Explore BD: Travel and Explore Bangladesh

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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 **"Explore BD: A Motivational Mobile App to Travel and Explore Bangladesh"**, submitted by **Md. Monirojjaman**, ID No:161-15-7414, **Koushik Islam,** ID No: 161-15-7415 and **Md. Deluar Hossain Polash**, ID No: 161-15-7419 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 5th December, 2019.

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We hereby declare that, this thesis has been done by us under the supervision of **Ms. Umama Dewan, Lecturer, 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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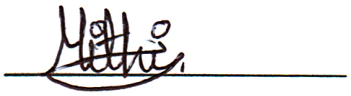

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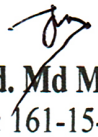

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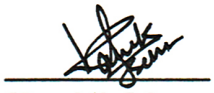

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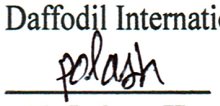

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ABSTRACT

God created human and nature. There must be a relationship between human and nature. The beautiful and systematic nature teaches us to be kind and noble. But in this modern era day by day we become more detached from nature. If we remain closer to nature then there will be less chaos in human life. People will commit less crime and selfish. From this motive we consider ourselves to develop an android based application where people can find beautiful places with short description and pictures where they can refresh their mind. People can also view the reviews and ratings of a particular place and give a rating. Most of the time we just find some common places which people occasionally visit where there may be some dramatic places in your village (which other people who are not familiar with this place) can visit. The most advantage of this project is people can add any place at any time with pictures and description. This will fascinate people to visit any beautiful places around the country. There will be searching option to find any places by name or location. Thus, people can visit any kind of beautiful place and enjoy its natural beauty. We have developed this application because we want to people visit beautiful places around the country and to get more attachment with nature with a very simple way. The application is based on the motive to develop the relationship between human and nature.

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CHAPTER 1
INTRODUCTION

In this chapter we are going to provide an introduction of our project, followed by Motivation, Problem statement, Expected output and Report layout.

1.1 Introduction

Bangladesh is the largest riverine delta of the world and bless some most splendid and enchanting eco-tourism spots of diverse nature. The Sundarban forest is the largest mangrove forest of the world. The archaeological wonder of Mohasthangarh, the Buddhist temple Paharpur, the longest sea beach cox's bazar and many tourism places. But most of them unexplored. Having the minimum requirements, the tourism industry could not develop in the country for the disinterest of the government. Recently, the government is now positive and some public and private organizations have step forward to attract the local and foreign tourist.

According to the analysis, the tourism sectors also improve day by day but the result is not satisfaction. Per year the average result show that about two lakh tourists visit in Bangladesh where about 15 lakh tourists go out the country. In 2012 to 2014 the tourism sector increased but it again decreased in 2014. Now to the previous year 2018 is little bit increase.

To make this project, we have studies related work of android studio, JAVA, XML, google authentication, fire base, real time data base by doing this project.

1.2 Motivation

Nowadays people are depended to them to their smart phones. Most of the activities they want to fulfill by their needed applications from the phone. They can buy their necessary things, knowing information, measuring heart bytes, communications others and many kinds of activities. People also need well guidelines and services for their tour. In that situation, we feel that if we can give a good communication system for provide a tour

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related application, that is very helpful for their tour and other interested tourist people. So, we have worked on it and tried to fulfill our dream by done this project.

1.3 Objective

Bangladesh has been highlighted as an attractive destination for tourists. Sundarbans and Cox's Bazar have been included in the new seven wonders of Nature campaign among more than 440 candidate locations from 220 countries.

The main objective of this application is to help the local and foreign tourist. sometimes the tourist falls in trouble because they collect information from internet but do not collect the actual information this application, we provide that the actual information from the previous tourists by their comments, rank, costs and pictures. This information is really helpful for that new tourists and they also safe in the grip of the wrong mentality brokers and make a good plan for finish their trip perfectly.

1.4 Expected Outcome

- In this application people can explore the beautiful places in Bangladesh.
- Showing our culture according to the areas and attraction foreigners.
- Making interested to the foreigners for visiting Bangladesh.
- Help one tourist to another tourist and feel secure.
- Create good communications.

1.5 Report Layout

This report is divided into six chapters. The chapters are summarized below:

(i) Chapter one covers a presentation of our travel app. Targets, expected yield are likewise including here.

(ii) Chapter two includes the writing survey and some nearable comparable works with three applications and difficulties of our task.

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(iii) Chapter three is for the most important part featuring on the clear concept of business process model and use case diagram with action necessity of the undertaking.

(iv) Chapter four is designed of front-end and back-end structure with our execution prerequisites.

(v) Chapter five shows on the execution with the subtleties of the testing of our task.

(vi) Chapter six covers with the conclusion and future scope for upcoming challenges.

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CHAPTER 2
BACKGROUND

In this Chapter we are going to telling about the statistics we have studied about some tourism applications followed by some example and some related work performed in this field. We also discuss the challenges and how we overcome it.

2.1 Introduction

We have proposed tourism related application. It is an online base tourism related information system which is based on android device. Android is mainly Linux based operating system for mobile such as smart phones and tablets. Tourism Based services using Android operating system motivated by the use of Android mobiles.

Bangladesh government now invested with a large treasure of natural beauty and ruins of old and middle age civilize which can attract foreign tourists. Bangladesh Parjatan Corporation given the tourism sectors under the ministry of Civil Aviation and Tourism. Due to some limitations, Bangladesh has failed to introduce itself as a tourist destination to the world. So, we have developed this application because we want to help the government tourist organization and the tourists.

2.2 Related Works

There are some number of applications are available concerning this concept. We have studied on these kinds of applications. Here, we will talk about the applications and similar to our applications.

2.3. VROMON GUIDE

This application provided the travel guide, tour plan tips, and give information about famous places. This application was released 7july,2019. This application has all update information of all sites from the 64 districts in Bangladesh. For the foreign tourist, this application gives local and foreign hotel information. This application has included travel stories, travel news and videos and blog.

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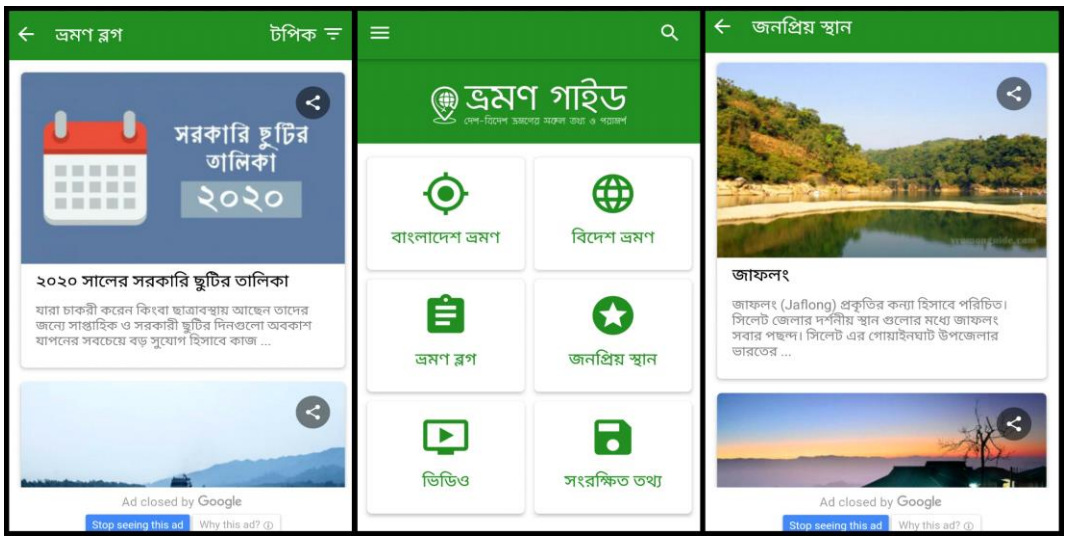

Figure 1.1.1: User Interface of "Vromon Guide" Application

2.4 MY TOUR BD

My Tour BD application has some unique features that very helpful for the tourist. This application has tourism rules in the tourism documents and also has Bangladesh tourist map that is very helpful for the foreign tourist. The tourist has to go to the 64 districts of the country, around the history of thousands of years of history. This application released on 25 September 2018.

Figure 1.1.2: User Interface of "My Tour BD" Application

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2.5 TRAVEL GUIDE

Travel guide application provide most popular visited place in Bangladesh. This application has two types languages, English and Bengali. This application is completed guide certainly to know about our country, to travel in each place in Bangladesh. This application also decorated for travelers by giving history information, transportation details and stay in famous places of Bangladesh. This application was released on 31december 2017.

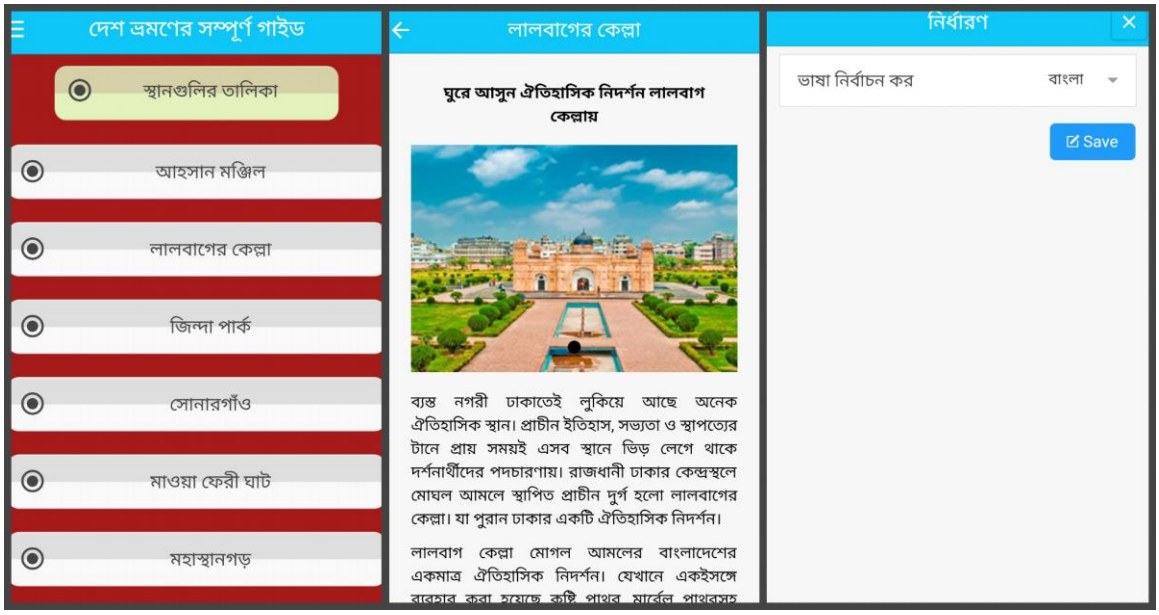

Figure 1.1.3: User Interface of Travel guide Application

2.6 Comparative Studies

We have studied some related application regarding the concept of the tourism in Bangladesh. In play store some features are related to our application. Some applications are completely fixed and helpless. That applications just used tourism places name and some related information. Some Applications added some good features but just a small one feature that is not enough. Some applications added websites and phone numbers but they are not providing the update phone number and website address. In our application, we added comment and ranking features that everyone could see this comment and ranking and put their opinion on that comment from their experience and also send live photos. But in other applications we don’t see this kind of features.

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2.7 Scope of the problem

Our application is very user friendly and easy to use. We have seen some problems in other applications such as dereliction problem. And we think that our application will be helpful from all kinds of people because for the accurate information by the visited tourist. We will to improve our application day by day and we will try to add extra features like famous foods and its location and cost. Our application has some special features which makes our application better than other existing applications. Some special features of our application are:

- Easy sign up with Gmail.
- No different registration structure for different type's user.
- Easy User Interface (UI).
- Real time post update because of firebase.
- Search by location and name.
- Easy to post comment and photos.
- Fast loading and well Performance.

2.8 Challenges

If you will try to do something different and try to present it then you will must faces some challenges. But we are the team members were face these challenges and able to successfully overcome. That kinds of challenges we were faces:

- When we want to create a real time database then we faced some challenges and we had overcome this challenge by using Google firebase work.
- Using XML for designing and implementing a user friendly and interactive user was challenging for us.
- Requirements analysis, Quantity of code, Performance and efficiency of system was challenging for us.

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CHAPTER 3

REQUIRMENTS SPECIFICATION

This chapter designed for a clear view about all the requirements that will be needed to complete the proposed system. Business process model, use case diagram and description; other requirements are described in this chapter.

3.1 Business Process Model

Business process modeling helps with introspection. To get a deeper understanding of how application processes work & the way of business functions. The main function of BP modeling is to improve the way the processes are done. As a given, you'll find different ways to improve the way the process works, which leads to higher efficiency, productivity, output, and finally, profits.

Business Process Model for User Sign-In:

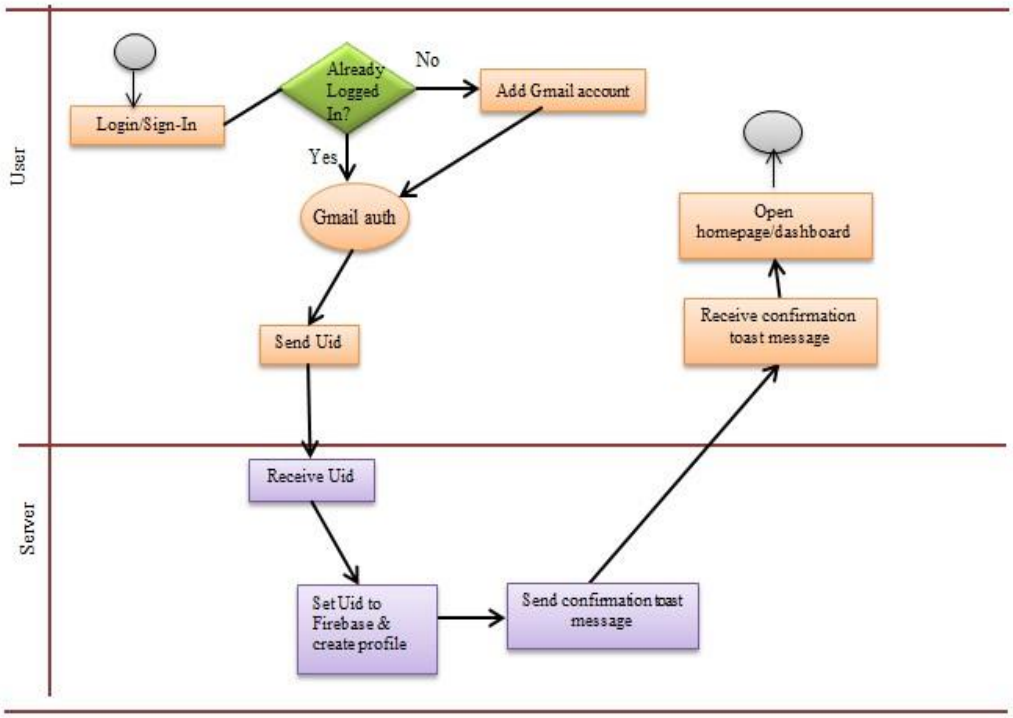

Figure 2.1.1: Business Process Model for User for sign in

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Business Process Model for User add post and delete

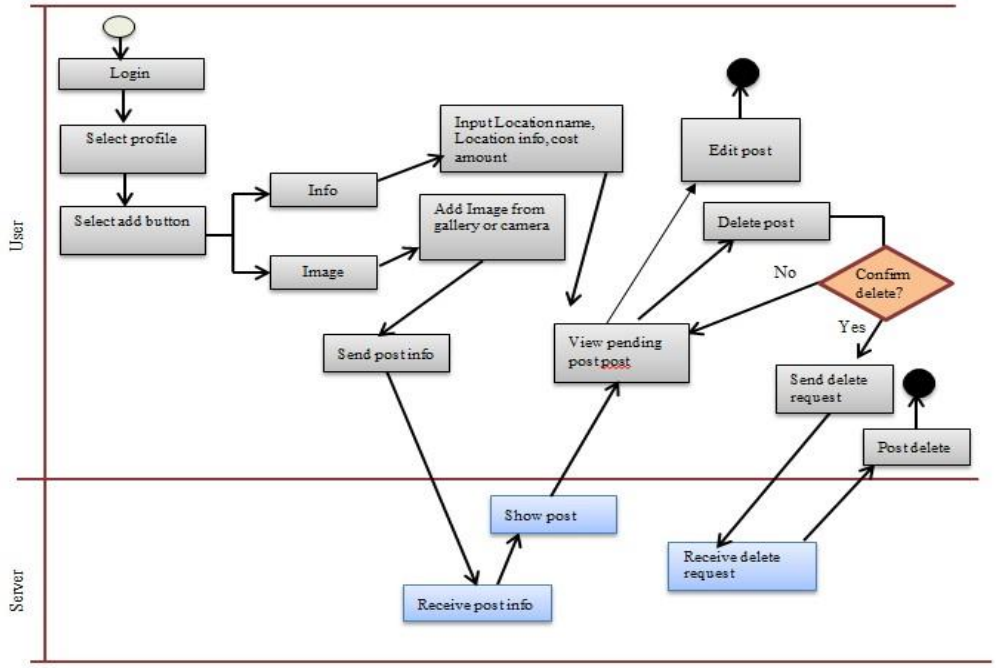

Figure 2.1.2: Business Process Model for User add post and delete

Business Process Model for user review edit, delete and rating

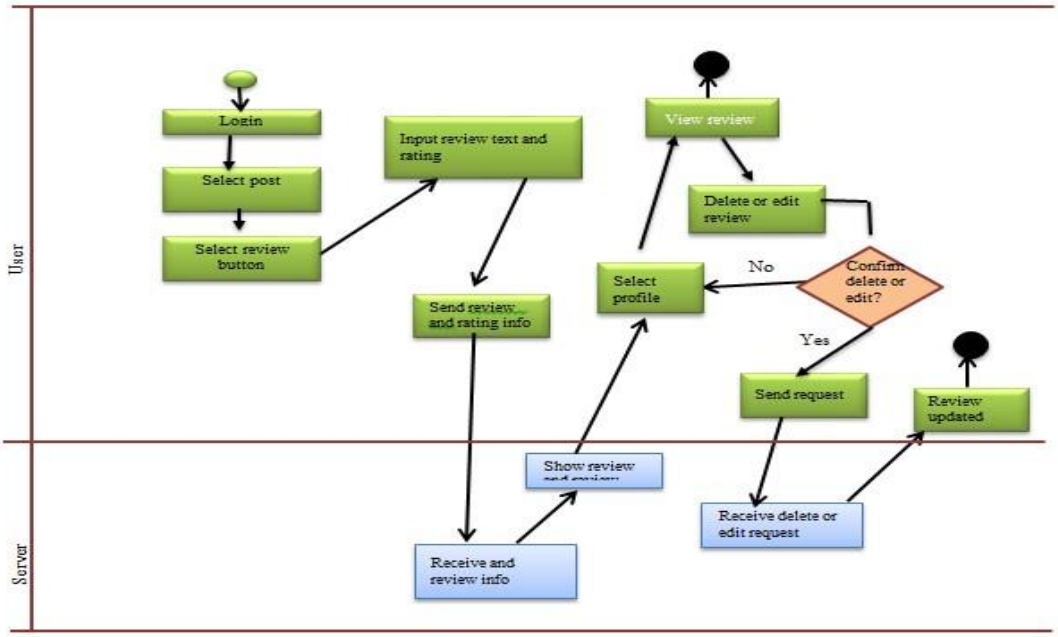

Figure 2.1.3: Business Process Model for user review edit, delete and rating

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Business Process Model for Admin add post, approve post and delete

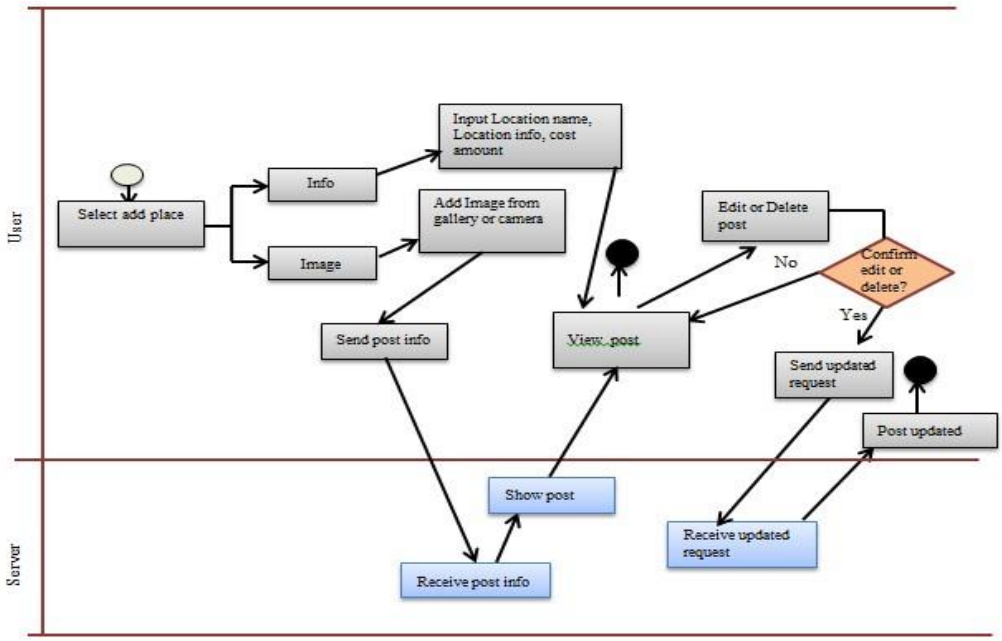

Figure 2.1.4: Business Process Model for Admin add post, approve post and delete

3.2 Description (Business Process Model):

User has to create a profile easily through Gmail id. If Gmail logged in the device Gmail authentication send valid user-id to firebase and firebase will allow for homepage. Otherwise it will ask for a Gmail id for sign-up. After that users can add, view and delete their own posts. User can create a review of a particular post with giving rating. The admin panel will receive the request post of users and can approve or cancel. Admin also add, delete and edit any post.

3.3 Use Case diagram

Use case diagram is a graphical representation to understand the user's interaction with the system that its simplest way. It represents the direction of user's interaction along with a system. A use case is a methodology used in system analysis to identify, clarify, and organize system requirements.

Here, we present use case diagram for users and admin

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Use case Diagram for User

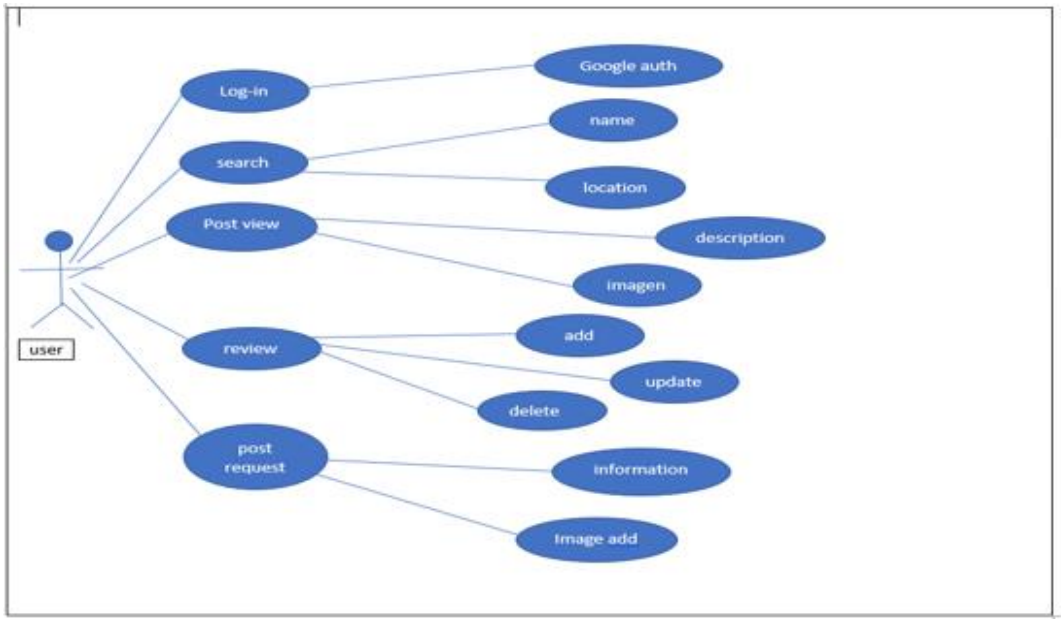

Figure 3.1.1: Use case Diagram for User

Use case Diagram for Admin

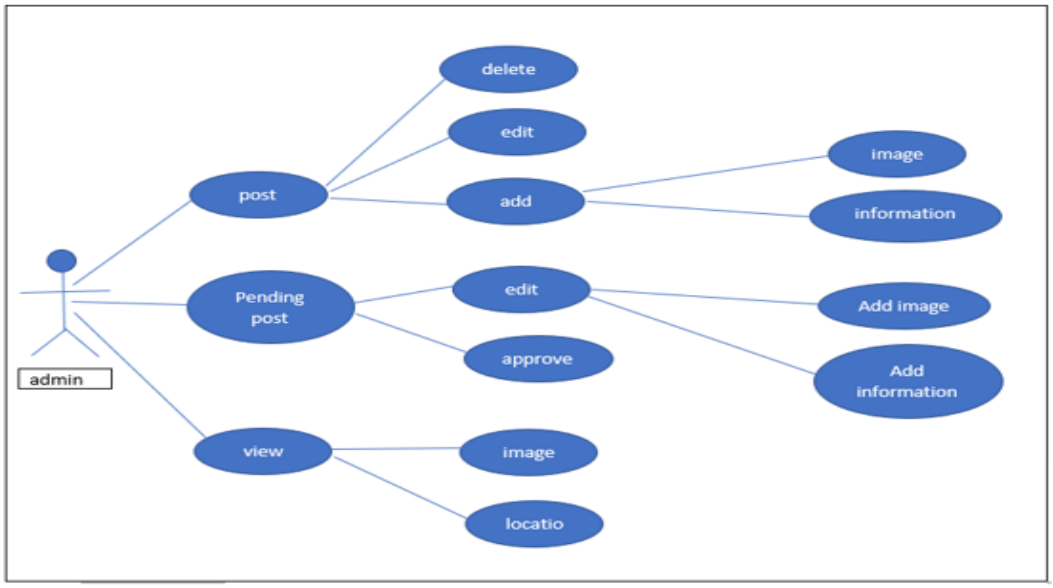

Figure 3.1.2: Use case Diagram for Admin

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3.4 Use Case description

Use case descriptions are made to clarify the actions of the use case diagram. Pre-conditions and post conditions of an action performed are explained in use case description.

Use case	Sign-In
Primary Actor	User
Secondary Actor	Gmail Auth, Server
Actor's Goal	To sign-in to the application
Pre-condition	Provide registered Gmail account
Post condition	Continue to profile

Table 1.1.1: Description of Use Case for Sign-In

Use case	Make post
Primary Actor	User
Secondary Actor	Server
Actor's Goal	To add post
Pre-condition	Login to application and input necessary information (Location, location type, location info, cost, image) for making post
Post condition	View individual post after submit.

Table 1.1.2: Description of Use Case for Make Post

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Use case	Delete post
Primary Actor	User
Secondary Actor	Server
Actor’s Goal	To make delete post
Pre-condition	Login to application. Select and hold post which want to delete
Post condition	View updated page after delete post.

Table 1.1.3: Description of Use Case for Delete Post

Use case	View post and edit
Primary Actor	User
Secondary Actor	Server
Actor’s Goal	To view available post and edit
Pre-condition	Login to application, select profile and choose the post
Post condition	View updated page

Table 1.1.4: Description of Use Case for view and edit post

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3.5 Design Requirements

Design requirement for User:

- Able to signup
- Login
- Make and view own post
- Can delete own post
- Edit profile
- Logout

Design requirement for Admin

- Login
- Make post
- View own post
- View other post
- Can delete own post
- Can delete other post
- Edit Profile
- Logout

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CHAPTER 4
DESIGN SPECIFICATION

4.1 Front-end Design

Each application has user interface, when an application runs it shows an interface which a user can interact which is called front-end design. User can understand and realize the interface because of front-end design. This system's front-end has designed by "Extensible Markup Language" or XML. SVG file and Adobe Photoshop software also used for additional design.

XML: Extensible Markup Language

Extensible Markup Language (XML) is a markup language that manages a set of rules and used for encoding documents which can be read by human and machine. The basic building block of an XML document is an element, defined by tags. An element has a beginning and an ending tag. All elements in an XML document are contained in an outermost element known as the root element. XML can also support nested elements, or elements within elements. This ability allows XML to support hierarchical structures. Element names describe the content of the element, and the structure describes the relationship between the elements. For project designing layouts, text view, edit text, button, floating menu XM is being used. [4]

SVG: Scalable Vector Graphics

SVG documents are nothing more than simple plain text files that describe lines, curves, shapes, colors, and text. It is used to display a variety of graphics on the Web and other environments. With SVG, you can combine different shapes, paths and text elements to create all kinds of visuals and to be sure that they will look clear and crisp at any size. In contrast, raster-based formats like GIF, JPG, and PNG have fixed dimensions, which causes them to pixelate when they are scaled. Although various responsive image

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techniques have proved valuable for pixel graphics, they will never be able to truly compete with SVG's ability to scale infinitely. [5]

4.2 Back-end Design

The back-end design is invisible for interface user. It describes the system how it works internally, basically how application, server, database or other parts of the system a work. Back-end design is developed by the developers with the logics, set of rules and condition. Though back-end is the internal part of the system but it is integrated with the front-end design. For back-end design we have used Java programming language in our project and firebase for database management which is real time data storing.

Java

Java is a general-purpose, concurrent, object-oriented, class-based, and the runtime environment (JRE) which consists of JVM which is the cornerstone of the Java platform. This blog on What is Java will clear all your doubts about why to learn java, features and how it works. Java is a cross platform programming language that means it can perform in any operating system without recompilation. Program which is written in java first it is compiled to bytecode that can run on any Java virtual machine (JVM). It is difficult to provide a single reason as to why the Java programming language has become so ubiquitous. However, the language's major characteristics have all played a part in its success, including the following. It has been said that java is the most popular programming language until now with nine million developers around the world.

Java is developed by James Gosling and colleagues at Sun Microsystems in the early 1990s. Unlike conventional languages which are generally designed either to be compiled to native (machine) code, or to be interpreted from source code at runtime, Java is intended to be compiled to a bytecode, which is then run (generally using JIT compilation) by a virtual machine. [6]

Firebase

Firebase is a mobile-backend-as-a-service that provides powerful features for building mobile apps. Firebase has three core services: a real-time database, user authentication and

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hosting. Firebase provides a real-time database and backend as a service. The service provides application developers an API that allows application data to be synchronized across clients and stored on Firebase's cloud. Firebase is a fully managed platform for building iOS, Android, and web apps that provides automatic data synchronization, authentication services, messaging, file storage, analytics, and more. Starting with Firebase is an efficient way to build or prototype mobile backend services

Firebase is an API that lets developers easily sync and store data in real-time. Developers can use the service to build their apps without having to manage servers or write server-side code. There are clients for Android, iOS and JavaScript (including bindings for Ember, React, Angular and Backbone). The API allows users to access the functionality of Firebase programmatically. The API supports standard CRUD operations on the data within the databases as well as querying of the data. Firebase uses WebSocket's to achieve real-time communication between clients. Data can also be accessed over the Firebase REST API. [7]

Firebase Authentication

Most apps need to know the identity of a user. Knowing a user's identity allows an app to securely save user data in the cloud and provide the same personalized experience across all of the user's devices. It allows backend services, easy-to-use SDKs, and ready-made UI libraries to authenticate users to our app. It supports authentication using passwords, phone numbers, popular federated identity providers like Google, Facebook and Twitter, and more. Firebase Authentication integrates tightly with other Firebase services, and it leverages industry standards like OAuth 2.0 and OpenID Connect, so it can be easily integrated with your custom backend. [8]

4.3 Interaction Design and UX

Interaction design is an important component for UX or User Experience. Specially it examines the interaction between system and user via an interface. UX design is the process of creating products that provide meaningful and relevant experiences.

Our application is very user-interactive and we have tried to make it easy to understand and use.

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4.4 Implementation Requirements

In our project we have to use many different types of tools, components, attributes to implement the proposed project. We have tried to show the clear view of all these used tools, attributes and components in the field of implementation.

Android Studio

Android Studio is an integrated development environment (IDE) for a build on JetBrains' IntelliJ IDEA software and official IDE for google android operating system. Android Studio is a designed based operating system, especially for android development. Android Studio supports all the same programming languages of IntelliJ Java, C++, Kotlin and more with extensions, such as Go.

Basic Android Overview

Android Studio is Android's official IDE. It is purpose-built for Android to accelerate your development and help you build the highest-quality apps for every Android device Android is likewise open source stage where designer can make any sorts of UI which the engineer needs to plan his/her application.

The Emulator

An Android emulator is an Android Virtual Device (AVD) that represents a specific Android device. You can use an Android emulator as a target platform to run and test your Android applications on your PC.

Android SDK

An SDK is a collection of software used for developing applications for a specific device or operating system. It allows the creation of applications for a certain software package, software framework, hardware platform, computer system, video game console, operating system, or similar development platform

Permissions Needed

- Internet permission

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CHAPTER 5
IMPLEMENTATION AND TESTING

This chapter is designed for our project's system implementation and its effectiveness as whole.

5.1 Implementation of Database

Database implementation on hardware and software where it will run as a database management system. To optimize the database to its best performance while storing the application data where every single new data is stored and retrieve the data ass needed.

5.1.1 Database Design

We choose firebase database management system as our application database for storing and retrieving the data as needed. In our application a user can create a profile giving a authenticate Gmail id and then a user can add post giving some information. This information is stored in the firebase immediately. In this project user can see the whole post stored in firebase database. We didn't use MYSQL because of doing refreshment homepage every time in every activity to store. Firebase is a real time database. There is no need to refresh the homepage of the application. That's why we used Firebase instead of MySQL database. The attached application screenshots of firebase are below. The Firebase Realtime Database is a cloud-hosted database. Data is stored as JSON and synchronized in Realtime to every connected client. When you build cross-platform apps with our iOS, Android, and JavaScript SDKs, all of your clients share one Realtime Database instance and automatically receive updates with the newest data. The Firebase Realtime Database lets you build rich, collaborative applications by allowing secure access to the database directly from client-side code. Data is persisted locally, and even while offline, Realtime events continue to fire, giving the end user a responsive experience. When the device regains connection, the Realtime Database synchronizes the local data changes with the remote updates that occurred while the client was offline, merging any conflicts automatically.

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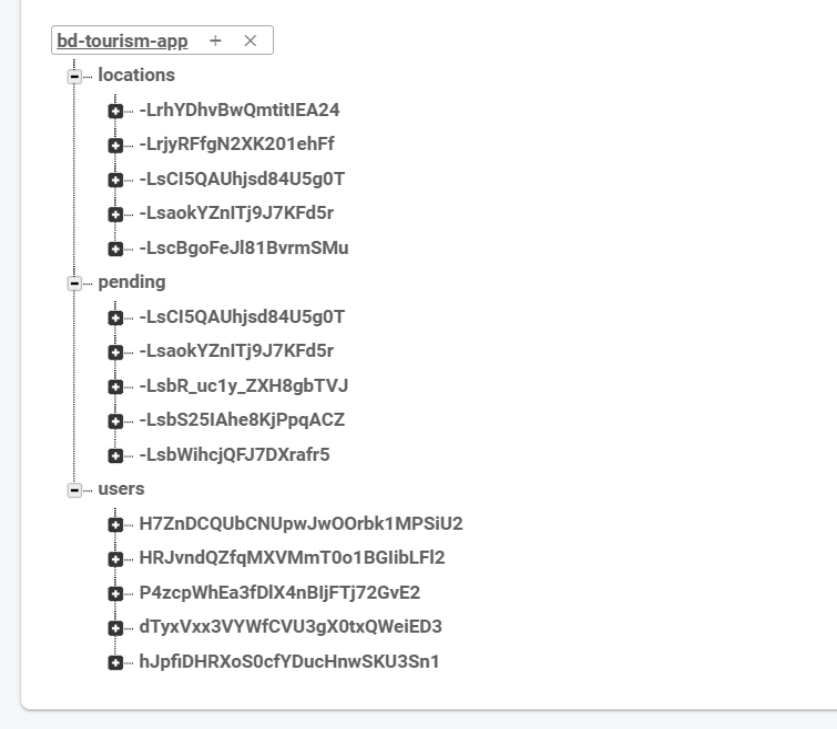

Figure 4.1.1: Database storage

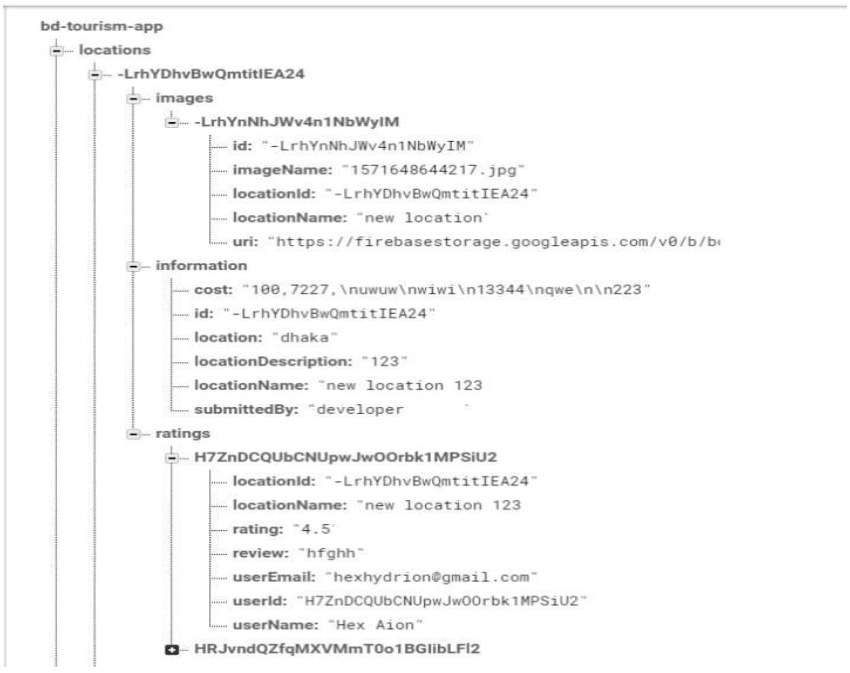

Figure 4.1.2: Database of User particular post

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Figure 4.1.3: User data for pending

5.2 Implementation of front-end design

In figure 5.2.1. We try to make the user interface as simple as possible. We have used XML to decorate our front-end interface. The screenshots of our project front end interface are given bellow. All the screenshots are taken from the application. First a user needs to give a authenticate Gmail id for sign-in into the homepage. The information of a user will be fetched from his/her Gmail id automatically and this information will add to his /her profile. The Gmail id will be received by firebase and after verifying it the firebase will give the application to access the homepage.

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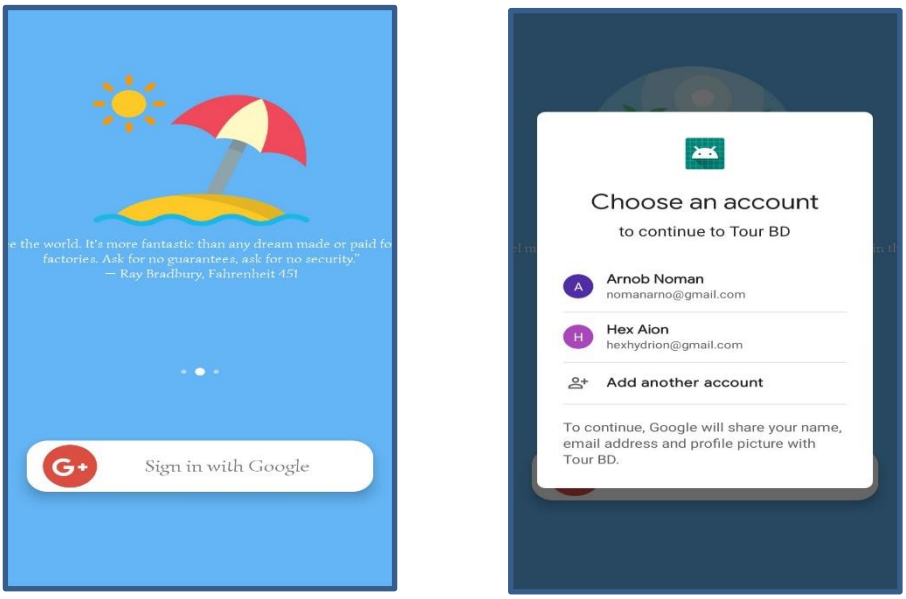

Figure 5.1.1: Screenshot of "Sign in with Gmail id"

In Figure 5.1.2, After verifying the user's UID he/she can see the homepage and profile interface.

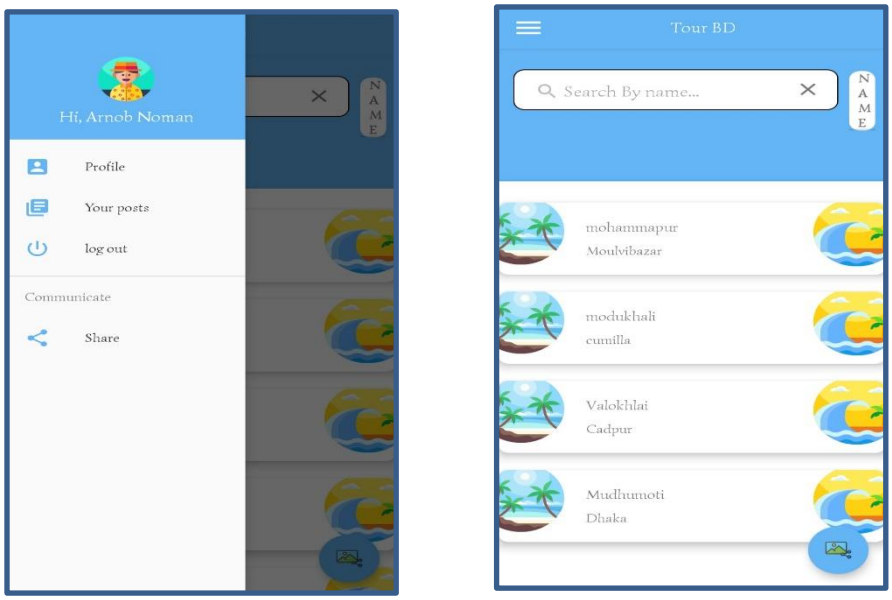

Figure 5.1.2: Screenshot of "user homepage and profile

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In Figure 5.1.3, In the admin panel admin can see the posts which are waiting for approval and he can add any post as wishes.

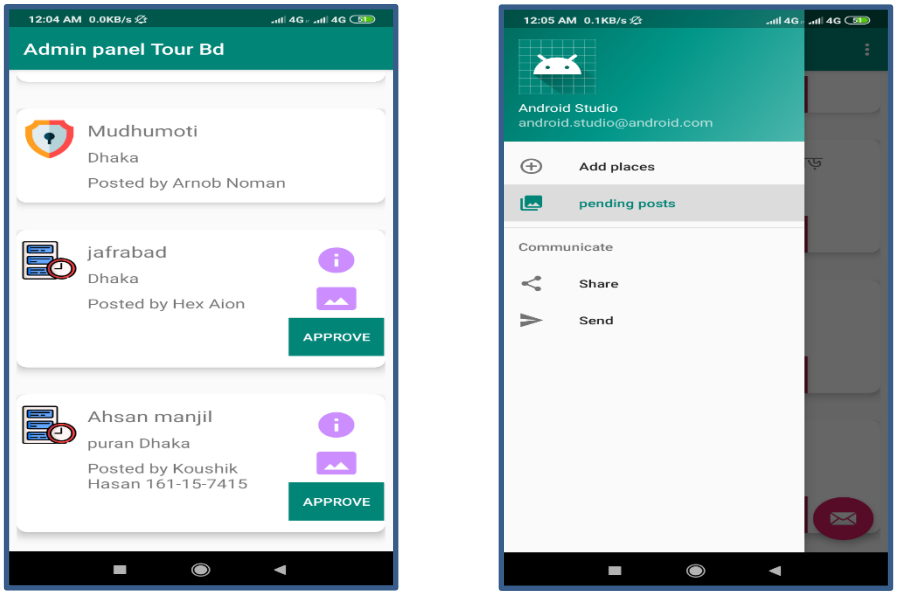

Figure 5.1.3: Screenshot of "Admin add place and approval posts"

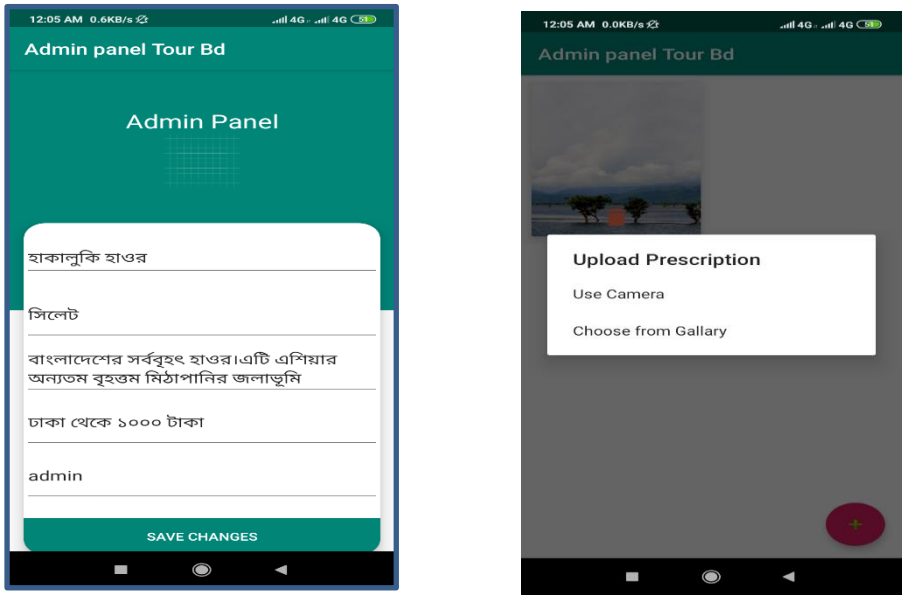

Figure 5.1.4: Screenshot of "Admin's add place and approval posts with pictures"

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In Figure 5.2.1, A user can add places with pictures from his/her profile with proper information

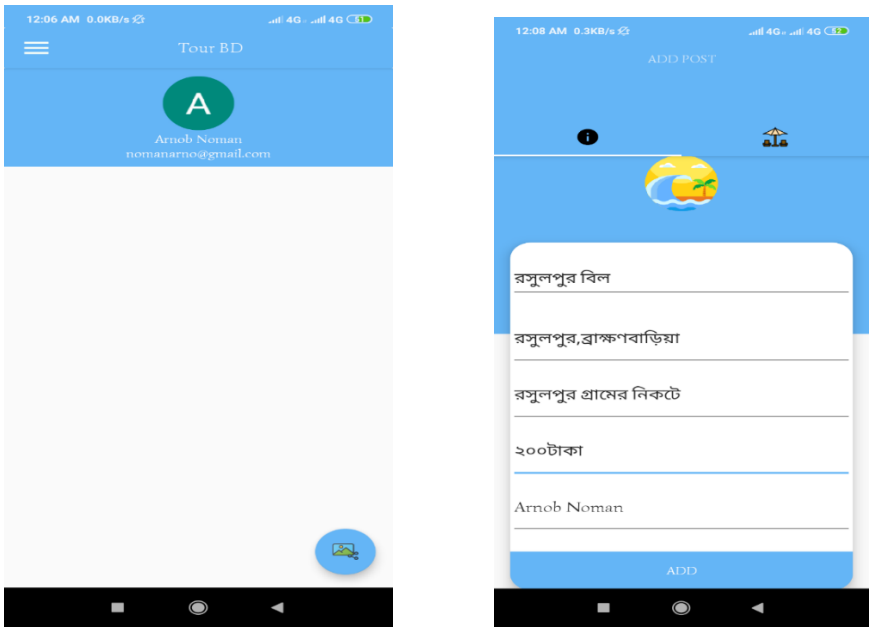

Figure 5.2.1: Screenshot of "User's add places and posts with pictures"

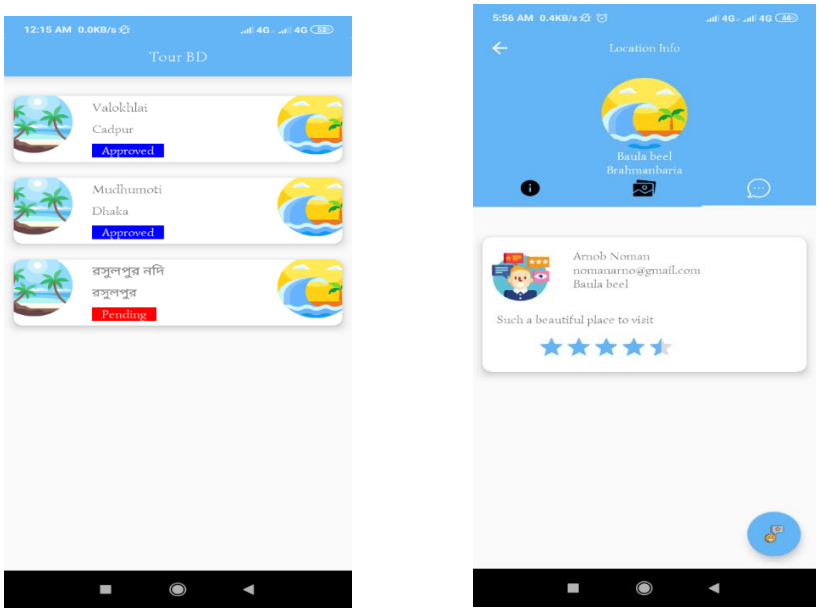

Figure 5.2.2: Screenshot of "User's approved and pending posts and rating"

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In Figure 5.2.3, Admin can delete his/her post by press and hold on individual post. Then a delete confirmation action will be shown. If Admin clicks on “Yes”, post will be deleted.

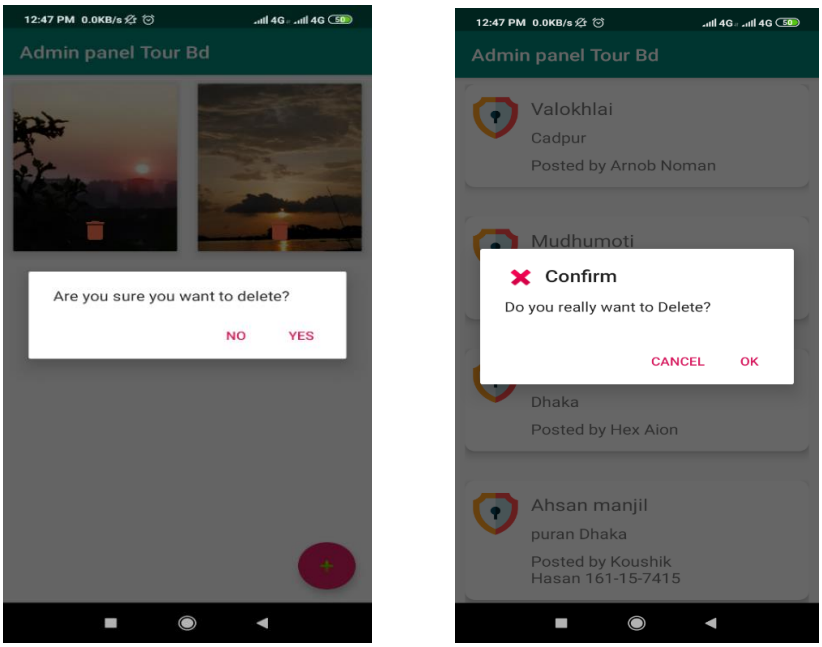

Figure 5.2.3: “Screenshot of Admin Post Delete Confirmation.”

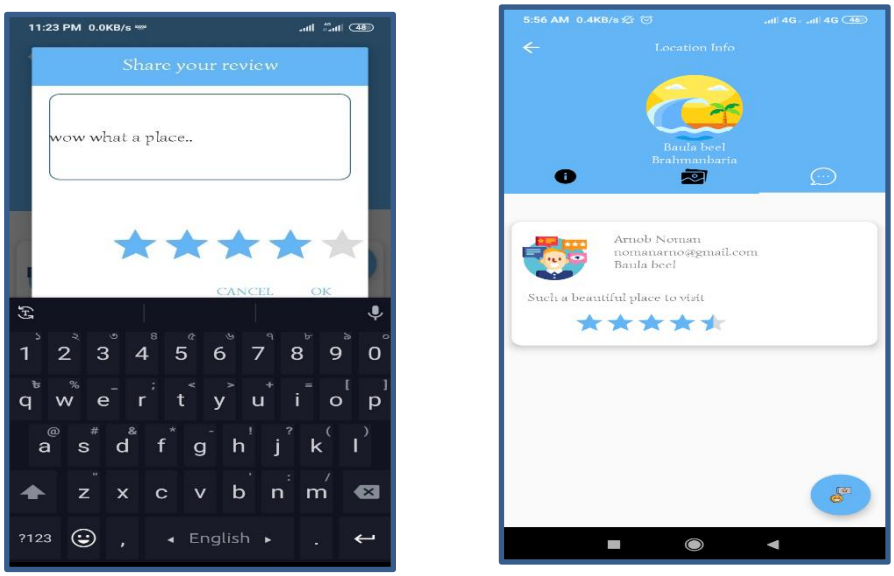

Figure 5.2.4: “Screenshot of see and giving review and rating.”

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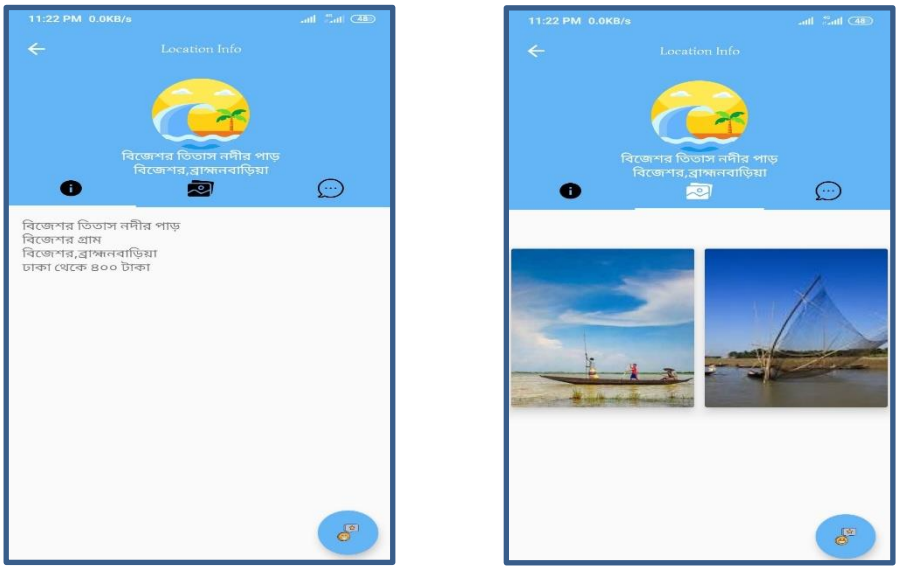

Figure 5.3.1: “Screenshot of seeing information and pictures.”

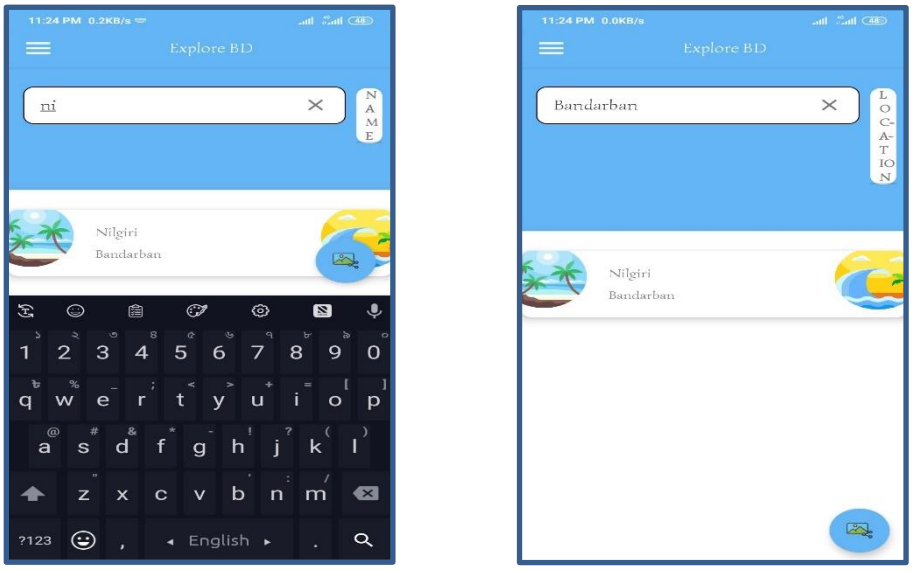

Figure 5.3.2: “Screenshot of searching places by name or location.”

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5.3 Implementation of interaction design

We tried to make our application extremely user-interactive and easy to understand. We used Google, Gmail authentication for signing-up and for log-in, which is fully secured. If user device has logged in with Gmail account, he/she can easily register or login. No need to entering any password. User can edit his/her profile from application drawer menu. User can view his/her post after submit and can delete post if it's wrong.

5.4 Testing Implementation

Implementation is the process to accomplish the objectives and goals. We have finished our unit testing. Since we don't have a competent analyzer, we orchestrate each of the pre requisites. We understand user's requirement then record them and tried to full-fill user's desire.

Test Case for Project on Explore BD

Test Case	Test Input	Expected Output	Actual Output	Result	Tested on
1.Install Application	Tasted on various 1.Jelly Bean (4,1-4.3.1) 2.KitKat (4,4-4.5.1) 3.Lollipop (5.4-5.1.2) 4.Marshmallow (6.2) 5.Nougat (7.0-7.3) 6. Pie (9.0)	Successfully Install all those Versions.	Install Successful	Passed	16/10/2019

Table 2.1.1: Test Case for Project on Explore BD

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5.5 Test Results and Reports

We discovered every single expected outcome according to our testing background. We have tested our application on different devices, since our applications minimum requirements Android 4.4 (KitKat, APIlevel19). We have tested on Android 4.4 (KitKat, APIlevel19), Android5.1 (Lollipop, APIlevel22) and Android 7.0 (Nougat, APIlevel24). Our application has been perfectly worked. When the user will post any place, it will be stored in pending option of admin panel and only the post will be visible from the time admin will approve it. Admin also can add and delete post for this feature only update result will be shown on the screen which will be more effective for travelers.

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CHAPTER 6
CONCLUSION AND FUTURE SCOPES

6.1 Conclusion

This paper provides the concept, structure design, detailed implementation and testing types for our “Explore BD” application. We have to face various issues while implementing this application. We use the latest available technology in our project to run it systematically. The project needs internet connection and it runs without any interrupt.

6.2 Future Scope

Be with nature, be like a nature from this motive we determined ourselves to implement this project. We believe that people are innocent by nature. So, people need to get involved themselves with nature and learn whatever within the nature. Our future aim is to open a gate for every people around the world to make a good relationship with nature.

We will include a notification of a particular area for a particular user so that he/she can get informed of a new placed added in his/her locality.

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Explore BD

ORIGINALITY REPORT

25%	25%	6%	%
SIMILARITY INDEX	INTERNET SOURCES	PUBLICATIONS	STUDENT PAPERS

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