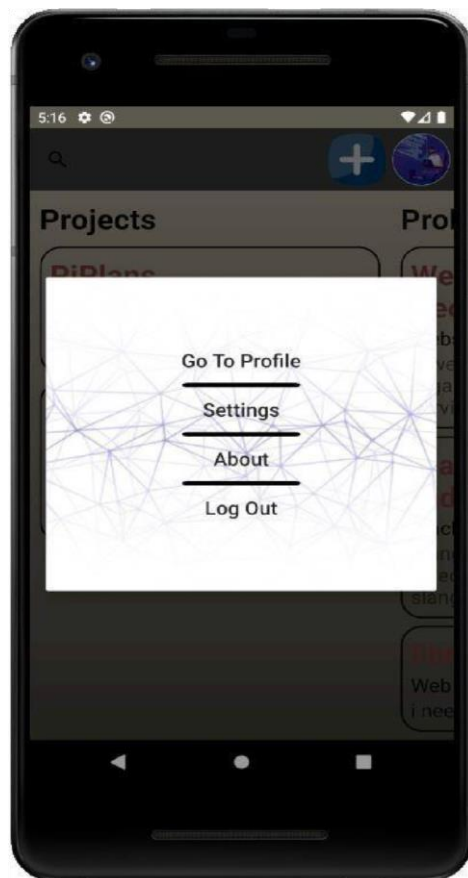


Figure 4.10: Options Button's view

4.1.10 About

The basic information of the app related to the app will be shown here. This information will help users to know about the app and the developer of that can increase trust.

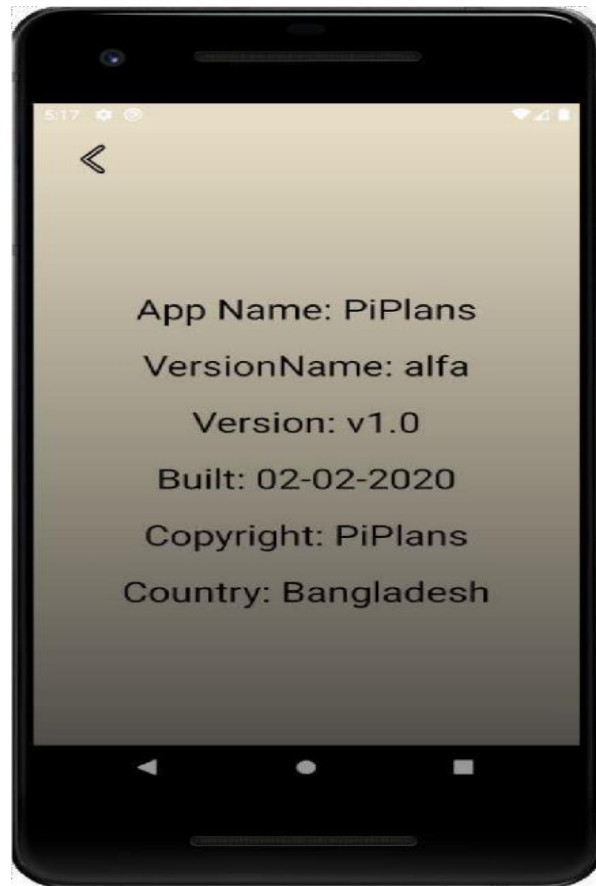


Figure 4.11: About the App

4.1.11 Profile

A user must keep track of his/her activity and the profile activity will show that. A personal profile will not only show the basic information like name age etc but contains which projects or problems are uploaded by himself/herself.

The profile is one of the most important activities in this app.

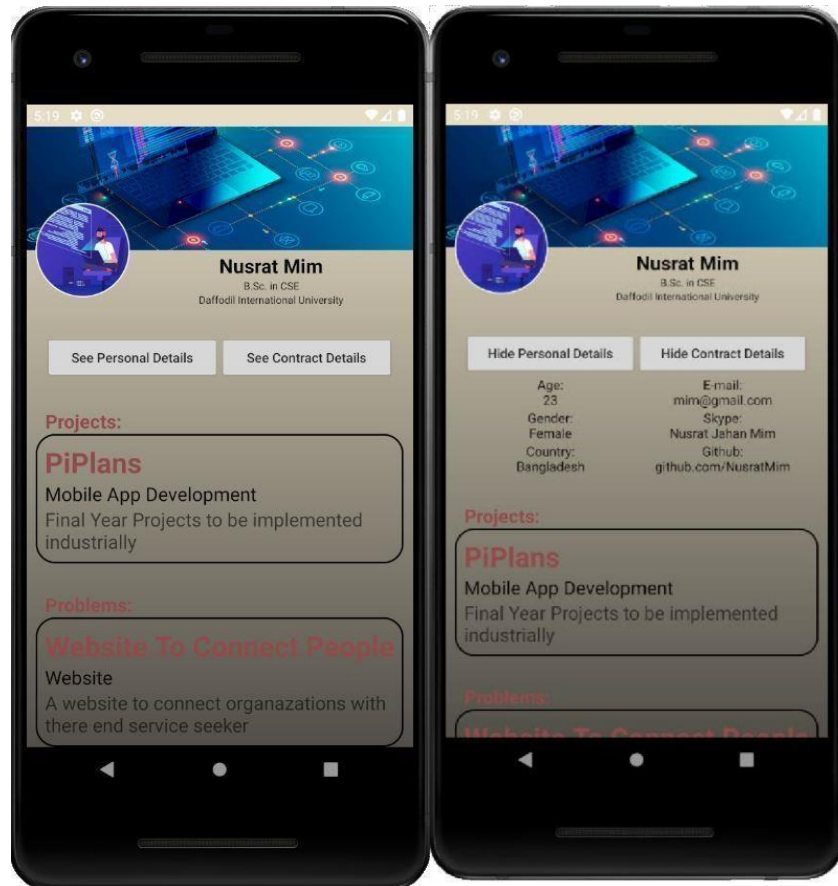


Figure 4.12: View Other's Profile

4.1.12 Project and Problem View

From the home page or profile, the list of projects and problems are shown. If any client likes any project or problem and wants to learn more about the project or problem he/she can click on the project or problem to go to the details of that project or problem. Clicking any specific project or problem with the project view or the problem will be opened. The project view is designed to show the details of an uploaded project. Same as the problem view shows the important information related to problems.

From a project view, the developer of the project is displayed and any client can easily find the developer and message to get the project in detail. Same as a developer can find the problem uploader to work with.



(1)



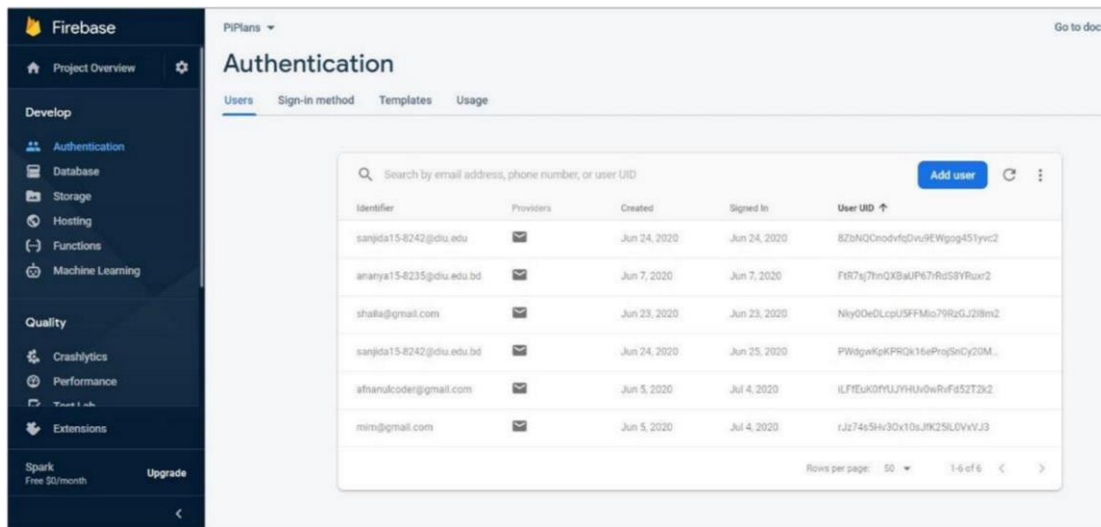
(2)

Figure 4.13: Project (1) and Problem (2) View

4.2 Back-end Design

Behind the UI, back-end works here where a user can't see that portion at all. Back-end allows implementing functionality such as backing up user data to the cloud, serving content to client apps, real-time interactions, sending push notifications through Google Cloud Messaging for Android (GCM), and more [4]. Here we are using the firebase database, which is based on a cloud-hosted database. People who are using our application or verifying it into our app are shown in the table.

Fig. 4.14 is showing the list of users with email and password. This part is called Firebase Authentication that works to be logged in.



The screenshot shows the Firebase Authentication console. The left sidebar contains navigation options: Project Overview, Develop (Authentication, Database, Storage, Hosting, Functions, Machine Learning), Quality (Crashlytics, Performance, Extensions), and Spark (Free \$0/month, Upgrade). The main content area is titled 'Authentication' and has tabs for Users, Sign-in method, Templates, and Usage. The 'Users' tab is active, displaying a table of users with columns for Identifier, Providers, Created, Signed In, and User UID. A search bar at the top of the table allows searching by email address, phone number, or user UID. There is an 'Add user' button and a refresh icon. The table contains 6 rows of user data.

Identifier	Providers	Created	Signed In	User UID
sanjida15-8242@diu.edu	📧	Jun 24, 2020	Jun 24, 2020	BZMnQOndvfgDvu9EWgq451yvc2
anarya15-8235@diu.edu.bd	📧	Jun 7, 2020	Jun 7, 2020	FRT7s7InQXBaUP67RdS8YRue2
shaha@gmail.com	📧	Jun 23, 2020	Jun 23, 2020	Niy0DeDLcpJ5FFMio79RzGJ28m2
sanjida15-8242@diu.edu.bd	📧	Jun 24, 2020	Jun 25, 2020	PW8peKpKPRQk16eProgShCy20M...
afnanucoder@gmail.com	📧	Jun 5, 2020	Jul 4, 2020	ILFEuk0fYUJYHU0wRyfA52T2s2
mim@gmail.com	📧	Jun 5, 2020	Jul 4, 2020	rJz74sHv30x10uJk25L0VVJ3

Figure 4.14: User Information for Authentication

Fig. 4.15 complete database. Here we have used Problems table, Projects table, User List Table, and chats table.

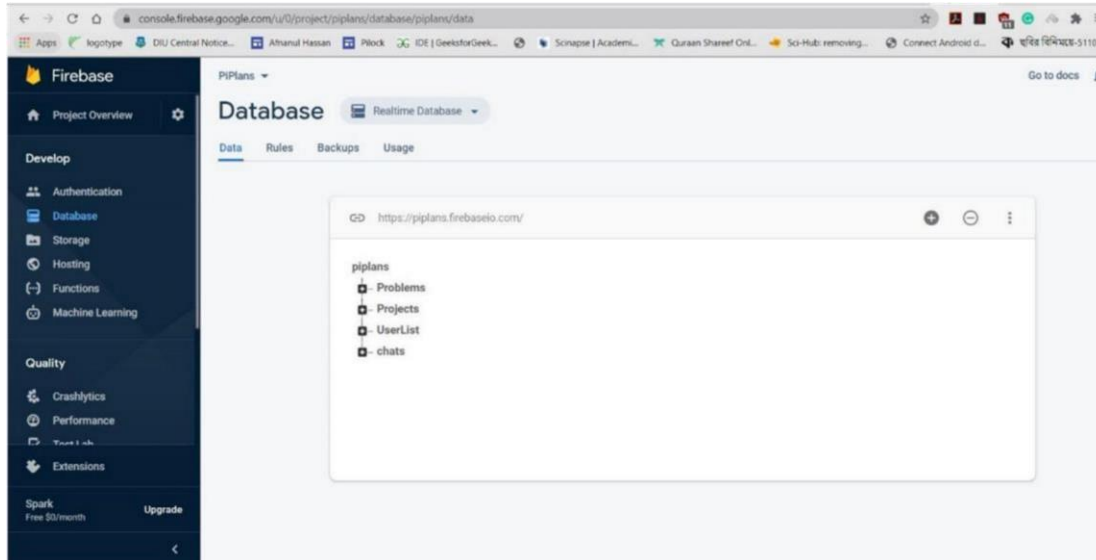


Figure 4.15: Complete Database

Fig. 4.16 details of the problems are stored in this table. Here data are stored as a tree. Every leaf is a value with key and every problem is identified with a different unique id.

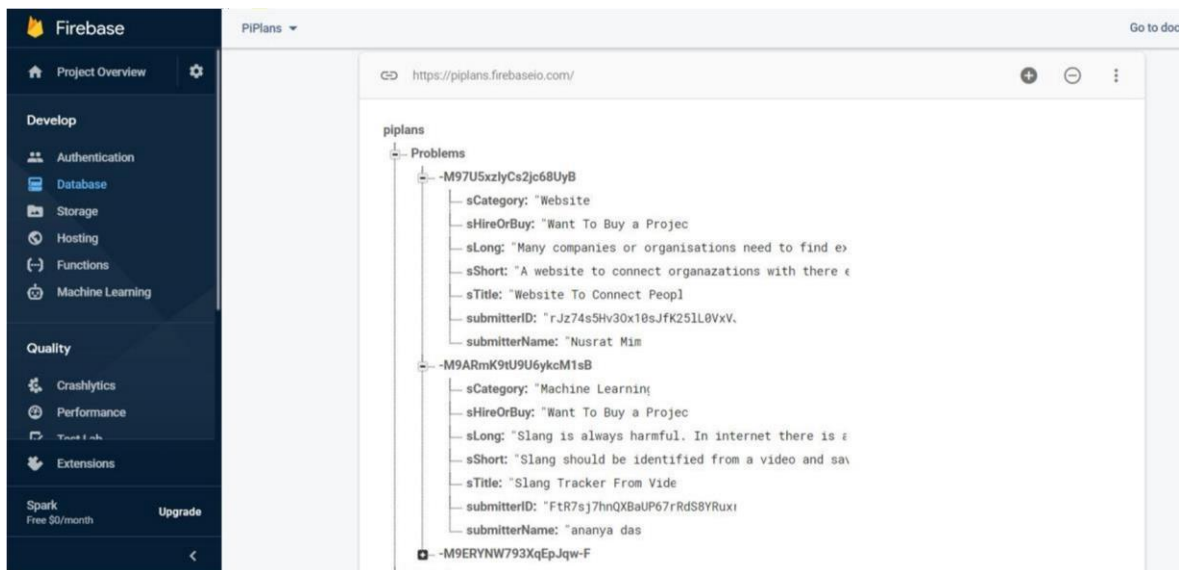


Figure 4.16: Details of every problem.

Fig. 4.17 shows the details of the projects are stored in this table. Here data are stored as a tree. Every leaf is a value with key and every project is identified with different unique ids.

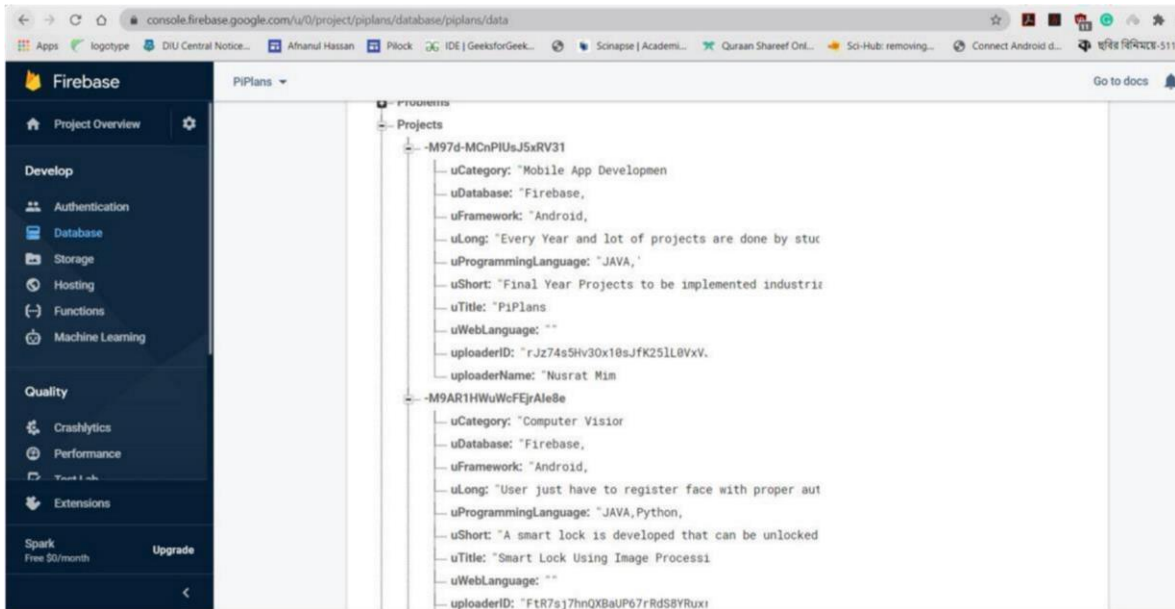


Figure 4.17: Details of every project

Every detail of users must be stored for further use. The following Fig. 4.18 is showing how the data is stored.



Figure 4.18: User Information Details

To contract with client and developer a chat system is included and every message is stored in Fig. 4.19

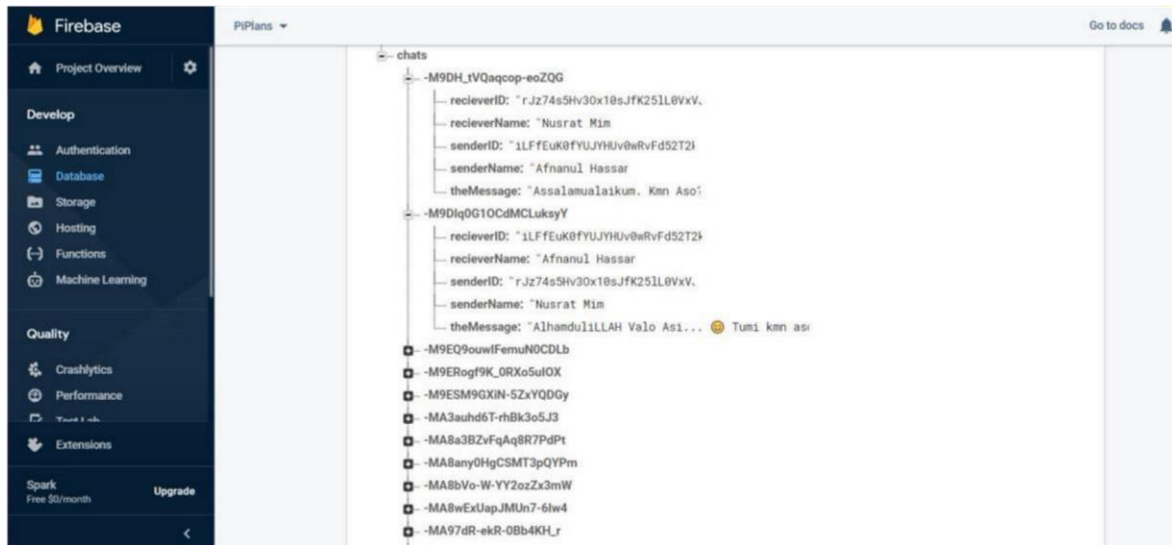


Figure 4.19: Chat of every person

4.3 Implementation Requirements:

The technology used as follows:

Programming Languages: JAVA, XML.

Framework: Android

Database: Firebase

CHAPTER 5

Implementation and Testing

5.1 Implementation of Database

In this project, we use a firebase database to store, retrieve, and so on in the database. Here data is stored in JSON formats (as JSON objects), and any changes in data reflect immediately by performing sync across all the devices & platforms. We applied three systems in the database, and they are storage, real-time database, firebase authentication.

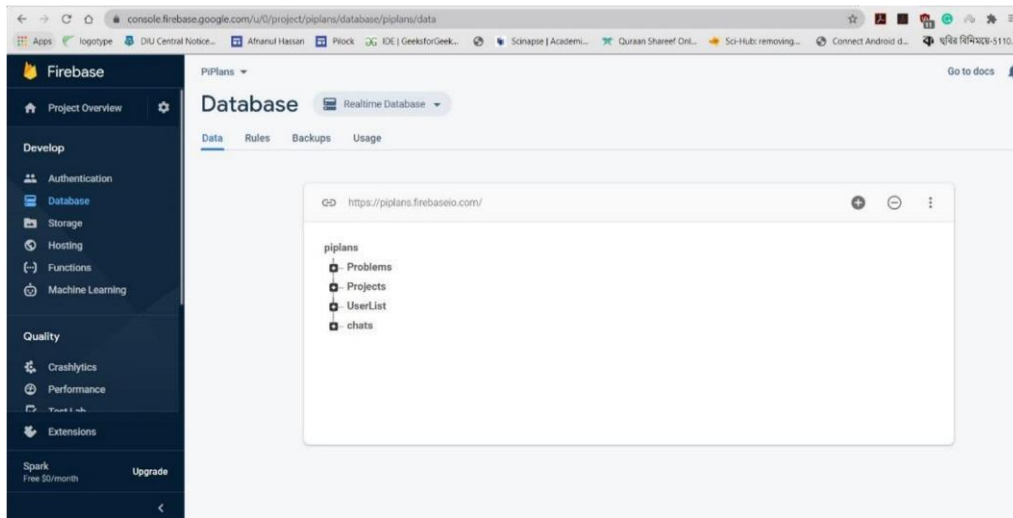


Figure 5.1: Collection of Database

5.2 Implementation of Interaction

Implementation of interaction means how easily a user can interact with the app. We have implemented our app system with a quickly reactive UI. It will make sure of a better user experience. We used some familiar icons, text view, button, spinner, etc. As

it is understandable and beautiful UI so the users will be able to communicate with the app easily.

5.3 Testing Implementation

In Android, there are three types of tests. Local Unit test, Instrumentation test, and Ui tests. A local unit test is run on your local computer on the machine that has an android studio installed on it, and they are using the JVM for short it's using Java on your computer they are very fast because you don't need an emulator or anything to do with. These are the type of tests used to test code logic (raw java code logic-based test). To extend your test capabilities by integrating test frameworks such as Mockito to test Android API calls in your local unit tests.

CHAPTER 6

Conclusion and Future Scope

6.1 Discussion and Conclusion

The project is finished with the help of XML, Java, and Firebase database. People can use it from anywhere by using a smartphone with the help of an internet connection. The system is designed to aid both developers and clients. It saves time for development, and idle works of any developer can have proper worth. The system is user friendly so that every desired option is included in the system that makes everyone happy while using.

6.2 Scope for Further Developments

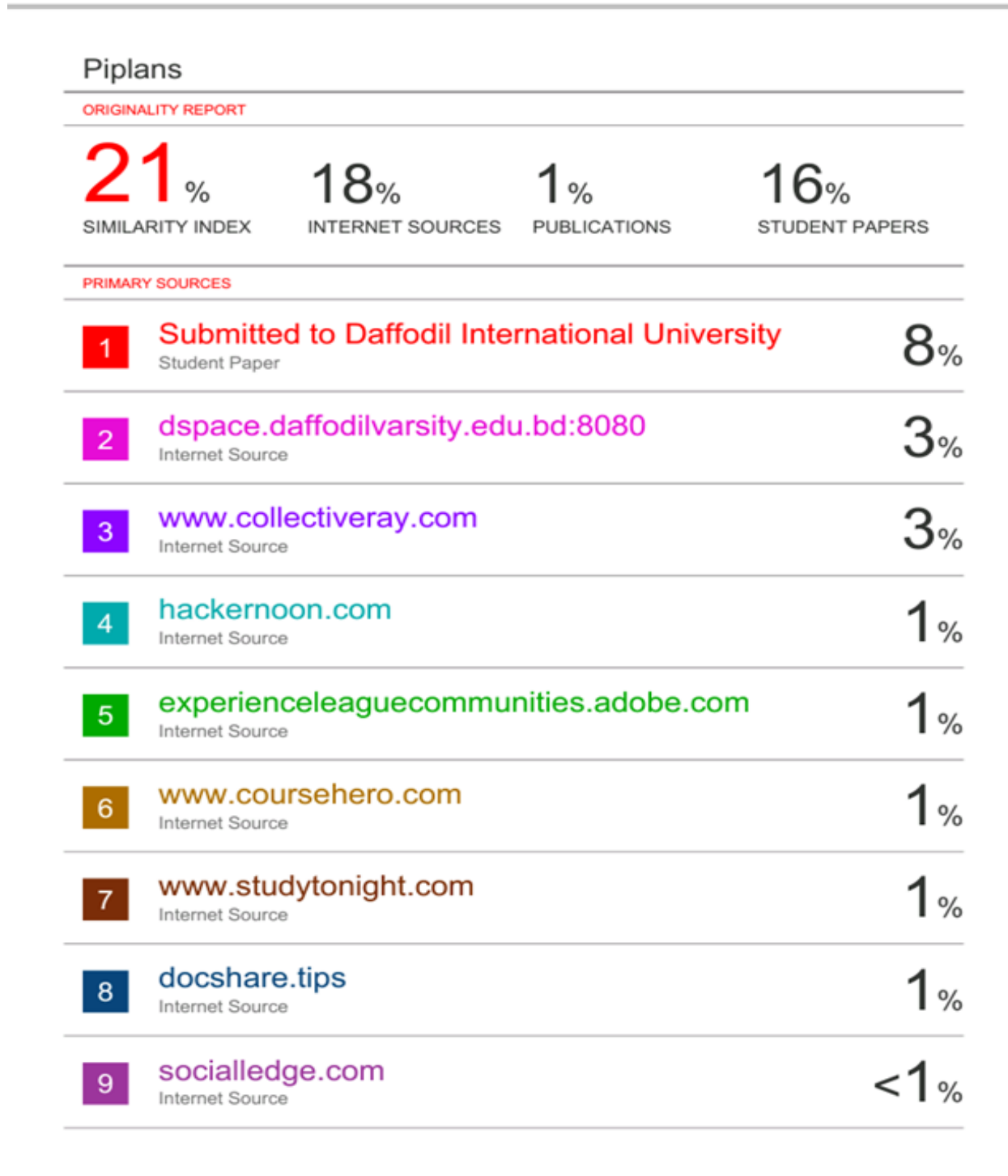
It is already a user-friendly application, but in the future, we are thinking about adding some more features to make this application more user friendly. There are some limitations in our use which we can come up with some betterment like

- ✦ Adding a video of the projects.
- ✦ AI-based searching for a client or developer
- ✦ Except messaging an online phone call system.

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