“REWARD POINTS SYSTEM” APPLICATION FOR ANDROID OS

BY

KAPIL CHAKMA

ID: 162-15-8131

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

Supervised By

Rubaiya Hafiz
Sr. Lecturer
Department of CSE
Daffodil International University

Co-Supervised By

Nusrat Jahan
Sr. Lecturer
Department of CSE
Daffodil International University

DAFFODIL INTERNATIONAL UNIVERSITY
DHAKA, BANGLADESH

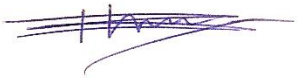
May 2021

APPROVAL

This Project titled **"Reward Points System Application for Android OS"**, submitted by Kapil Chakma, ID: 162-15-8131 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 (BSc) and approved as to its style and contents. The presentation has been held on 03/06/2021.

BOARD OF EXAMINERS

Chairman



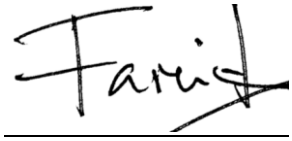
Dr. Touhid Bhuiyan
Professor and Head
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Gazi Zahirul Islam
Assistant Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

Internal Examiner

Raja Tariqul Hasan Tusher
Senior Lecturer
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

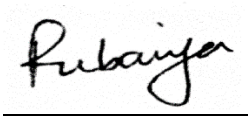


Dr. Dewan Md. Farid **External Examiner**
Associate Professor
Department of Computer Science and Engineering
United International University

DECLARATION

I hereby declare that, this project has been done by us under the supervision of **Rubaiya Hafiz, Sr. Lecturer, Department of CSE,** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

Supervised by



Rubaiya Hafiz
Sr. Lecturer
Department of CSE
Daffodil International University

Co-Supervised By

Nusrat Jahan
Sr. Lecturer
Department of CSE
Daffodil International University

Submitted by

Kapil Chakma
ID: 162-15-8131
Department of CSE
Daffodil International University

ACKNOWLEDGEMENT

At first, I express my heartiest thanks and gratefulness to almighty God for His divine blessing makes me possible to complete the final year project successfully.

I really grateful and wish my profound my indebtedness to **Rubaiya Hafiz**, **Sr. Lecturer**, Department of CSE, Daffodil International University, Dhaka. Deep Knowledge & keen interest of my supervisor in the field of "*Android App Development*" to carry out this project. Her endless patience, scholarly guidance, continual encouragement, constant and energetic supervision, constructive criticism, valuable advice, reading many inferior drafts and correcting them at all stage have made it possible to complete this project.

I would like to express our heartiest gratitude to **Dr. Touhid Bhuiyan**, **Professor and Head**, Department of CSE, for his kind help to finish our project and also to other faculty member and the staff of CSE department of Daffodil International University.

I would like to thank entire course mate in Daffodil International University, who took part in this discuss while completing the course work.

Finally, I must acknowledge with due respect the constant support and patients of parents.

ABSTRACT

This app named "**RewardPoints**" is an android mobile application where people can post any article, like & comment on others post, follow each other, redeem their points and also invite their friends. There are mainly two different surfaces in the app. The one is for the registered users who can write article and post in the app, can like and comment others posted articles, can react others posts, can search and follow others and also invite friends with their own specific invitation code. Mostly all activities of an users connected with a point system and they can get some points as a reward point by doing those activities. At the end, the registered users can redeem their points whenever they want through local payment gateways. Another surface is for the admin where the admin can add, edit, delete, update user's info – points as well as posts, manage users redeemed points etc. by editing back-end codes.

TABLE OF CONTENTS

LIST OF FIGURES

LIST OF TABLES

TABLE **PAGE**

CHAPTER: 1

INTRODUCTION

1.1 Introduction

RewardPoints mobile app is basically build for android mobile users where they can earn rewards by doing simple social tasks. User can easily use the app anytime and anywhere they want. They only need an internet connection in their mobile phone to use the app and earn rewards. It is one kind of social networking app which allow users to publish article, to like those articles, commenting on articles to express opinion of users, to invite others in the app by using unique invitation code. It also allows to follow each other and get reward points. The reward points are the main attraction of the app which are redeemable to cash directly via local payment gateways.

1.2 Motivation

In this modern era internet is going to be an essential part of our daily life. People are using internet everyday with their smartphone, some are using for communication, some are using for entertainment, some are using for business purpose etc. I have decided to made this **RewardPoints** app for my final project and tried to attach some valuable features in it. The use cases of the app are very simple. The app allows users to post articles whatever they want. Users have chance to gather reward points by simply using it and performing some tasks within couple of minutes. By spending few times in the app, users can gather reward points and finally they can redeem those points to cash. I have a lot of planning based on this app in the future and hopefully I will do.

1.3 Objective

The main objective of my app is to make people writing article online, express their creativity through writing, connect each other and make them rewarded.

1.4 Expected Outcomes

- Users can open an account by using their mobile number
- Users can write articles and get reward points
- Users can give opinion by commenting on articles and get reward points

- Users can hit like on articles and get reward points
- Users can search articles and follow each other's
- Users can invite friends and others with unique invitation code to get reward points
- Users can redeem reward points to cash via local payment gateways
- Owner can earn revenue from advertisement

1.5 Layout of the Report

In chapter one, I introduced the mobile app **RewardPoints** and described motivation, objective & expected outcome.

In chapter two, I will examine Background and challenges. Also discuss the related works, scope and comparison.

In chapter three, I will examine the Requirement Specification. I will also discuss the requirement collection, analysis, business mode and use cases.

In chapter four, I will explore the Design Specification.

In chapter five, I will present the implementation and testing of the complete project.

Finally in chapter six, I will explore the Summary and Conclusion.

CHAPTER: 2

BACKGROUND OF THE STUDIES

2.1 Introduction

This is the project which allows user to get reward by writing articles and also performing some other activities. In this part, I will discuss some important issues with this project like; the similar app in the market, regarding competitors, problems and also challenges. I have tried to make the app very user friendly for the users. For designing and development, I used Kodular native components and code blocks. Firebase is the most popular database in the world right now, that's why I am using Firebase for real time database.

2.2 Related Work

To complete my project, I am following some android applications and those are given bellow:

Application names:

- Premise [3]
- Writco [6]
- Quotes Donut [5]
- Do Your Thng [4]

I am following them for some specific part on my app are given bellow:

- Creating Post or Articles
- Points System
- Reward System
- Referral System

2.3 Comparative Studies

Before making the app, I have tried to find out some rewarding apps that's are doing well in the market. I have researched regarding those app features, audiences, targeted regions as well as their marketing strategy. I found that the maximum audiences are international and the features are also set up for whole users in the world. So, in my app I tried to add those features which are user friendly and which are comfortable for my audiences.

The main thing is that, the app is only made for based on Bangladeshi audience. So that the features like; payment gateways and the rules are basically developed according to local environment.

2.4 Scope of the Problem

My app has some features that make a difference to other app in the market. Some are:

- No limitation of writing article
- Can spread the network by inviting
- Can get reward easily
- Can redeem reward on local gateways

2.5 Challenges

Users no need to look back after using the app because of friendly UI and the smooth features. To increase users' satisfactions, I tried to put maximum reward points in every appropriate feature's options.

For every user, there are a support providing option where they can easily contact support any time whenever they face any kind of problem. All the kind of support regarding the app users can reach out officially via email.

CHAPTER: 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Business process modeling is the graphical representation of a company's business processes or workflows, as a means of identifying potential improvements.[1] Here the Business Process Model shown for this project;

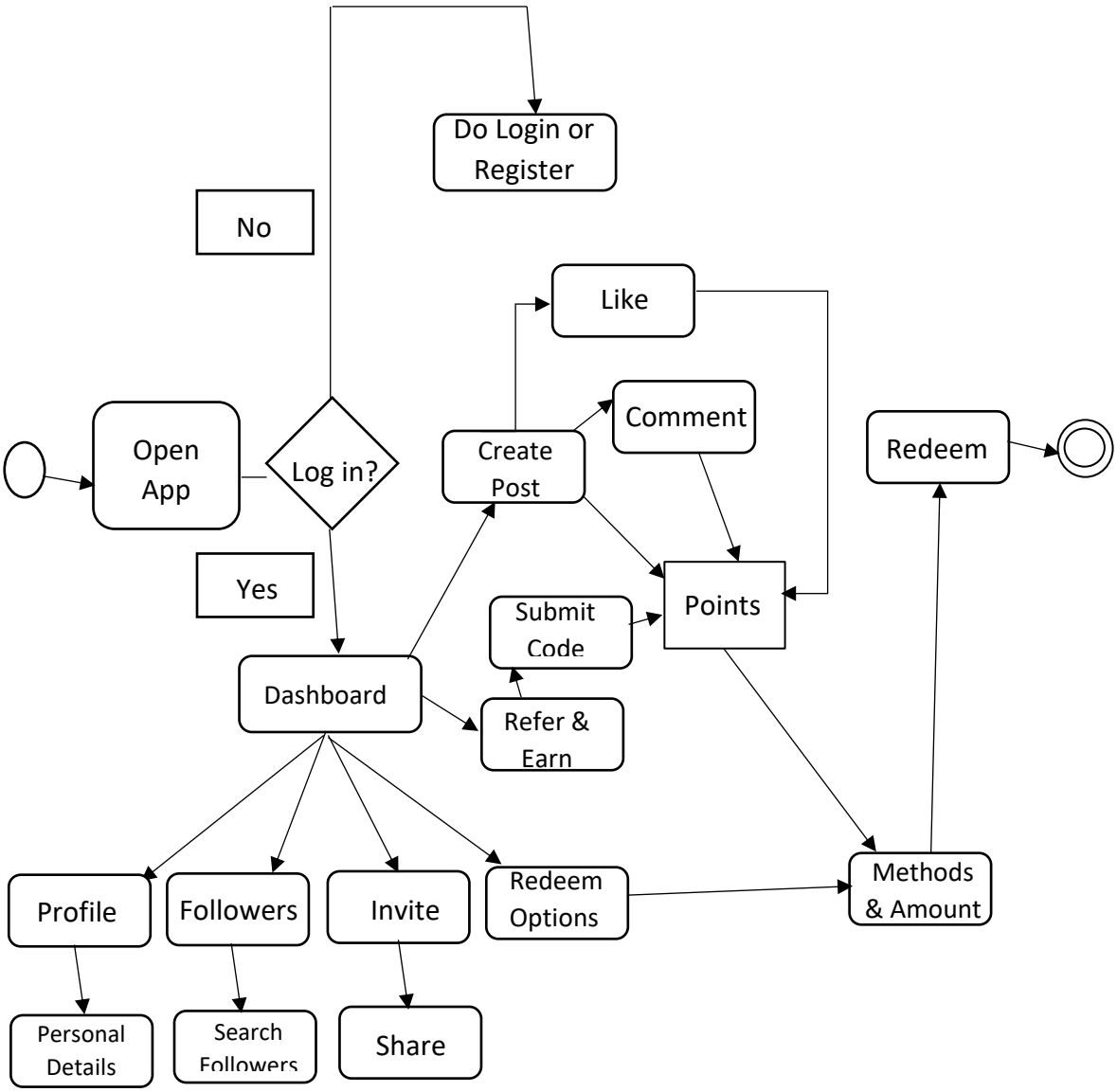


Figure 3.1.1: Business process

3.2 Requirement Collection & Analysis

This are the preliminary steps to the use improvement process. I tried to gather all the elements in a format so that I can identify the core requirements;

- Users can write articles
- Users can give opinion on articles
- Users can hit like on articles
- Users can follow each other's
- Users can invite friends
- Users can redeem reward points

3.3 Use Case Modeling and Description

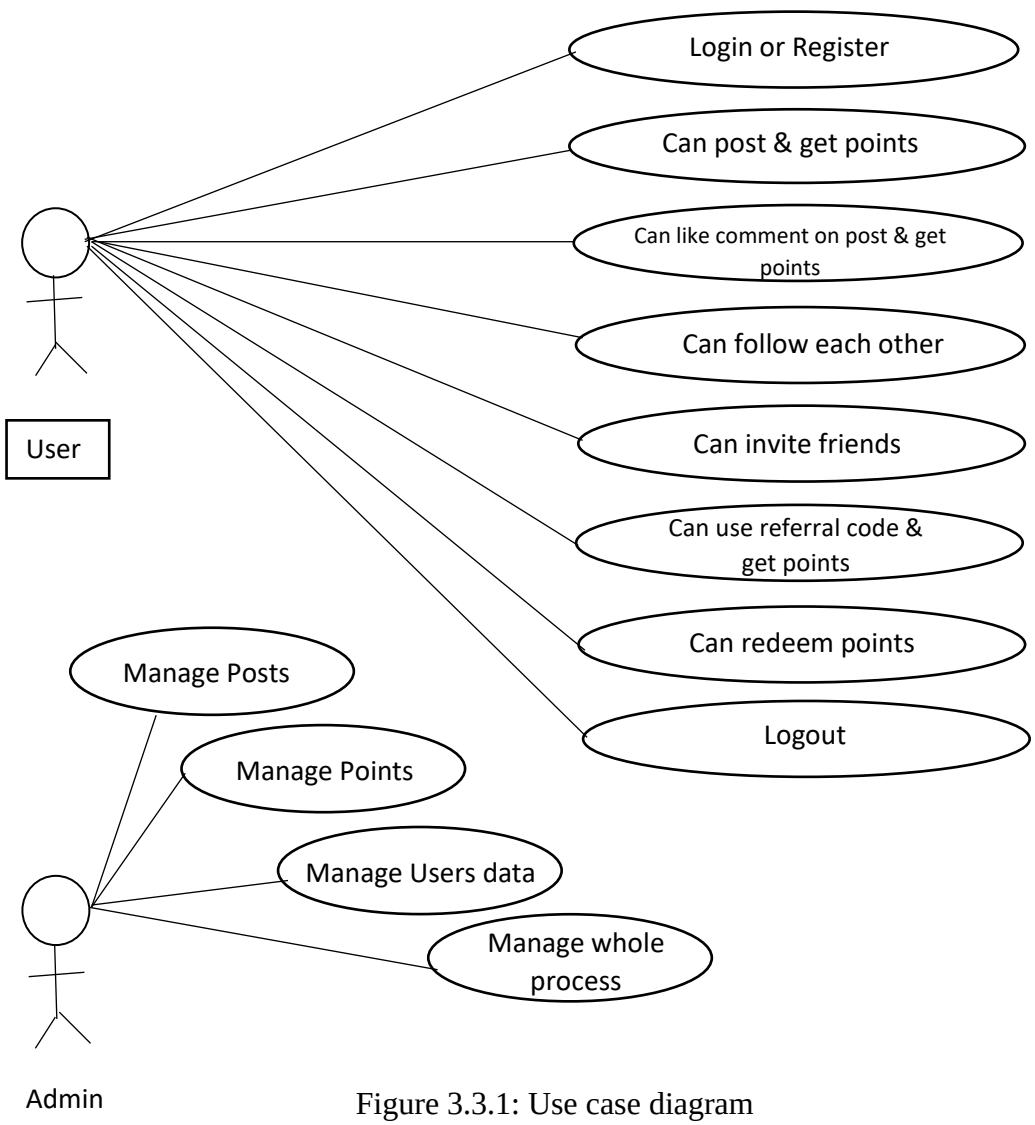


Figure 3.3.1: Use case diagram

3.3.1 User

Users have to register first with their name & phone number for access, then they need to login to enter inside the app. After login inside, they will be in post dashboard. Users can read articles and also write article with their account. They can also like post, express opinions and also react on the posted articles. There is a “invite friends” option, where users can invite their friends and family to use the app. Users can recommend others to use their unique invitation code to get some extra point both of them. Some of the features can help users to get free reward points, those are; posting article, liking articles, commenting on the posted articles and also inviting others. There also a support zone where user can send mail to the admin through this.

3.3.2 Administrator

The director or the administrator can control the whole process. An admin can;

- Manage posted articles
- Manage point system
- Manage user data
- Manage whole app process

If any user faces any problem, they can contact easily with admin by sending email. An admin evaluates their problems and try to solve them.

3.4 Logical Data Model

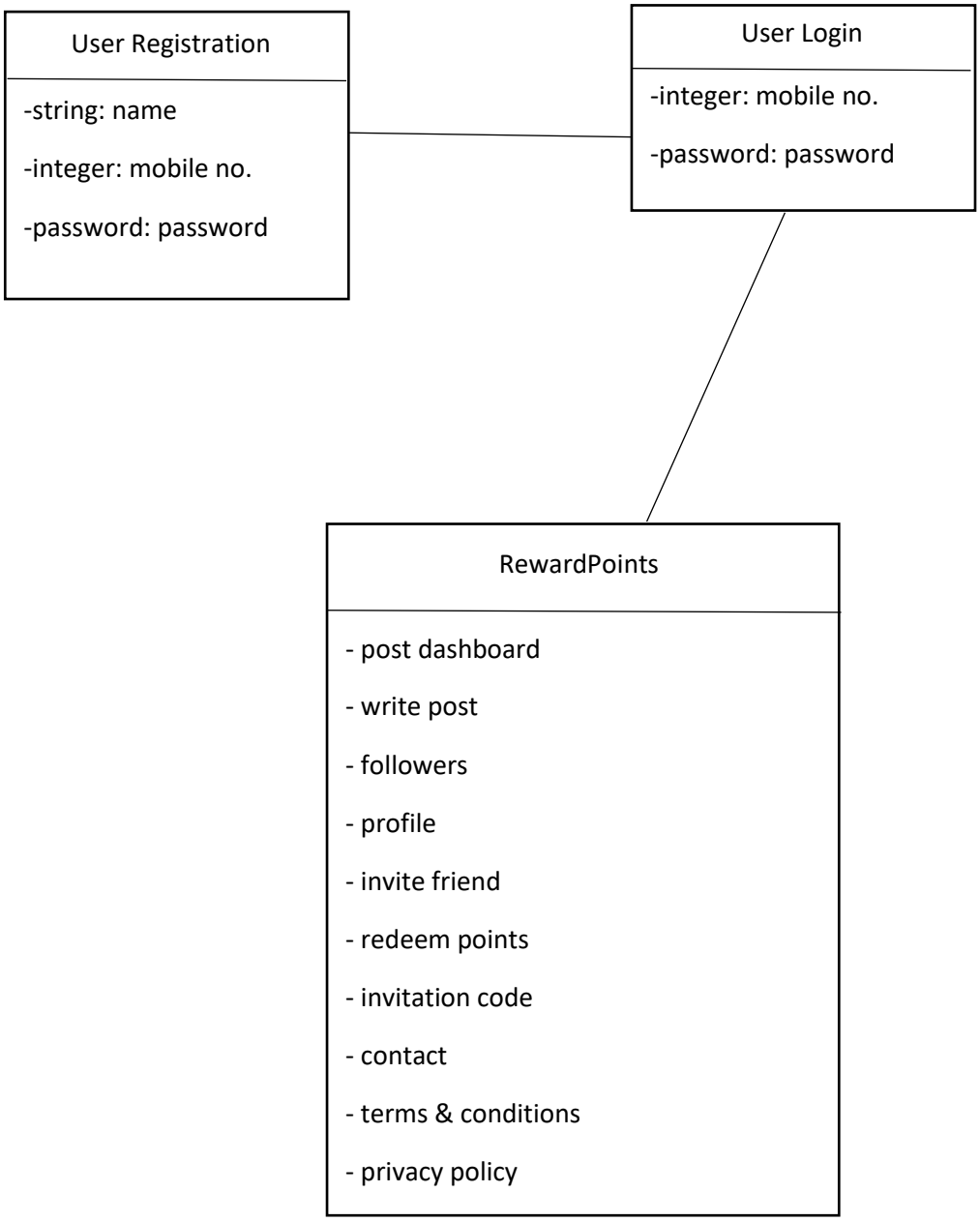


Figure 3.4.1: Logical Data

CHAPTER: 4

DESIGN SPECIFICATION

4.1 Design Specification

Design Specifications describe how a system performs the requirements outlined in the Functional Requirements. Depending on the system, this can include instructions on testing specific requirements, configuration settings, or review of functions or code.[2] In the design specification part, I attempt to exhibit the front-end and back-end format of the app.

4.2 User Specification

The specifications of users given bellow:

i. Write article to post & get reward points:

After login to the app, a user can write an article and post the article. User will be rewarded some reward points when he posts the article.

ii. Read articles, like, comment & get reward points:

User can read articles from the post's dashboard, can like and comment. User will be rewarded some reward points when he hit like and express opinion by commenting.

iii. Follow: User can follow each other

iv. Invite friends & get reward points:

The app allows users to invite friends via sharing invitation link. After invitation complete, they are both able to receive some reward points.

v. Redeem reward points:

User can redeem reward points at any time when the want and the app support local payment gateways to redeem points to cash.

4.3 Management Specification

The specifications of admin given bellow:

i. Manage posts:

An admin can manage posts from backend database, like; edit, add, delete etc.

ii. Manage points:

The app allows admin to manage the whole points system.

iii. Manage user data:

An admin can add and delete any user as well as can check the user data.

iv. Manage app database:

An admin can manage the whole database of the app. Can make any changes from firebase database as wanted.

v. Manage whole app process:

An administration manages the whole process of the app. Anything can be changes by the management team.

4.4 Front -end Design

The front-end of the app designed with Kodular native components. I used to design its components because it is very easy to use and easy find in short time. It has a rich ecosystem of plug-ins that anyone make any app design very easily. The front-end diagram for app improvement is all about what a user capable to see inside the app.

4.5 Back-end Design

The main strength of a project is back-end diagram capability and all the important activities are happened behind the scene in back-end. Usually, the user unable to see the back-end of any project, only the developer or admin can access the back-end system of an application. In this project, I used Kodular code blocks to develop the app in back-end. I

am used to with this amazing app development software and its amazing components. The back-end does whole thing that occurs in the back of the application and many elements are need to develop it. In the back-end I used Firebase as database of the app.

4.6 App Design

First of all, user open the app “RewardPoints” and enter in the welcome page. Then user have to click “continue” to go next. User can register from here providing username mobile number and if user already have an account, then he can switch to LOG IN.

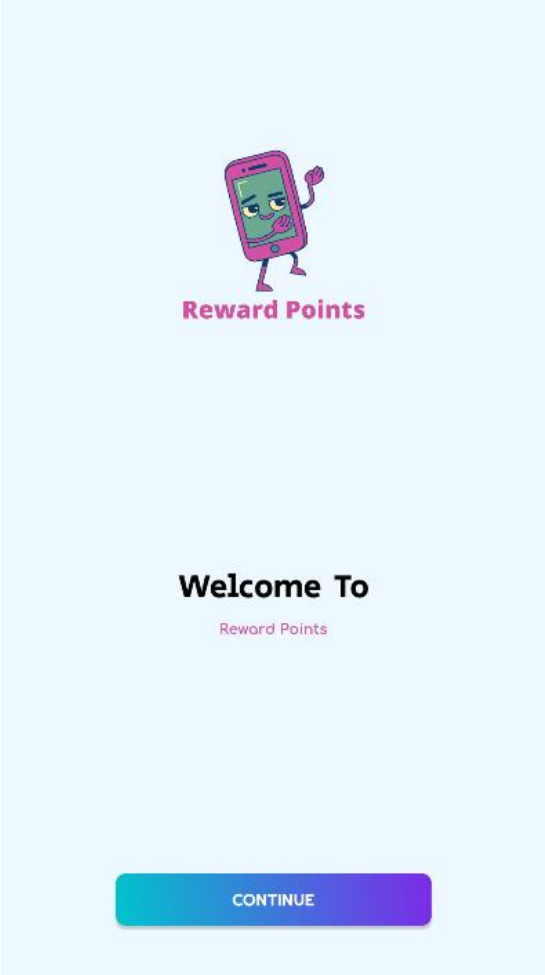


Figure 4.6.1: Welcome page

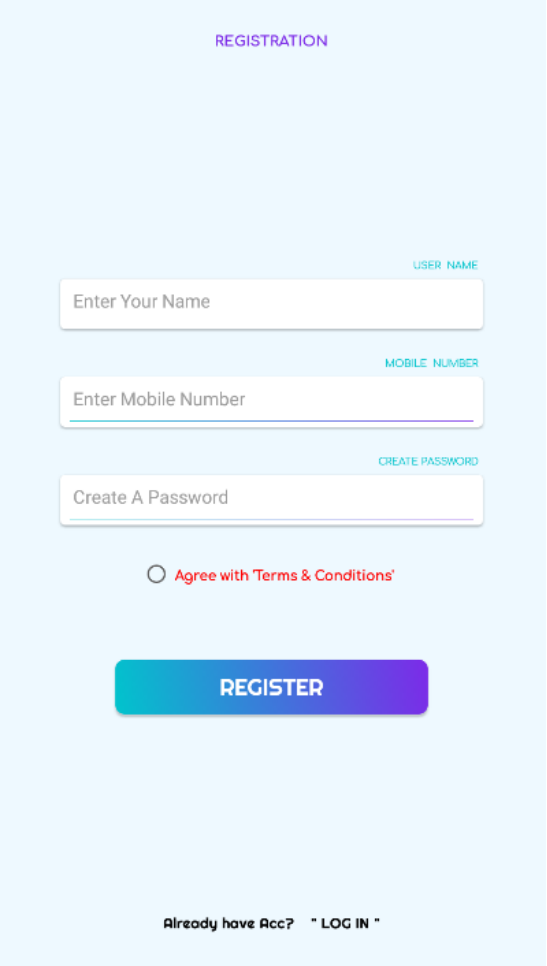


Figure 4.6.2: User Registration page

Register users can login the app using mobile number and password. After login to the app, the user finally enters in dashboard and can see the posts of other users. Users can like or comment any post and get some reward points.

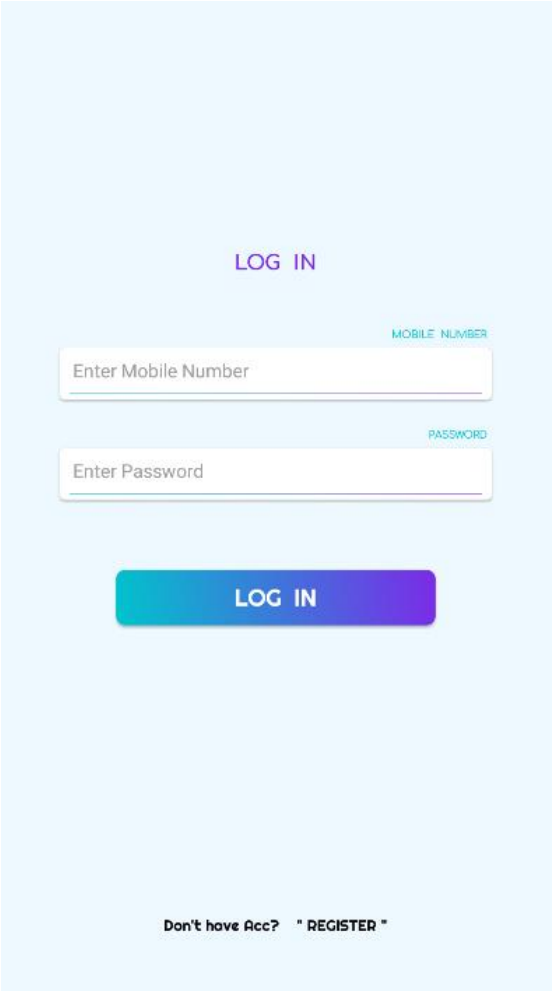


Figure 4.6.3: Login page

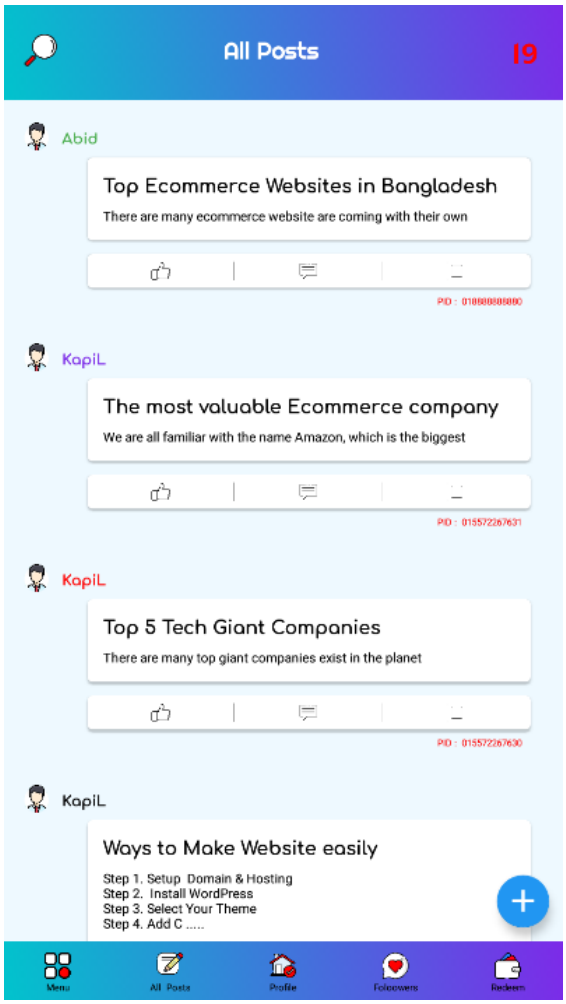


Figure 4.6.4: Home page

The users also can create any post by pressing (+) icon as well as get some reward points by creating post. User can see the points on the up of the corner and also on down menu Profile option.

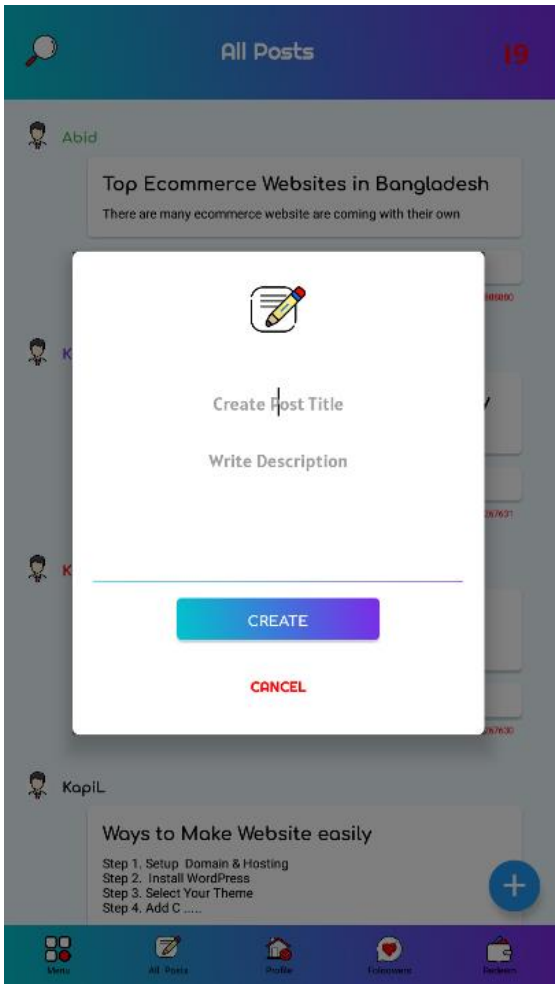


Figure 4.6.5: Create post page

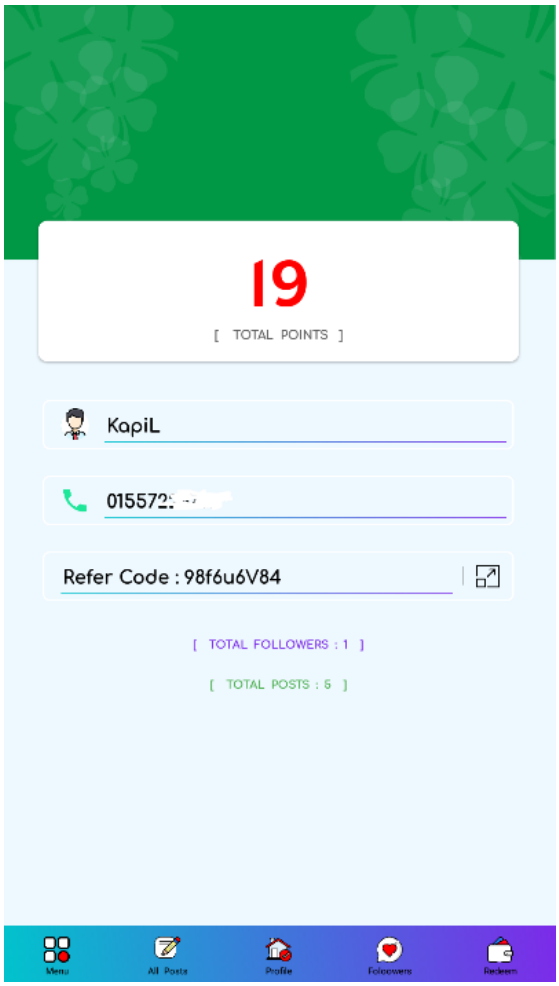


Figure 4.6.6: Profile page

In the Follower tab, user can see its followers with their names and also can search people to follow. On the other hand, there is a option of Redeem where user can redeem reward points to cash easily from there. There are many payment gateways available here to choose. Any option can be choose for redeem.

Figure 4.6.7: Follower page

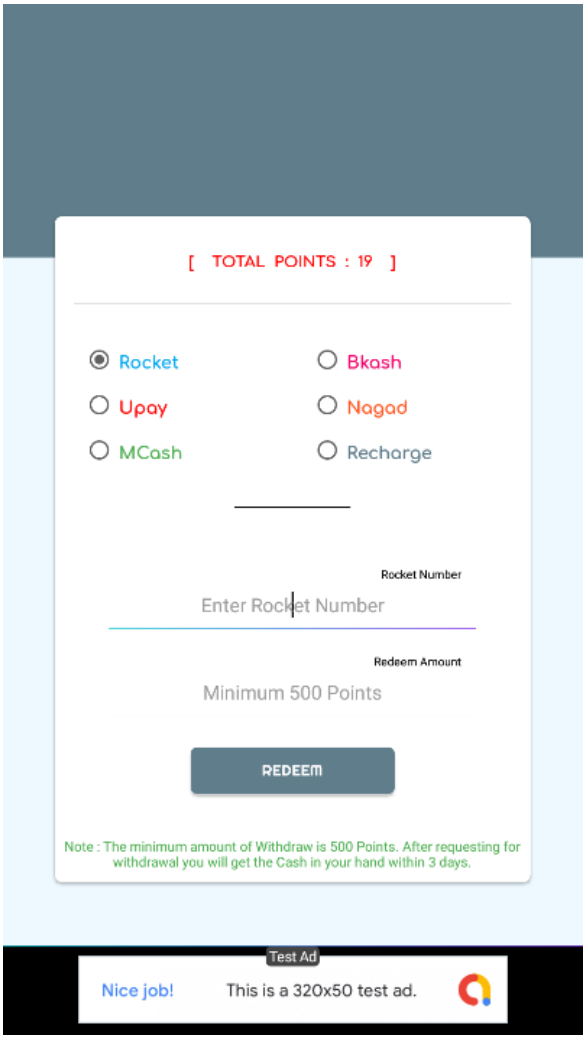


Figure 4.6.8: Points redeem page

User can find the side Menu at the bottom of the corner. In the menu, there are more important option provided. Like; friends' invitation, refer code uses, ratings, contact to the team, terms & conditions, privacy policy and also the logout.

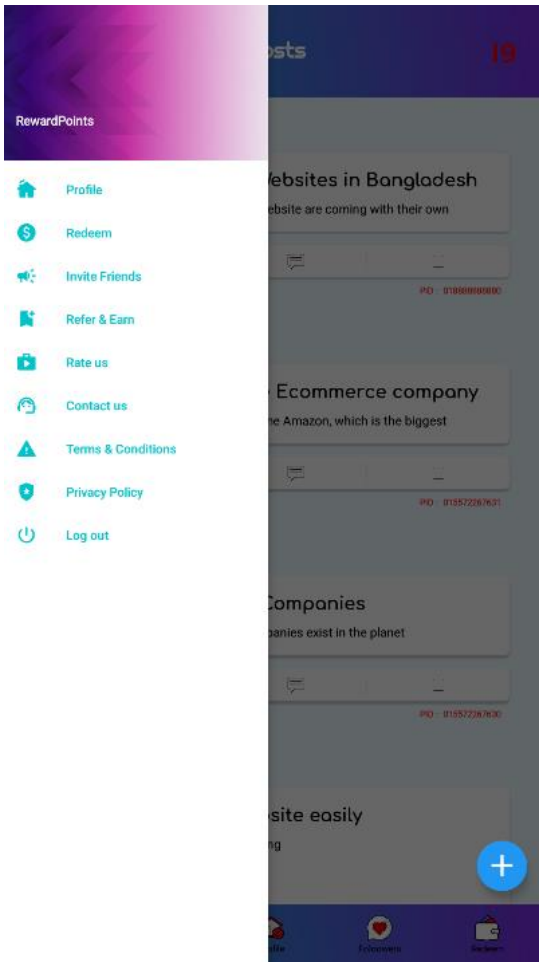


Figure 4.6.9: App menu page

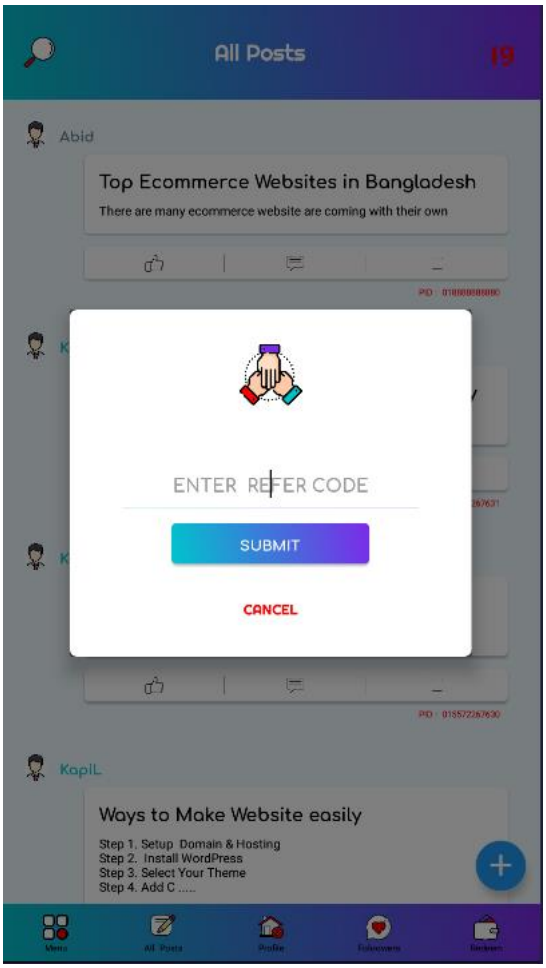


Figure 4.6.10: Refer code uses page

In the contact us option, users can send feedback to the development team by sending email. They also can send any email regarding app uses and problems.

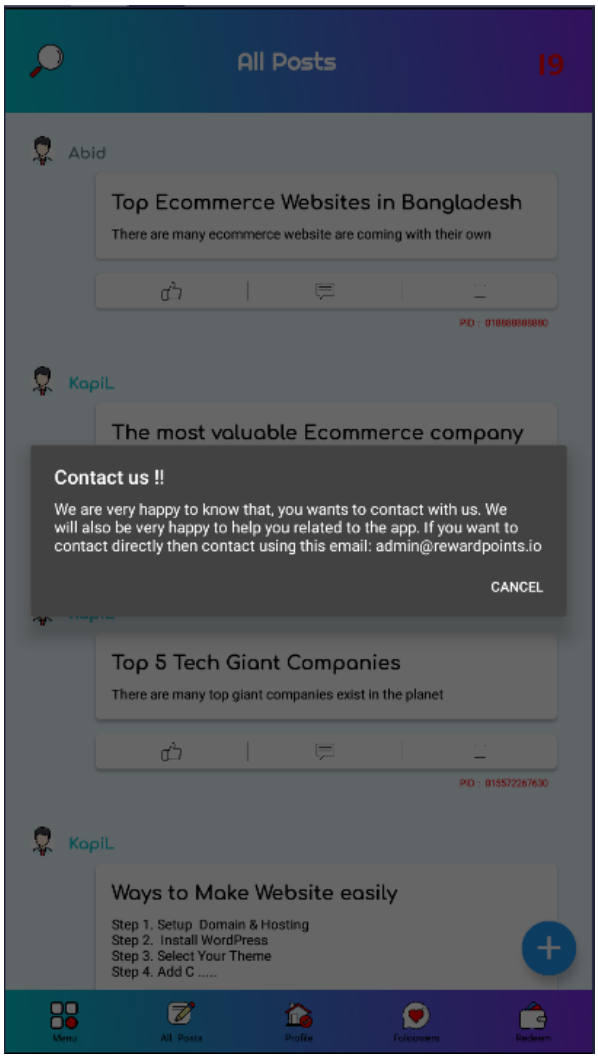


Figure 4.6.11: Contact us page

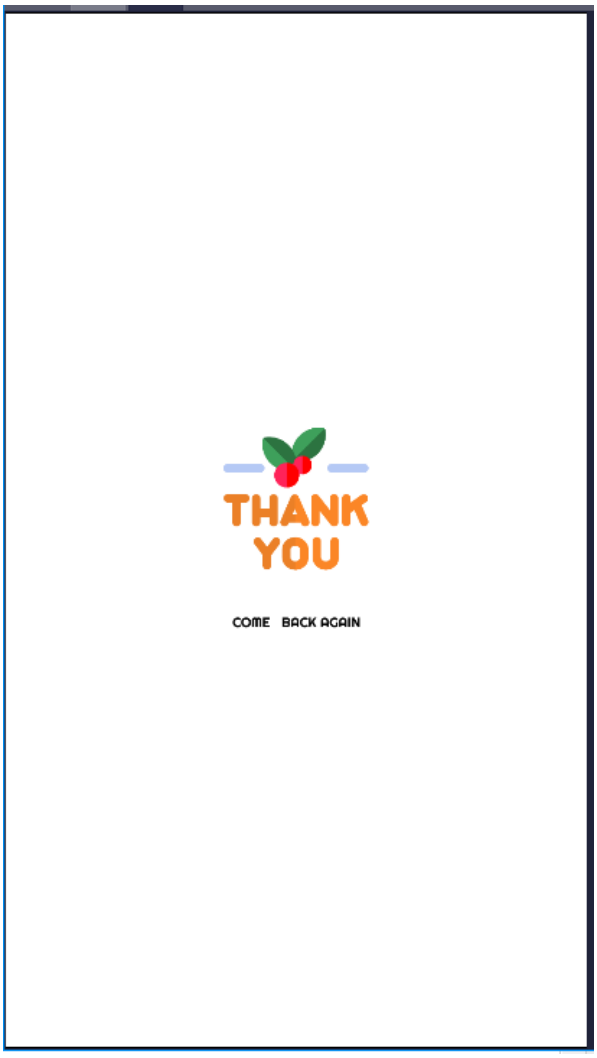


Figure 4.6.12: Thank you page

CHAPTER: 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

I used Firebase as a database of the app. Firebase is a product of Google which helps to store all kind of data of the app. I basically used four different Firebase accounts to store data of the app. In the first or primary Firebase account, I used to store user data refer data and withdrawal data of the users. In others three accounts I used to store posts data, follower's data and comments data respectively.

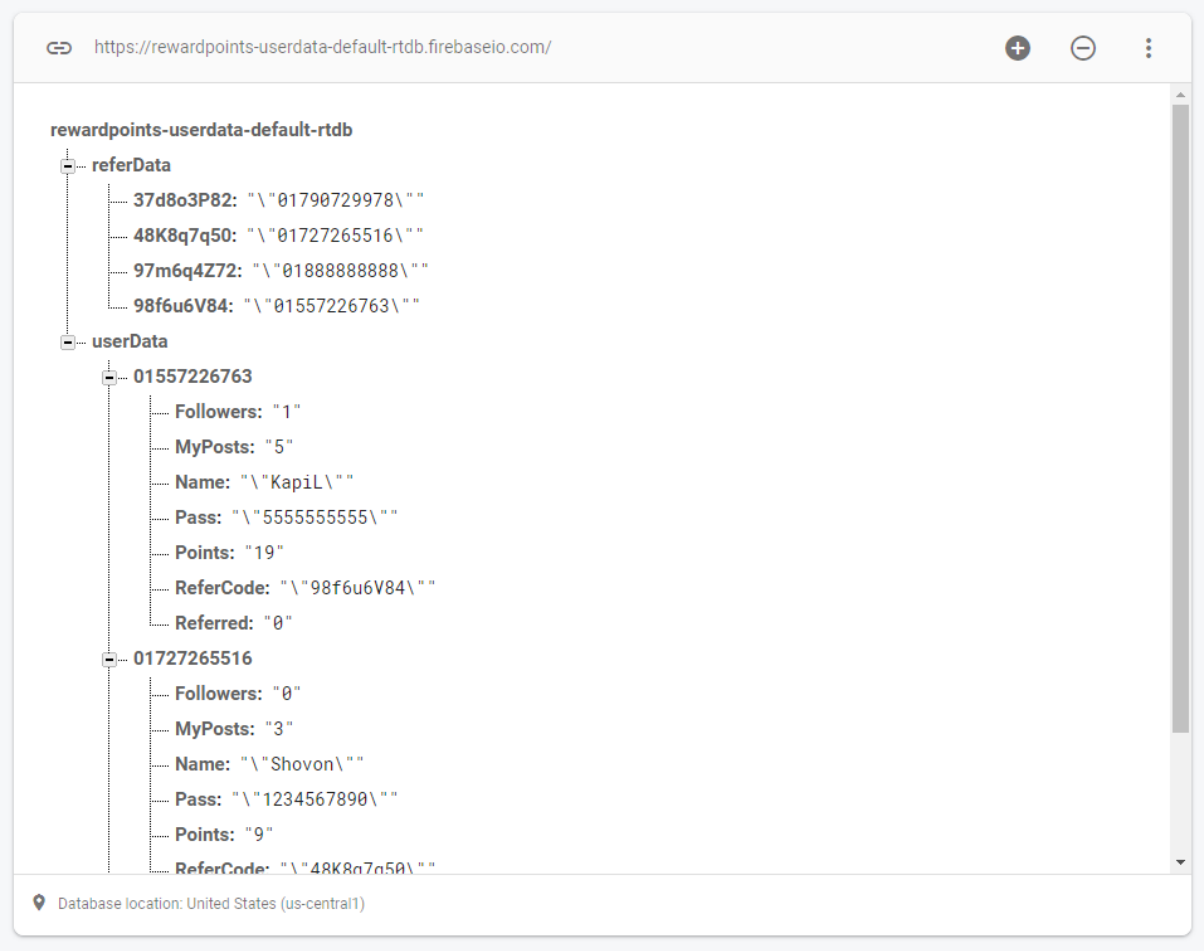


Figure 5.1.1: Firebase storage for User data, Refer data and Withdrawal data

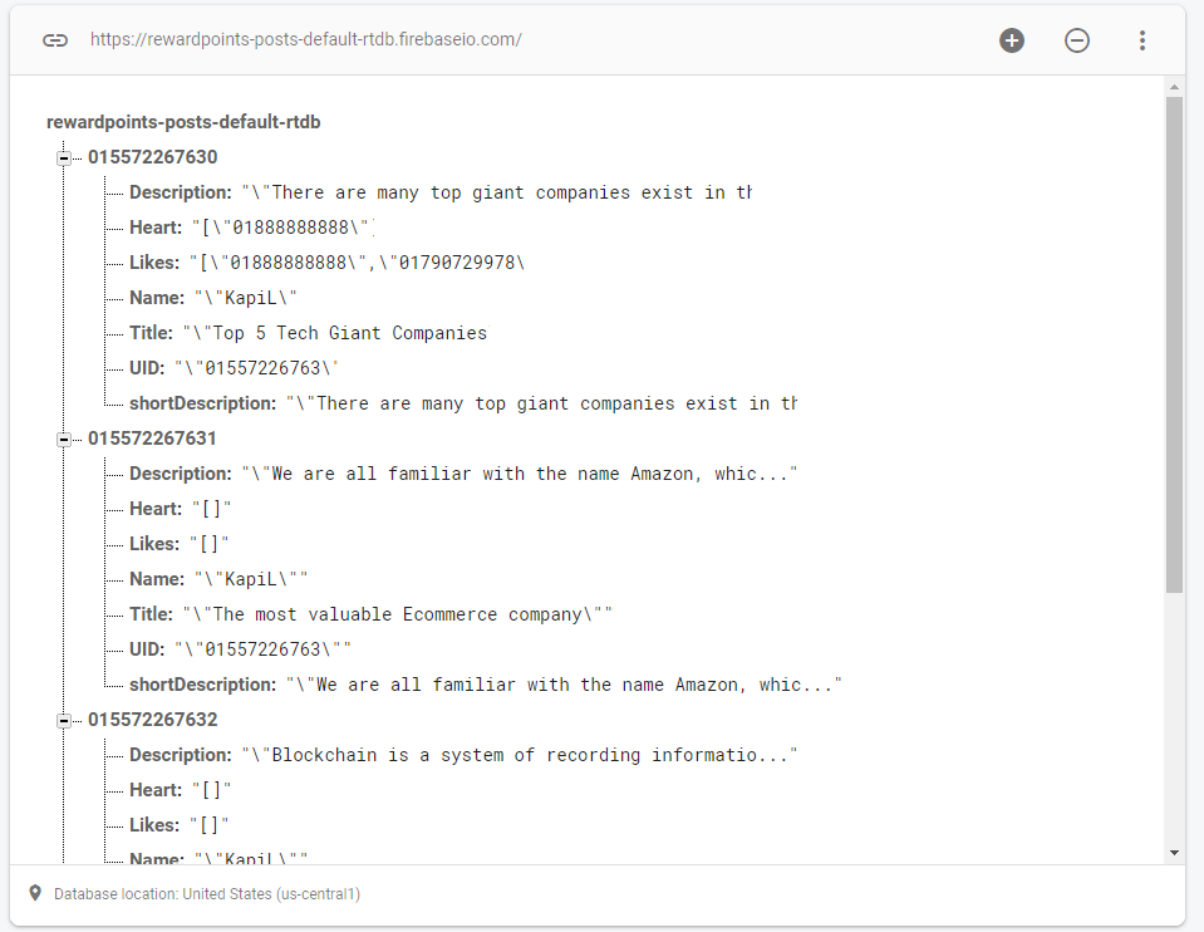


Figure 5.1.2: Firebase storage for Post's data

Figure 5.1.3: Firebase storage for Follower's data

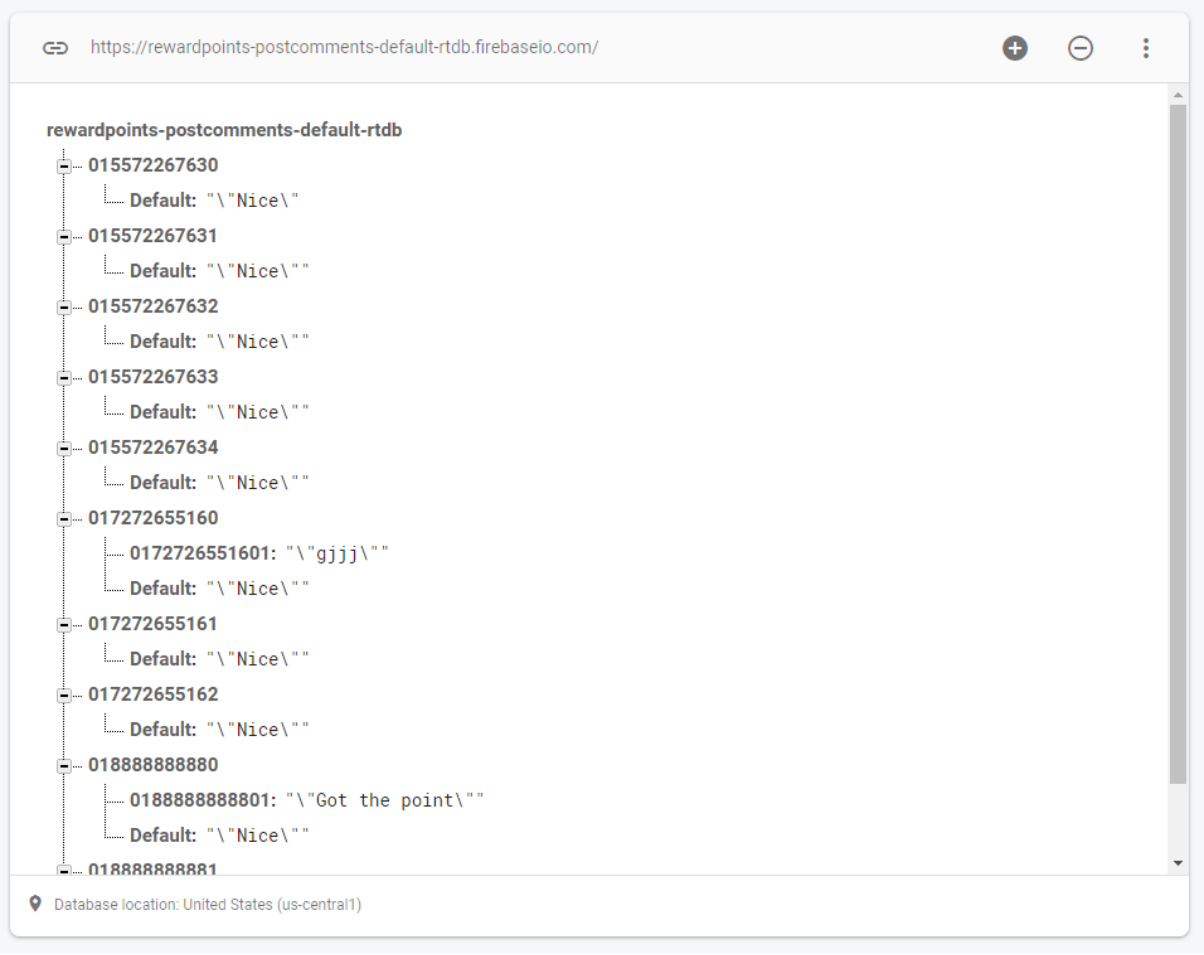


Figure 5.1.4: Firebase storage for Comment's data

5.2 Implementation of Front -end Design

A front-end plan is the prefatory foundation of a client. I realize that several groups do not efficaciously neglect the primary introduction. So, I have ventured my choice to make the front-end structure straightforward, catching and facile to use. I used Kodular own materials and components to design this app.

There are some factors of implementing the front-end design are given bellow:

- ❖ User can register and login
- ❖ User can write articles and post
- ❖ User can get reward points by posting
- ❖ User can like comment on others posts
- ❖ User can get reward points by reacting posts

-
- User can follow others
- User can invite others
- User can get reward points by inviting others

5.3 Testing Implementation

- Install the Application
- Activity Check
- Compile
- Post Article
- Check reward points
- Redeem reward points

Test Case	Test Input	Expected outcome	Obtained outcome	Result
Install Application	Tested Android versions: 1. KitKat (4.4-4.4.4) 2. Lollipop (5.5-5.0.2) 3. Marshmallow (6.0) 4. Nougat (7.0-7.1) 5. Oreo (8-8.1) 6. Pie 9.0 7. Android 10.0	Successfully install on all version	Install successful	Passed
Activity Check	Activity opens with validation and proper information	Successfully perform all instruction	Activity opens successfully	Passed
Compile	Compile successfully	Successful	Successful	Passed
Post Article	Post successfully done	Show expected result	Showed the actual output	Passed
Check Reward Points	Reward points successfully assigned	Show expected result	Showed the actual output	Passed
Redeem Reward Points	Reward Points successfully redeemed	Show expected result	Showed the actual output	Passed

Table 5.2.1: Testing Implementation

5.4 Test Result and Reports

The test report is expecting to indicate the aftereffect of checking out the application formally, which gives the warning to measure seeking out decisions immediately. It is a report that records facts bought from a decision to analyze in an association way, drawing nature and working framework and confirms the examination of test effects with the target, which are so necessary for any types of application.

The check result is modestly successful. The person satisfies to use our application. I will expect that the user can easily use and apprehend our application as a better user interface.

CHAPTER: 6

Conclusion and Future works

6.1 Discussion and Conclusion

Living in this digital era every time we have to deal with new technologies and also new inventions. Mobile phone with internet connection is become more essential thing of our daily life activity. Most of the time peoples are used mobile phone and internet to be connected with each other's. It is good to get some reward while using reward app on mobile phone. RewardPoints make this goal happen. By using RewardPoints app everyone will get reward points based on some specific activities. The app offers peoples to grab reward points by writing articles, posting, liking, commenting and inviting friends and family. The most exciting thing is, the reward points can be withdrawn as cash from local payment gateways.

The main goal of the project is to give rewards to all content writers. Hope that people love this app and keep using it, and also grab the opportunity to grab reward points.

6.2 Scope for future development

I definitely think about to work more with this project in future. So, I have plan to add some extra features in the future.

- **E-Commerce:**
  There will be an e-commerce store inside the app and users can use their reward points on that store to buy products.
- **Games:**
  There will be some games to play for users and they can get more reward points by playing those games.

REFERENCES

[1] Learn about “Business process modeling”, available at: https://tallyfy.com/business-process-modeling; [Last access at Feb 2019]

[2] Learn about “Design specification”, available at: http://www.ofnisystems.com/services/validation/design-specification; [Last access at June 2020]

[3] Following project “Premise”, available at: https://play.google.com/store/apps/details?id=com.premise.android.prod; [Last access at April 29, 2021]

[4] Following project “Do your Thng”, available at: https://play.google.com/store/apps/details?id=com.smm.smm; [Last access at April 26, 2021]

[5] Following project “Quotes Donut”, available at: https://play.google.com/store/apps/details?id=com.quotesdonut.quotesdonut; [Last access at December 15, 2020]

[6] Following project “Writco”, available at: https://play.google.com/store/apps/details?id=in.writco.app; [Last access at October 21, 2020]

PLAGIARISM REPORT

Turnitin Originality Report

Processed on: 29-Apr-2021 20:37 +06
ID: 1573406460
Word Count: 3825
Submitted: 1

REWARD POINTS SYSTEM ANDROID MOBILE APPLICATION By Kapil Chakma

Similarity Index	Similarity by Source	
17%	Internet Sources:	N/A
	Publications:	N/A
	Student Papers:	17%

6% match (student papers from 03-Apr-2019) Submitted to Daffodil International University on 2019-04-03
4% match (student papers from 16-Jan-2021) Submitted to Daffodil International University on 2021-01-16
1% match (student papers from 02-Apr-2019) Submitted to Daffodil International University on 2019-04-02
1% match (student papers from 07-Apr-2018) Submitted to Daffodil International University on 2018-04-07
1% match (student papers from 04-Apr-2019) Submitted to Daffodil International University on 2019-04-04
1% match (student papers from 27-Nov-2019) Submitted to Daffodil International University on 2019-11-27
1% match (student papers from 09-Jun-2015) Submitted to University of Greenwich on 2015-06-09
1% match (student papers from 04-May-2017) Submitted to University of Central England in Birmingham on 2017-05-04
< 1% match (student papers from 02-Apr-2019) Submitted to Daffodil International University on 2019-04-02

< 1% match (student papers from 30-Jun-2020) Submitted to Daffodil International University on 2020-06-30
< 1% match (student papers from 03-Apr-2019) Submitted to Daffodil International University on 2019-04-03
< 1% match (student papers from 03-Apr-2018) Submitted to Daffodil International University on 2018-04-03
< 1% match (student papers from 03-Apr-2019) Submitted to Daffodil International University on 2019-04-03