

**TOUR-MATE: AN ANDROID APPS FOR EASY TRAVEL**

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This Report Presented in Partial Fulfilment of the Requirements for the Degree  
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## **APPROVAL**

This Project titled “**Tour-Mate: An Android Apps For Easy Travel**”, submitted by **Md. Rashedul Islam; ID: 143-15-4404**, **Nayem Islam; ID: 151-15-4676**, and **Md. Mohiuddin Babu; ID: 151-15-5174** to the Department of Computer Science and Engineering, Daffodil International University, has been accepted as satisfactory for the partial fulfilment 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 09-12-2018

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## DECLARATION

We hereby declare that, this project has been done by us under the supervision of **Nazmun Nessa Moon, Assistant Professor, Department of CSE** and the Co-supervision of **Ms. Fernaz Narin Nur, 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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Finally, we must acknowledge with due respect the constant support and patients of our parents.

## **ABSTRACT**

This project “Tour Mate” is an Android Application to make tourism easy and comfortable. By using this application, a user can take the taste of his/her journey without any worries. In this application, both a traveller and a tourist can get useful suggestion about tourism places through google map, get direction and even can get cost information and more nearest tourism places. A user can create event from this application which will allow the user to add more people who are interested to join in their journey. To make the journey more memorable, there is an option called “Moments” where the user can upload any photo related to that trip. This application can share it’s saved Event through a process of QR code scanning. This application works both online and offline. So, there’s no worries to get any service provider’s data plans. By using this application, a user can get always into an early declared badged.

This project will help the user to explore the world with less worries and it helps the user to abstain from over expense and it will work as a local guide. We have developed our android application by using JAVA, Socket programming, XML and Firebase.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

Travelling is a passion to some person. It is like a refreshment for both body and soul. Planning for any tour is more fascinating and confusing. And choosing a particular tourist spot is much difficult than it looks like. Many of the travellers' faces problems like finding any hotel, rest house, cafe, ATM and finding nearest tourism spot. The problem takes place when we find ourselves in shortage of money. So we wanted to do something to avoid this type of incidents. We have built an application which will allow the user to get useful and all the related information and suggestion about any tour. If someone is trying to make a trip then our application is always by their side. This will work as a local tourist guide. But the difference comes here. A local tourist guide may cost you a lot of money but on the other hand, they can use our application as a local tourist guide which is totally free of cost and hundred percent effective and accurate. We do believe that this application can make a revolutionary change in the way of travelling and exploring the world.

### 1.2 Motivation

The Current situation of our travelling system that exists in our daily life, either those are expensive or they are not flexible.

Any kind of travelling agency are expensive and their service not as exciting that they should be. So the whole joy of travelling dies when we find any discontinuity and it seems to be a very common issue in every tour which is enough to ruin the whole trip. On the other hand, if the place is unknown, we have to rely on a local person who is known as guide. As a traveller, I have faced so many related problems and fascinating situation. We have thought about this issues and tried to find out a way to eliminate these types of issues. We worked hard for the solution and the idea crossed over our mind. So we've started developing an application that will help the users to get rid of these types of issues and problems. Even we have thought about the weather condition on trip day. What if the weather is not suitable to pay a visit? So we have also included the weather information along with all the features like suggestion, nearby, event management, budget and so on.

### **1.3 Objectives**

Objectives of this project are given below:

- To make an app that will pave the way to joyful tour
- To make an app that helps to keep in budget
- To make an app that carries a huge amount of data about a tourism place.
- To make an app that will allow someone to save picture with event details.
- To make an app that will provide weather information.
- To make an app that will suggest the user nearby visiting spots.
- To make an app that will be replace as a personal tour guide.
- To make an app that will provide the information about nearby ATM.
- To make an app that will provide the information about nearby café.
- To make an app that will provide the information about nearby restaurant.

### **1.4 Expected Outcome**

The expected outcome of this project is to make an android application that will be like giving an opportunity to the users so that they can take the taste of his/her journey without any worries. In this application, both a traveller and a tourist can get useful suggestion about tourism places through google map, get direction and even can get cost information and more nearest tourism places. A user can create event from this application which will allow the user to add more people who are interested to join in their journey. And besides that, to make the journey more memorable.

### **1.5 Report Layout**

In the first chapter of this project report, we have discussed what actually motivated us for the development of this project and from where we've got the inspiration to work on this as well as the objectives of this project and the outcome from this project.

In the second chapter of this report, we have focused on the background of tourism, discussed some similar works, compare the activities and challenges we faced through the project development.

In the third chapter of this report, we have discussed the, use case model, business process model, design requirement, ER diagram, and requirement collection.

In the fourth chapter of this report, we have focused on the front end, back end design specification and requirements for implementing the project.

In the fifth chapter we have showed the project implementation phase, like database, front end, testing and test results implementations.

In the sixth chapter we have conclude our discussion with further development ideas that we have in our minds.

## CHAPTER 2

### BACKGROUND

#### 2.1 Introduction

Planning and going for a tour is always an exciting part of a traveller's life. Not only the travellers but also every single person can take the taste of travelling and tourism. In this modern era, there is a lot of time and cost consuming app has been developed. Most of them may be complicated or they are built with only some specific tasks and options. They have to use different app for different purpose. But in TOUR MATE app, a user can get all the functionality and flexibility in just one app. In this paragraph below we will be talking about the similar technologies and applications that have been used for building this project.

#### 2.2 Related Works

Some trip planner mobile applications, related to our project are given below with their main features:

##### 2.2.1 Local City Guide

One "City Guide" for all travel needs. It's free and works by searching local businesses, banks, ATM's, Bus Stops, and Hospitals. The app has over 21 different categories providing you with nearby information.

The figure 2.1 shows some key features that are included in Local City Guide:

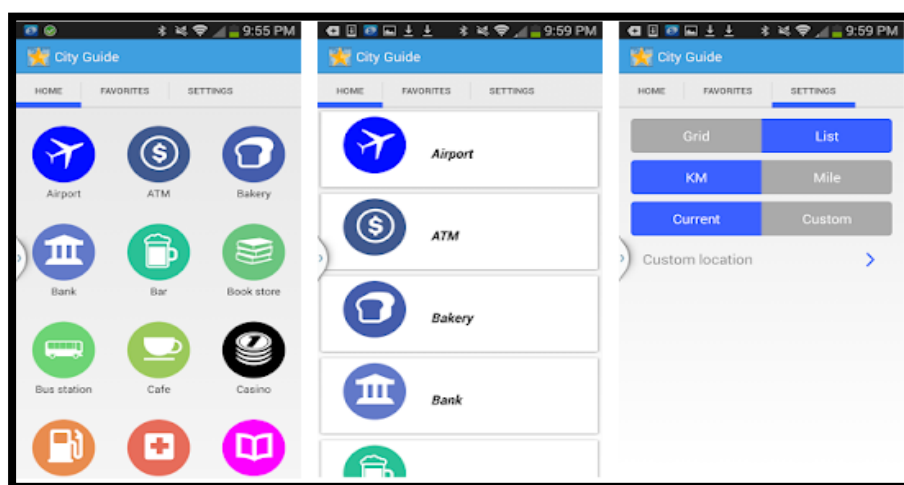


Figure 2.1: Local City Guide

## Key Features:

- Works in Any City Around The World
- Nearby - Location Based Results
- One Touch Directions
- App Auto Detects User Location By GPS
- App Works Without GPS by Detecting Nearby Cell Phone Towers
- Displays Results in Miles or Kilometres
- List View or Grid View Icon Display

### 2.2.2 Google trips – Travel planner

Google Trips makes exploring the world easier by organizing your essential info in one place and making it available even offline. Get activity suggestions based on what's nearby, customizable day plans, and your travel reservations from Gmail.

The figure 2.2 shows some key features that are included in Google Trips:

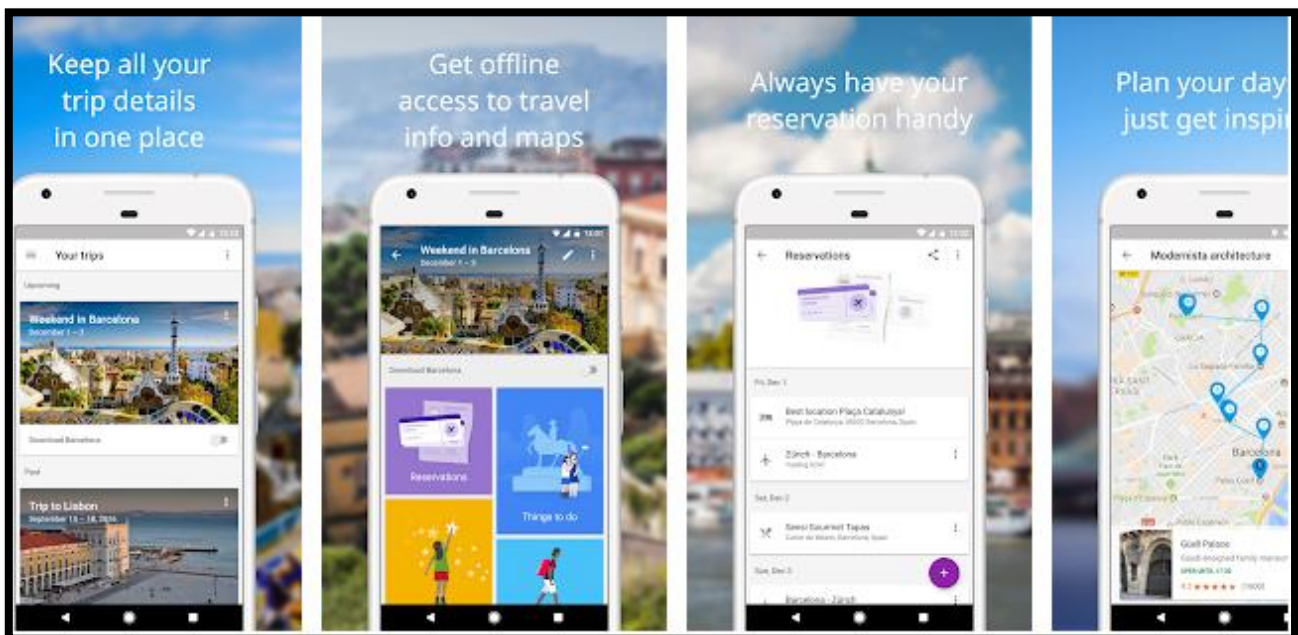


Figure 2.2: Google Trips



## Key Features:

- Automatic trip organization
- Bundled reservation
- Day plans
- Things to do
- Offline access

### 2.2.3 Trip Plans -TripHobo

Plan your custom trips to anywhere in the world with Trip Plans by TripHobo App. Explore from the variety of destinations across the world, add attractions, restaurants and book hotels and visualize a step-by-step day-wise travel plan in minutes with this Trip planner.

The figure 2.3 shows some key features that are included in Trip Plans-TripHobo:

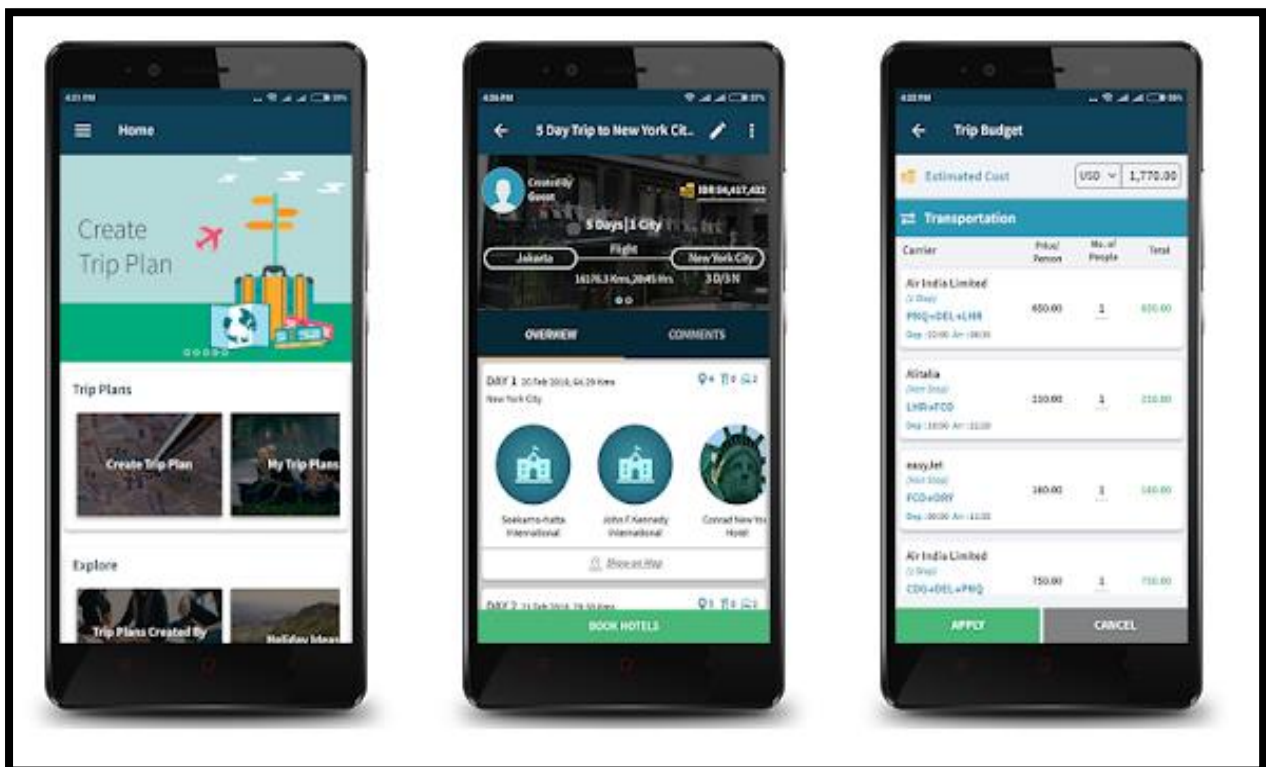


Figure 2.3: Plans-TripHobo

## Key Features:

- Create custom Trip Plans
- Personalize travel itineraries to suit user's interests
- Personalize travel itineraries to suit user's needs
- Personalize travel itineraries to suit user's budget
- Book Hotels: Choose from wide range of accommodation

### 2.2.4 Local Guide Assistant

Display a list of reviews and photos posted by the local guide function of Google Maps. You can see the increase in the number of post reviews and the number of photos viewed. And can list posts of photos on the map.

The figure 2.4 shows some key features that are included in Local Guide Assistant:

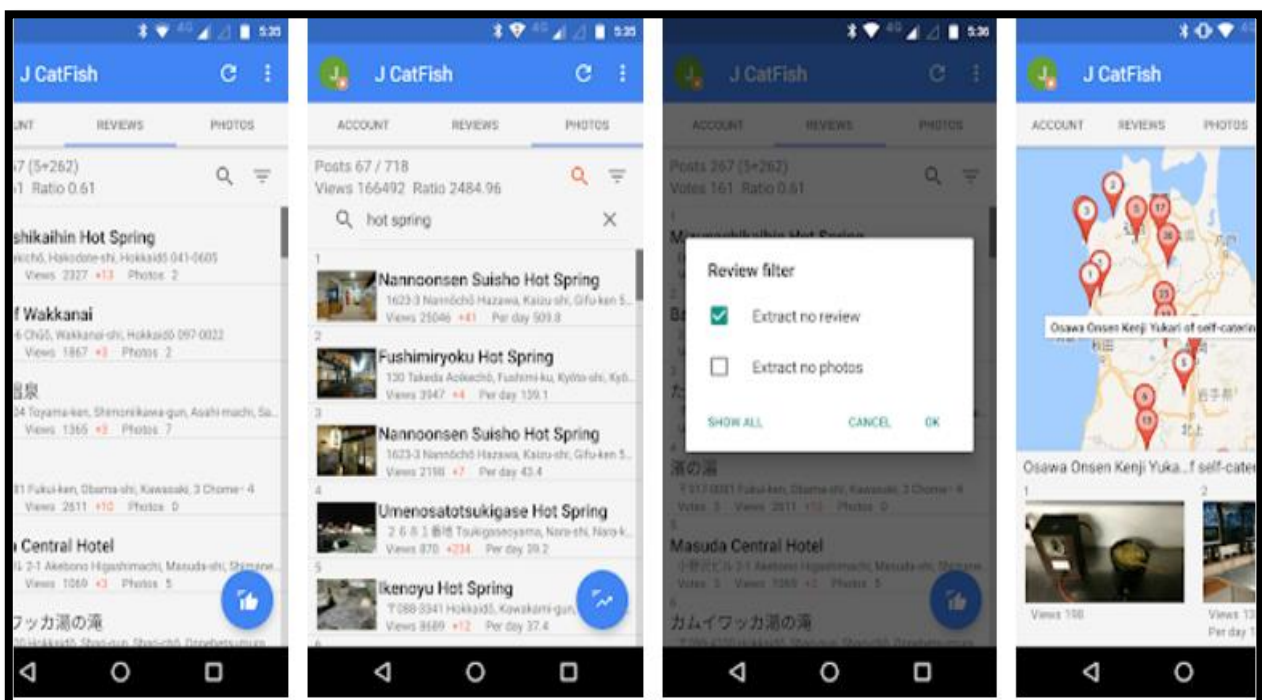


Figure 2.4: Local Guide Assistant

**Key Features:**

- Display a list of reviews.
- Display a list of photos.
- Takes guide function of Google Maps.
- This application takes a lot of time to communicate.

**2.3 Comparative Studies**

There are some work that have researched previously in the context of “Tour Mate” application that we have mentioned in the above section of this report. Those works some way relatively similar to our project. But they are not same at all. They are different in many ways. It can easily be said that, “Tour Mate” application is a total full packaged combination of these application. Those application are different in platform and some are limited in work and features. But the constriction method of those application helped us getting the idea of how we should build our project. We have figured out which features we should use, so that we can make a different and an alternative application with respect to those previous applications.

**2.4 Scope of the problems:**

We have faced many problems in the way of building and developing this mobile application. The first thing was to find some relevant resources for the similar projects. Because, every resource we’ve came across to make this project, are most likely made for simple data set and refer to google API based. So, getting the ideas from those application, integrating it into in our application was one of the greatest problems. On the other hand, some features are mostly specified for each application. We have tried to integrate them into this one application. So, basically, the major problem took place while integrating these features into this project.

## 2.5 Challenges

During working on this project, we have faced some challenges and here we have listed out some of them:

- Finding relevant resources.
- Integrating socket programming in android.
- Getting relevant information from google map.
- Uploading photos as moments.
- Showing weather forecast in the same app.
- Gathering information from nearby.
- Sorting the unsorted features form similar apps.

# CHAPTER 3

## REQUIREMENT SPECIFICATION

### 3.1 Business Process Modeling

Business process modeling, often called process modeling is the analytical representation or illustration of an organization's business processes. Along with business process discovery, process modeling is widely viewed as a critical component in successful business process management (BPM). The following figure 3.1 shows Business Process model:

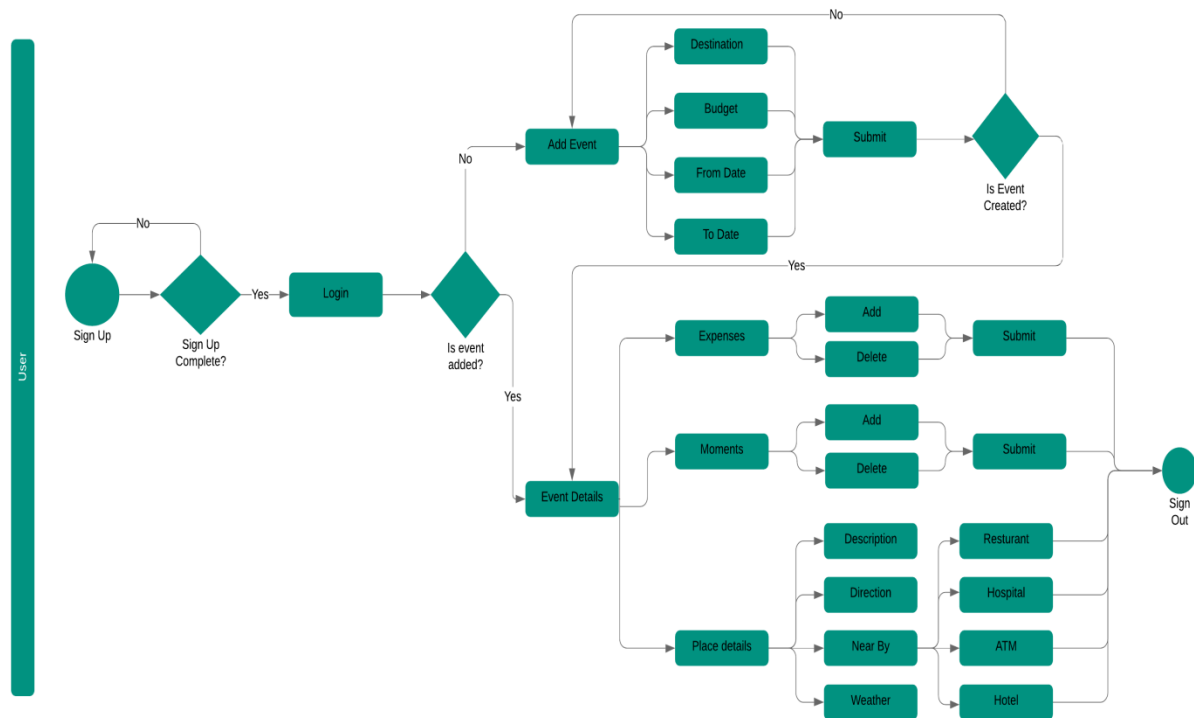


Figure 3.1: Business Process model.

### 3.2 Requirement Collection and Analysis

Collecting requirements and analysing them for any project is the most important part because the whole system is based on this knowledge. No project can be start without planning the project requirements. Majority of the failed projects have failed due to the wrong or insufficient requirements gathering. If the project team fails to capture all the necessary requirements for the solution, the project will be running with a risk. This may load many problems in future such as a result the full project can be damaged. After collecting all the requirements and

analysing them, we have found the necessary features that our application needs. It provides all the specifications of the system in details which is very effective for every user.

The current problem is to organise an event and messing around for that. But using our application, it will be very easy and organised. Using this application can save out time and our money as well. Cost and time is the major fact of requirement. The method in collecting the requirements may vary depending on the situation but using the various methods it will be very helpful to collect the complete requirements.

### 3.3 Use Case Modeling and Description

A use case is a software and system engineering term that describes how a user uses a system to accomplish a particular goal. A use case acts as a software modeling technique that defines the features to be implemented and the resolution of any errors that may be encountered. The system is used by 1 type of users and its user. The model in Fig 3.2 is usually short yet description.

#### Use Case Modeling

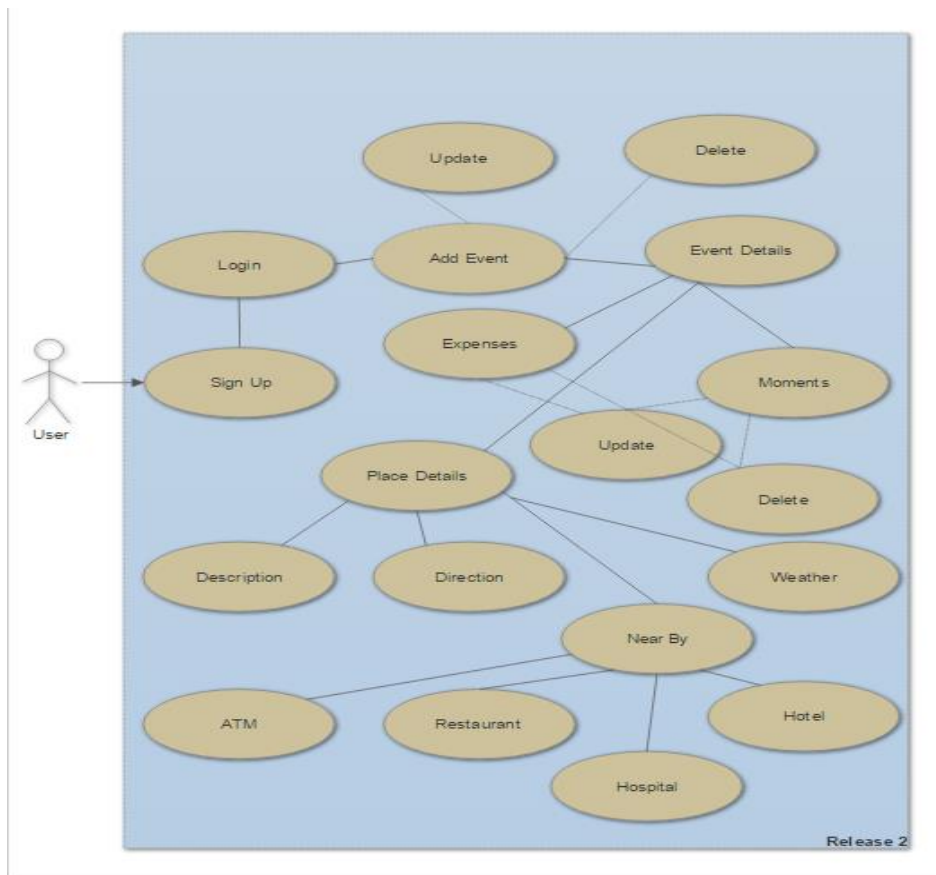


Figure 3.2: Use Case Model.

## User use case details:

**Table 3.1- Use Case of User Login**

Use Case name: User Login	
Use case details	User login into the system
Precondition	User must be registered
Actor	User
Normal flow	<ol style="list-style-type: none"><li>1. User Provides login information</li><li>2. Get access of the system</li></ol>
Alternative flow	Login details not valid
Post-condition	Redirected to the home page.

**Table 3.2- Use Case of Add Event**

Use Case name: Add Event	
Use case details	Users create an event
Precondition	User must be logged in
Actor	User
Normal flow	<ol style="list-style-type: none"><li>1. Provide Travel destination</li><li>2. Provide estimated budget</li><li>3. Provide traveling time and return time.</li></ol>
Alternative flow	All details are not provided.
Post-condition	Redirected to the event details

**Table 3.3- Use Case of Event details**

Use Case name: Event details	
Use case details	Users can view their created event
Precondition	User must have created an event
Actor	User
Normal flow	<ol style="list-style-type: none"><li>1. Update event</li><li>2. Delete event</li><li>3. Manage expenses</li><li>4. Add moments</li></ol>
Alternative flow	Event not found
Post-condition	Redirected to the action.

**Table 3.4- Use Case of Expenses**

Use Case name: Expenses	
Use case details	Users can manage their tour expenses
Precondition	User must have created an event
Actor	User

Normal flow	<ol style="list-style-type: none"> <li>1. Update expenses</li> <li>2. Delete expenses</li> </ol>
Alternative flow	Can't modified
Post-condition	Redirected to the expenses page

**Table 3.5- Use Case of Moments**

Use Case name: Moments	
Use case details	Users can manage their tour expenses
Precondition	User must have created an event
Actor	User
Normal flow	<ol style="list-style-type: none"> <li>1. Update expenses</li> <li>2. Delete expenses</li> </ol>
Alternative flow	Can't modified
Post-condition	Redirected to the moments page

**Table 3.6- Use Case of Place details**

Use Case name: Place details	
Use case details	Users can view place details
Precondition	User must logged in and set a destination place
Actor	User
Normal flow	<ol style="list-style-type: none"> <li>1. Description</li> <li>2. Direction</li> <li>3. Weather</li> <li>4. Near by</li> </ol>
Alternative flow	Destination is not set
Post-condition	Redirected to the Place details page

**Table 3.7- Use Case of Description**

Use Case name: Description	
Use case details	Users can view place description
Precondition	User must logged in and set a destination place
Actor	User
Normal flow	<ol style="list-style-type: none"> <li>1. View Description</li> </ol>
Alternative flow	Description is not available
Post-condition	Redirected to the Place details page



**Table 3.8- Use Case of Direction**

Use Case name: Direction	
Use case details	Users can view place direction
Precondition	User must logged in and set a destination place
Actor	User
Normal flow	1. View direction
Alternative flow	Direction is not available
Post-condition	Redirected to the Place details page

**Table 3.9- Use Case of nearby places**

Use Case name: Near By	
Use case details	Users can view nearby places
Precondition	User must logged in and set a destination place
Actor	User
Normal flow	1. View nearby places
Alternative flow	Nearby places is not available
Post-condition	Redirected to the Place details page

**Table 3.10- Use Case of nearby places**

Use Case name: Weather	
Use case details	Users can view weather of the current place
Precondition	User must logged in and set a destination place
Actor	User
Normal flow	1. View place weather
Alternative flow	Weather is not available
Post-condition	Redirected to the Place details page

### 3.4 Logical Data Model / Data Flow Diagram

The following figure 3.3 represents logical data model

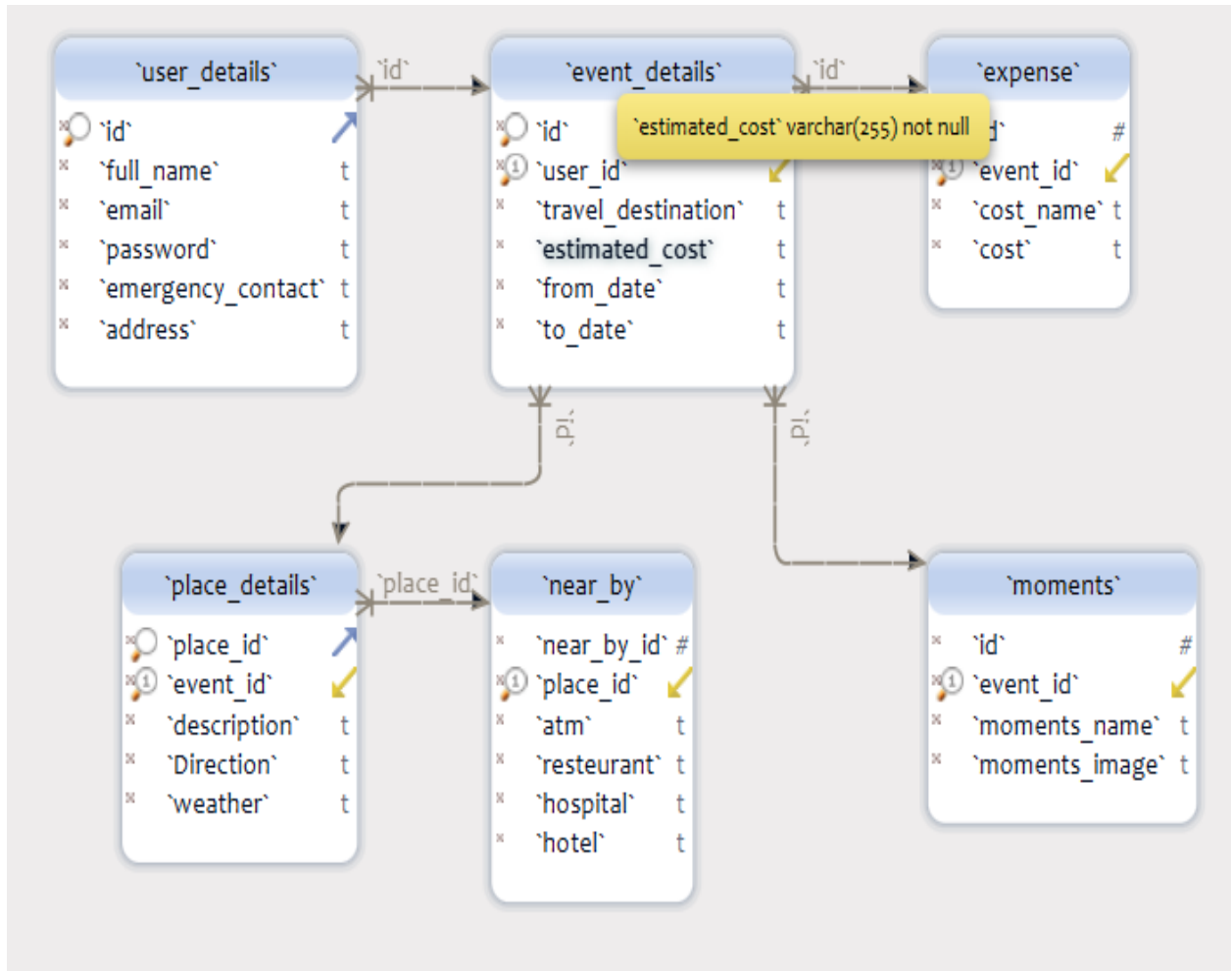


Figure 3.3- Logical Data Model

The following figure 3.4 represents the data flow diagram.

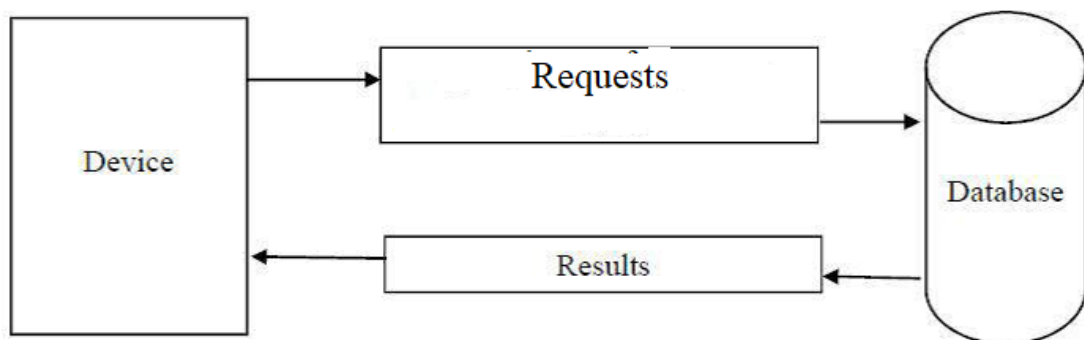


Figure 3.4- Data Flow Diagram

### **3.5 Design Requirements**

Design requirements state is the important characteristics that our design must meet in order to be successful. It makes an application more users friendly. To make an application straight forward and easy to understand we must need Design requirement. For this project, the following requirements must be addressed to reach our goal.

Design requirements for the User

- Sign Up
- Login
- Add Event
- Event details
- Manage Expenses
- Manage moments
- Description
- Direction
- Weather
- Near By
- ATM
- Restaurants
- Hospital
- Hotel
- Sign out

## **CHAPTER 4**

### **DESIGN SPECIFICATION**

#### **4.1 Front-End Design**

Front-end design is very important part of an application. The purpose of front-end design is to make the user experience easy and better. By keeping this in our mind, we have built our application very user friendly and easy to interact.

The Front end design of this project, has been done by XML. Which is elaborated as Extensible Mark-up Language.

The basic front-end design includes a sign in and a sign up option. If the user chooses sign up option, the user have to register himself/herself to this application. After sign up procedure, the user can sign into the application. After signing in, the user can see a sidebar containing list view buttons such as Events, Nearby, Weather and Sign out. There are some use of menu bar, fragment, alert view etc.

In the home page of the project there is four tab views to begin with. Those are the place, event starting date, event end date and budget.

The Second page of this application is event which is similar to the home screen. That also provides the user information which is relatively known as user profile.

Third page of this application represents the nearby. In this page, a user can see place suggestions of nearby café, ATM booth, Hotel, Restaurant and hospital.

Fourth page of this application contains the weather forecast. Which is a very useful option for every travellers. This page shows the user about seven days forecast of the weather with days, temperature, location and relative animation of the condition of weather.

On the home page, user can see the event place along with budget. After adding the event, there are two option. They are Expense and moments. In expense bar, the users can see their meal cost and fare cost with date and time.

Sliding to the next bar which is moments. In this tab, user can update and delete some photos that he captured during the event.

Actually, we have tried to make this very user friendly and easy to use.

## **4.2 Back-End Design**

Back-end of any website, application or any software is where logical function happens. That means it is the main logistic part that defines the app how and what its functionalities.

Back-end design of this application has been completed by using android studio that requires java and Java Socket programming. We have made this flexible and functional by using Google Map API and other useful logics and also weather forecast APIs. We also have used SQLite database store to our data and personal information.

For the online part of this application we have used Firebase as an online database platform for this application.

## **4.3 Interaction Design and UX:**

User experience design (UX) is the process of enhancing user satisfaction with a product by improving the usability, accessibility, and pleasure. UX design is the process of designing (digital or physical) products that are useful, easy to use, and delightful to interact with. It's about enhancing the experience that people have while interacting with your product, and making sure they find value in what you're providing. This is the process of creating products that provide meaningful and relevant experiences to users. This involves the design of the entire process of acquiring and integrating the product, including aspects of branding, design, usability, and function.

A user might not know how to handle a device properly. Thinking on this prospect our application is designed so simply that a user can use it easily.

The following figure 4.1 represents user activity.

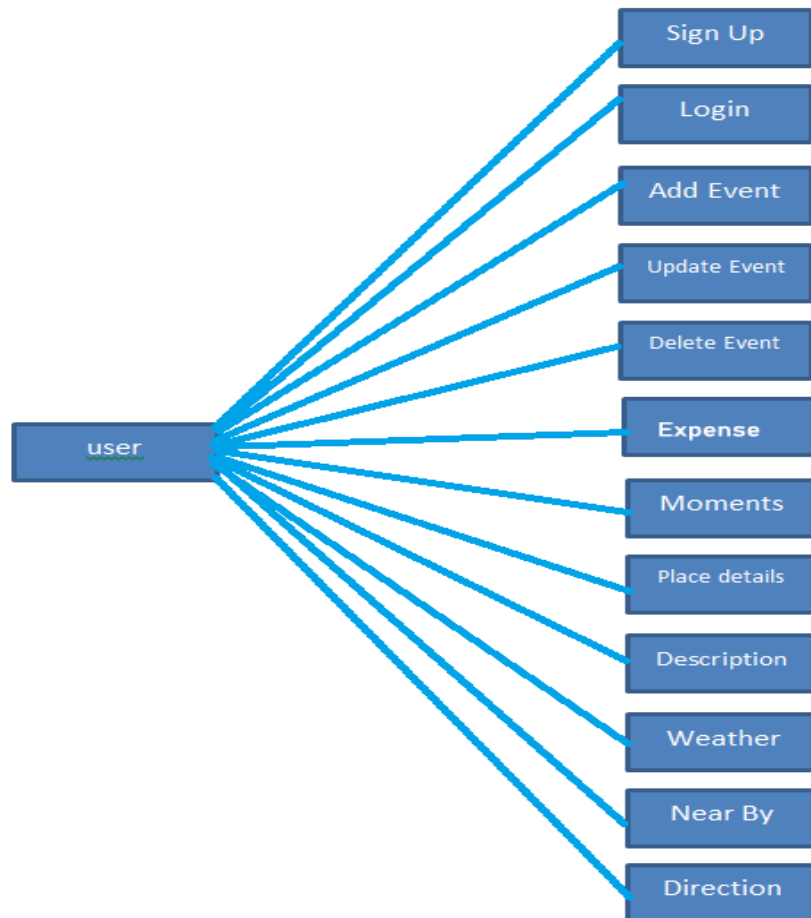


Figure 4.1- User Activity

#### 4.4 Implementation Requirements

Implementation is the carrying out, execution, or practice of a plan, a method, or any design, idea, model, specification, standard or policy for doing something. As such, implementation is the action that must follow any preliminary thinking in order for something to actually happen.

For an implementation process to be successful, many tasks between different departments need to be accomplished in sequence.

The followings things are required to implement this application.

1. ACCESS\_NETWORK\_STATE
2. Internet

3. An android phone
4. Installed application

This application is a dynamic application to get place details, direction, weather and nearby places. That's why this application needs network permission and location permission.

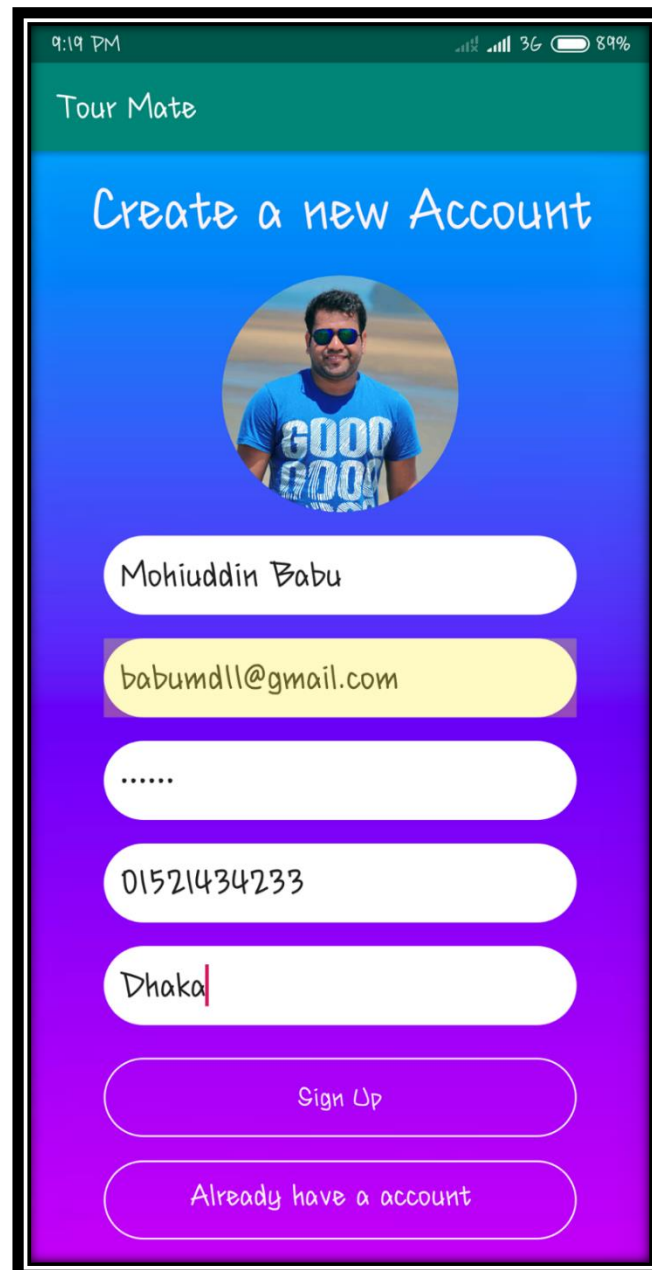
## CHAPTER 5

### IMPLEMENTATION AND TESTING

#### 5.1 Application Implementation

##### 5.1.1 Implementation of Sign up Procedure:

In this page, the application shows its sign up contents along with a sign in and a sign up button:



**Figure 5.1:** Sign up page



### 5.1.2 Implementation of Log in Procedure:

In this page, the application shows its Log in option that allow the user to use the application.

Here is an input option for user email and password section.

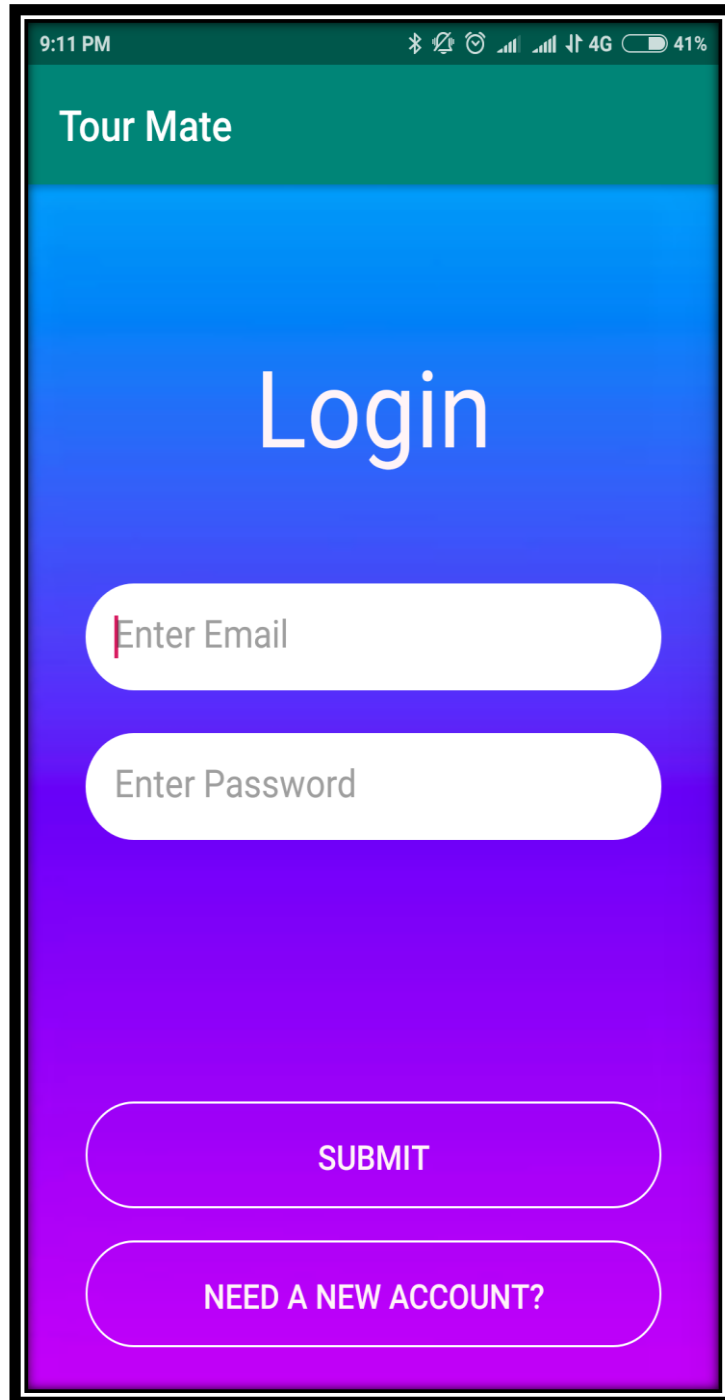


Figure 5.2: Log in page

### 5.1.3 Implementation of Menu Bar:

In this page, the application shows its menu bar which is implemented on top left hand side. This also works as a slide bar.

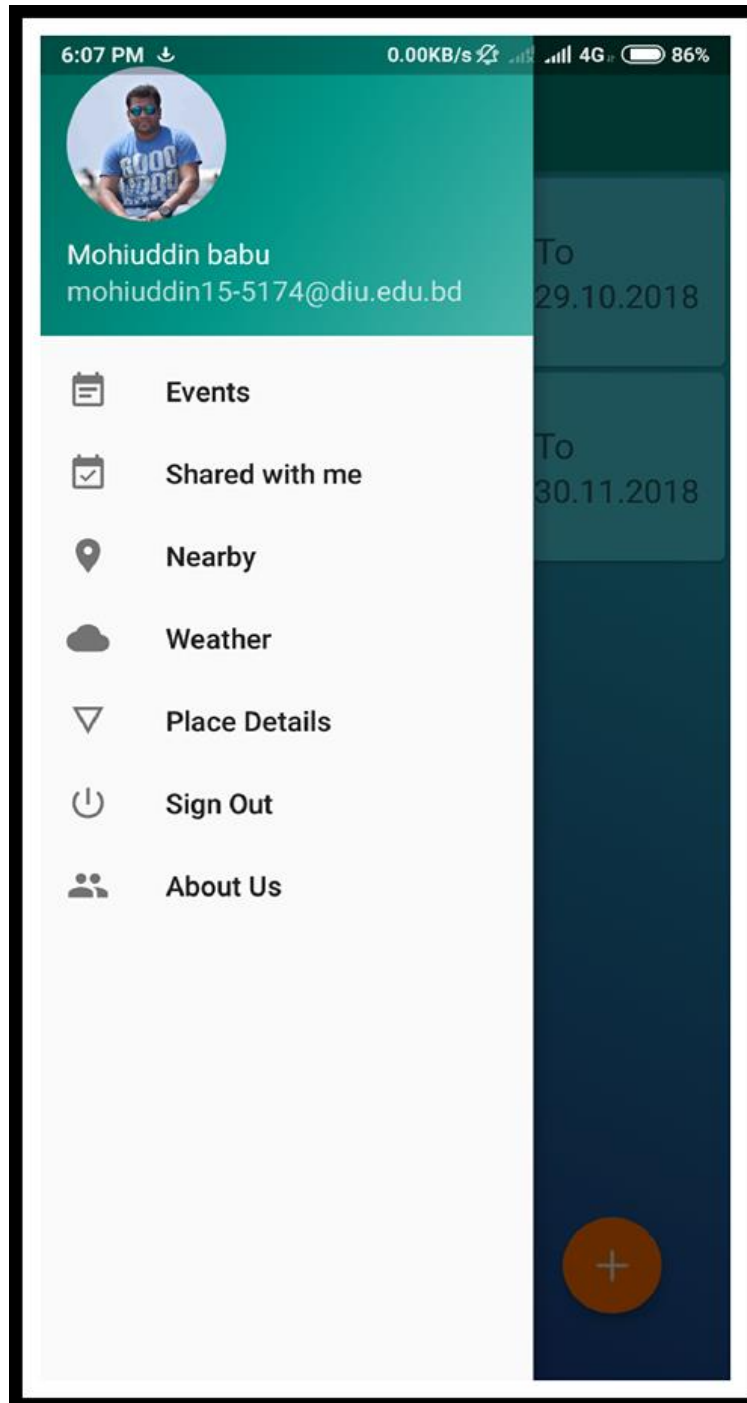
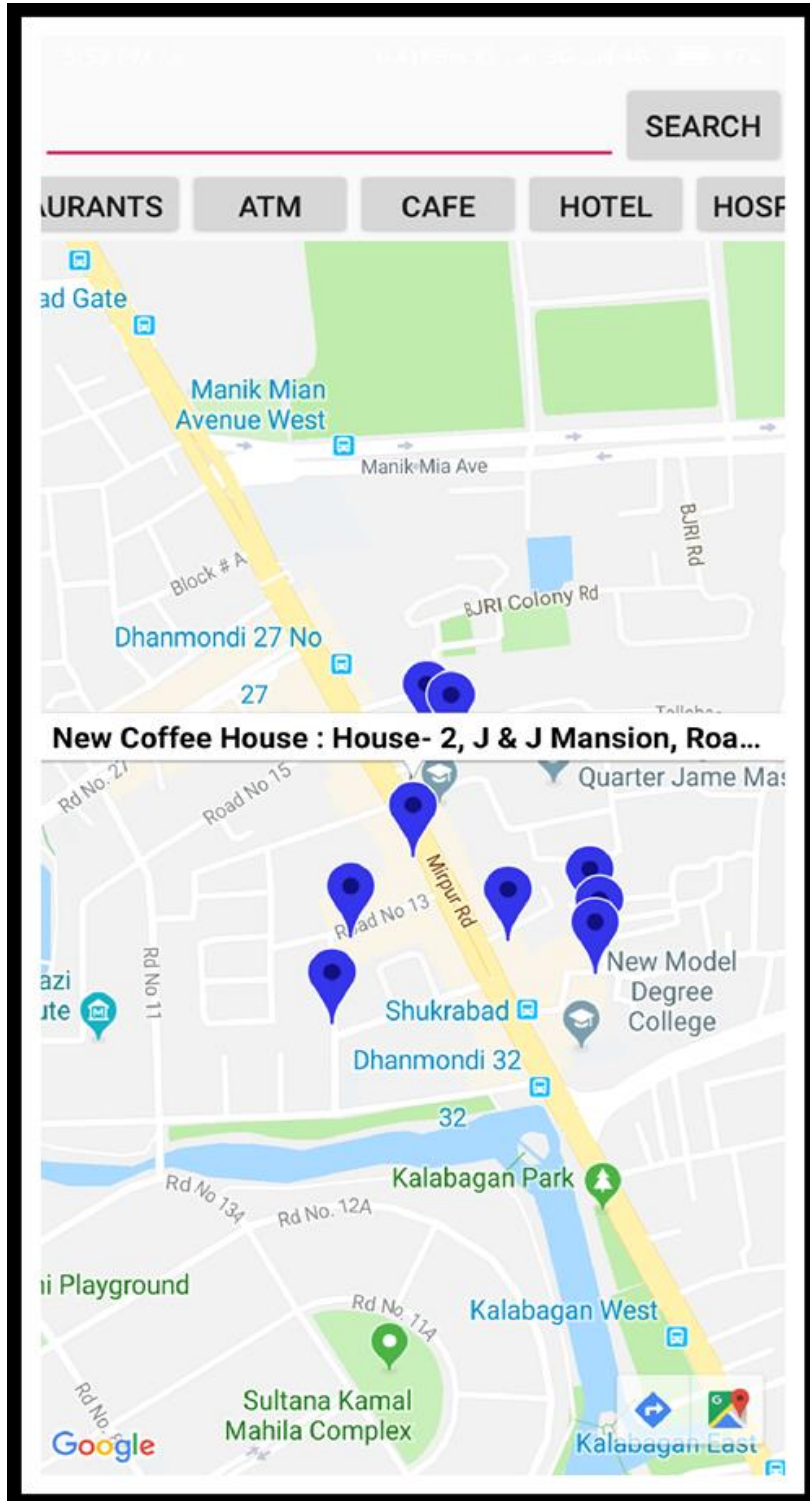


Figure 5.3: Menu bar

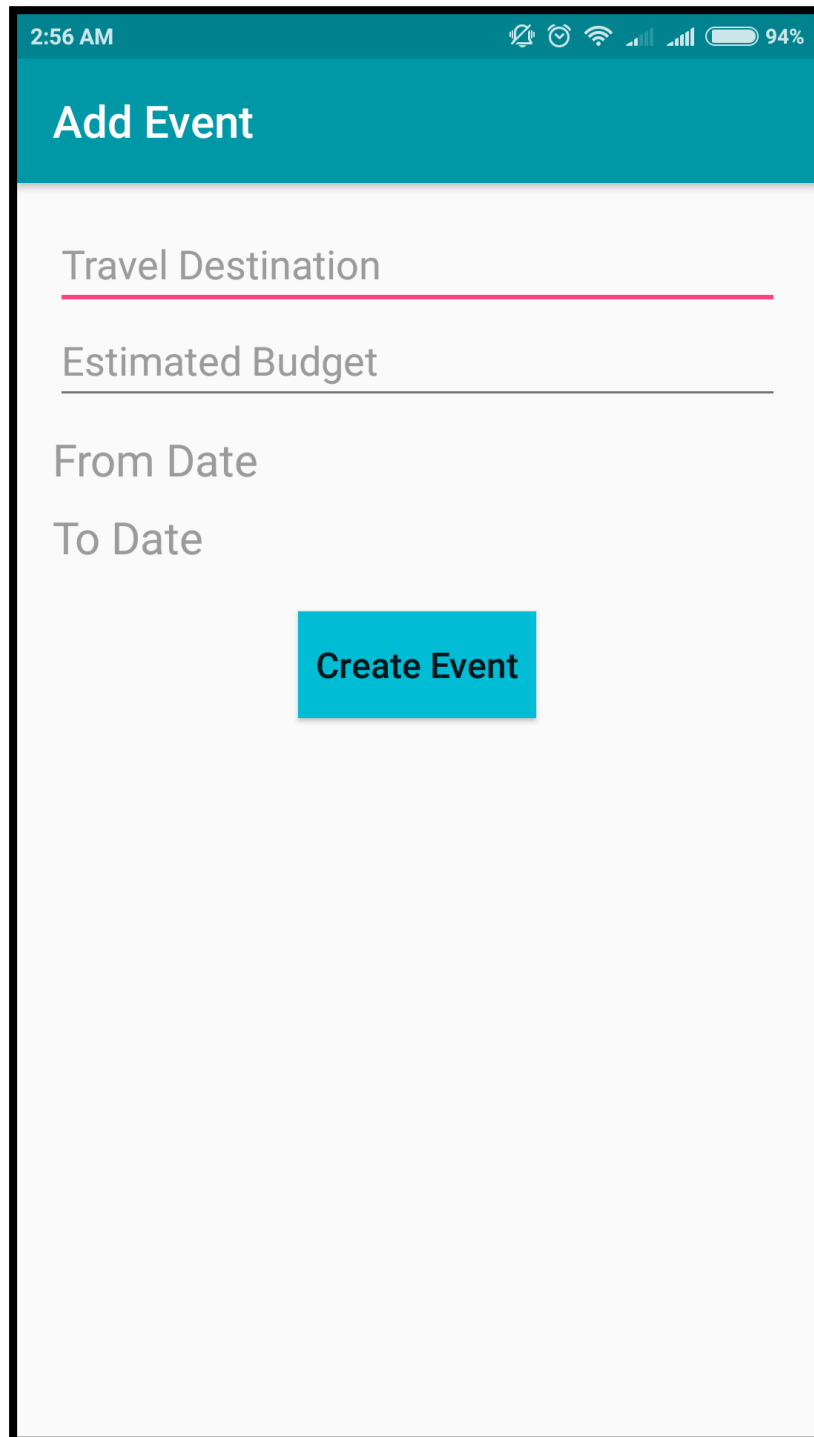
**5.1.4 Implementation of google map:** In this page, the application shows its location functionality along with café, ATM, Restaurant, Hospital suggestion option.



**Figure 5.4:** google map implementation

### 5.1.5 Implementation of Adding Event:

In this page, the application shows its event adding option. That means in this page a user can create event by some simple inputs like Travel destination, Estimated Budget, From Date, To Date and a simple Create Event button.



2:56 AM

**Add Event**

Travel Destination

Estimated Budget

From Date

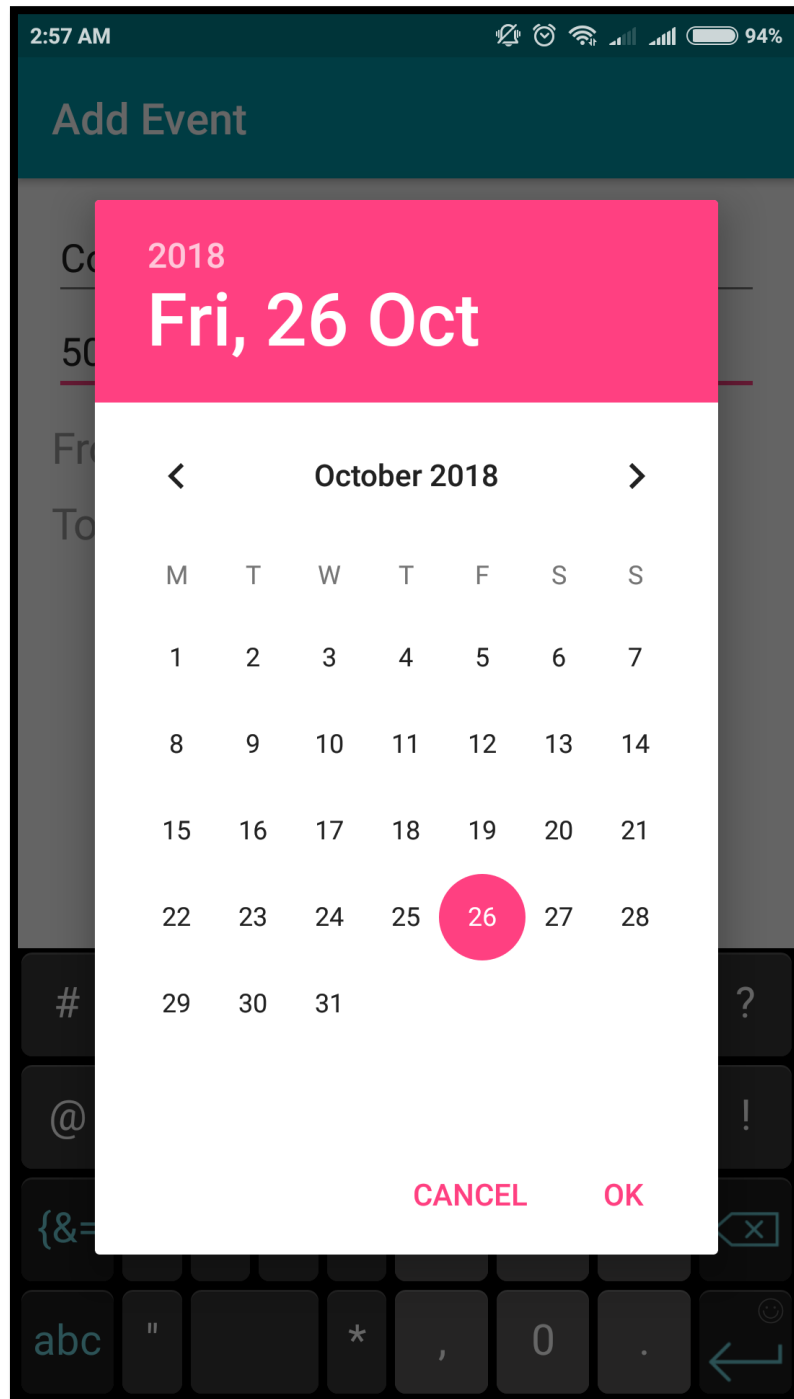
To Date

**Create Event**

**Figure 5.5:** Create event

### 5.1.6 Implementation of setting Event date:

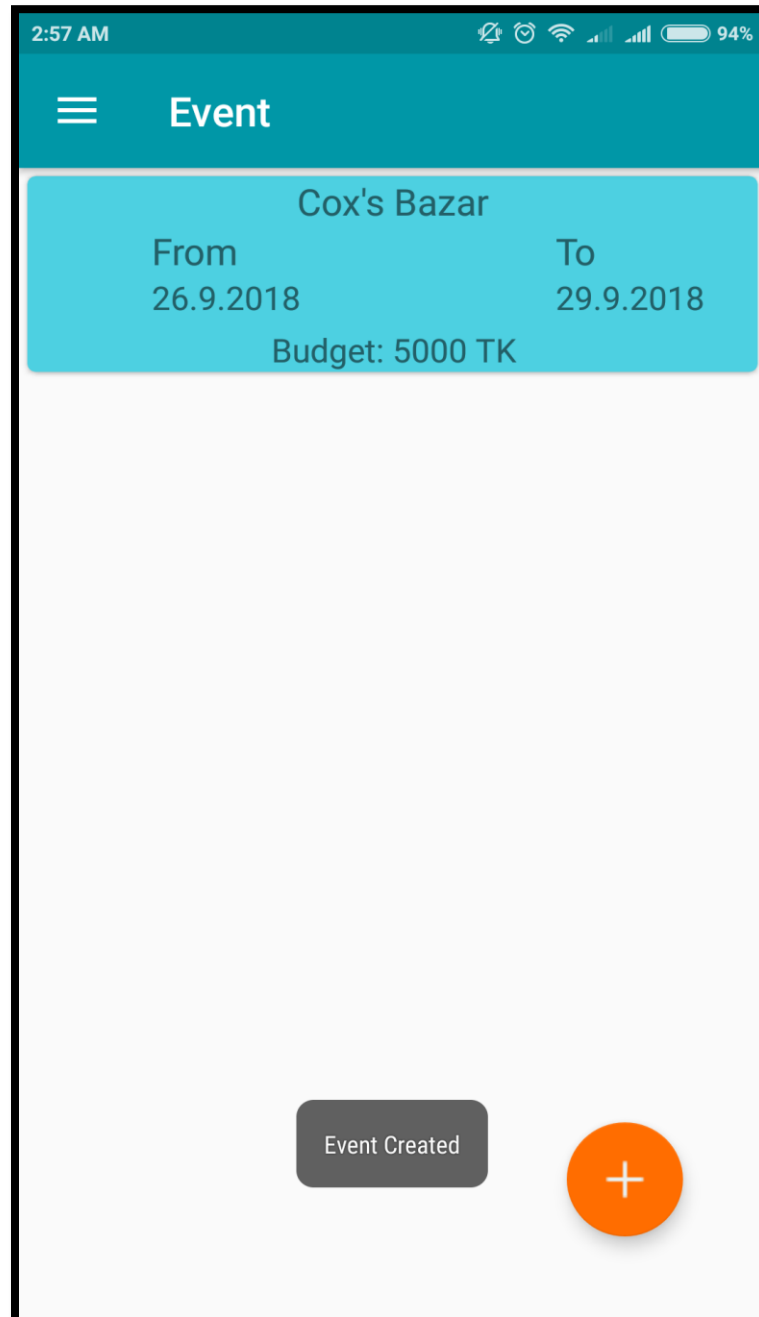
In this pop-up page, the application shows a representable calendar to fix a date for the event:



**Figure 5.6:** Setting event date

### 5.1.7 Implementation of Event page:

In this page, the application shows its created event with its starting date, ending date and fixed budget. There is also a button to create multiple event for another tour. This page flashes a flash message after successfully created event.



**Figure 5.7:** Event page

### 5.1.8 Implementation of Expense table:

In this page, the application shows the fixed budget for the event. It also calculates meal cost and fare cost for each tour. User can see, update and delete his/her expense along with date and time.

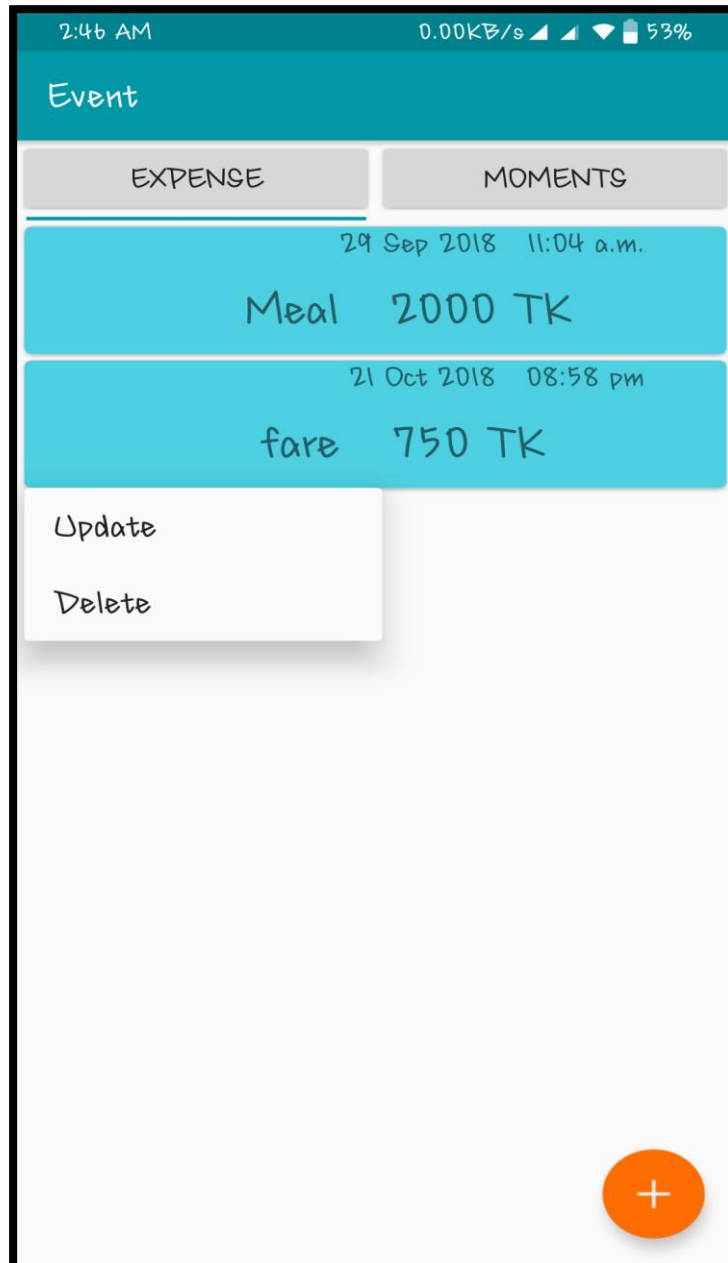
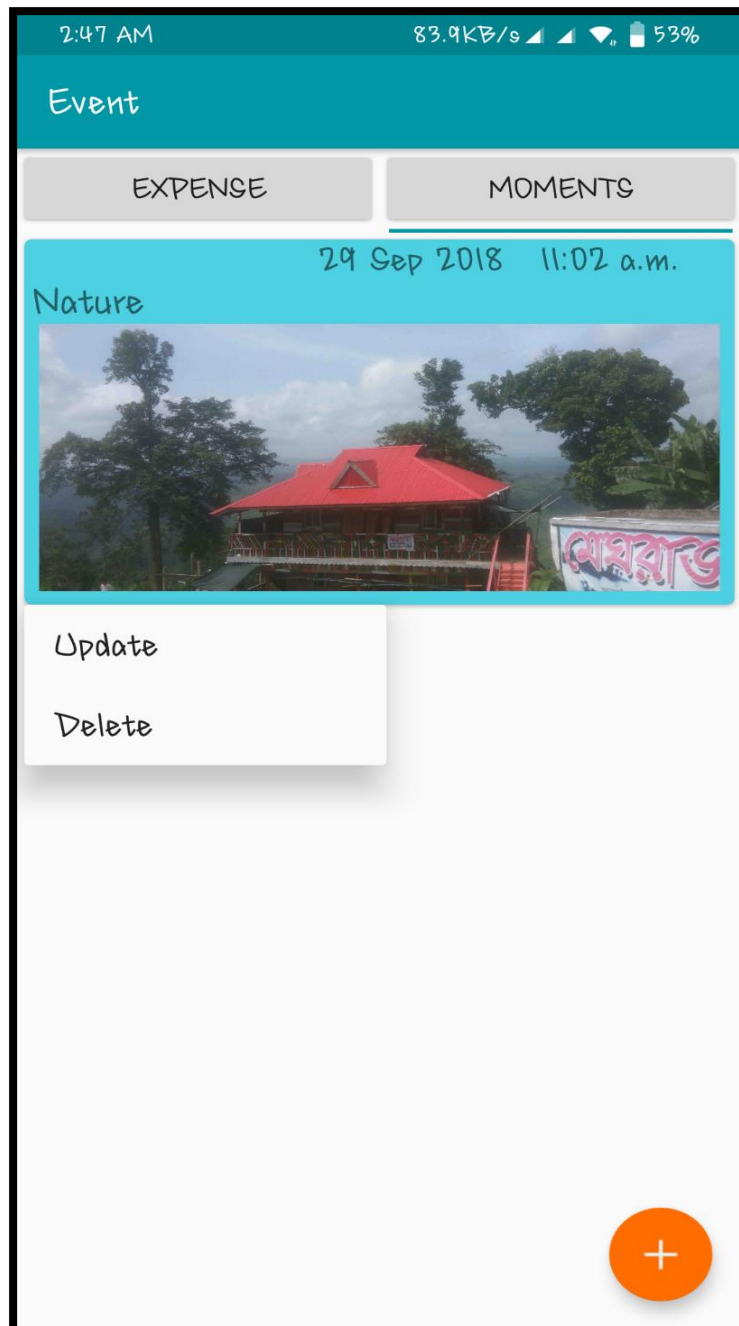


Figure 5.8: Expense table

### 5.1.9 Implementation of Moment table:

In this page, the application gives an option to upload photo during tour. The photos can be deleted, if the user wants to delete.



**Figure 5.9:** Moment Table



### 5.1.10 Implementation of Shared with me:

In this page, the application shows another event where we can scan QR code and add new event.



**Figure 5.10:** Shared with me First page

**Displaying QR code to scan :**

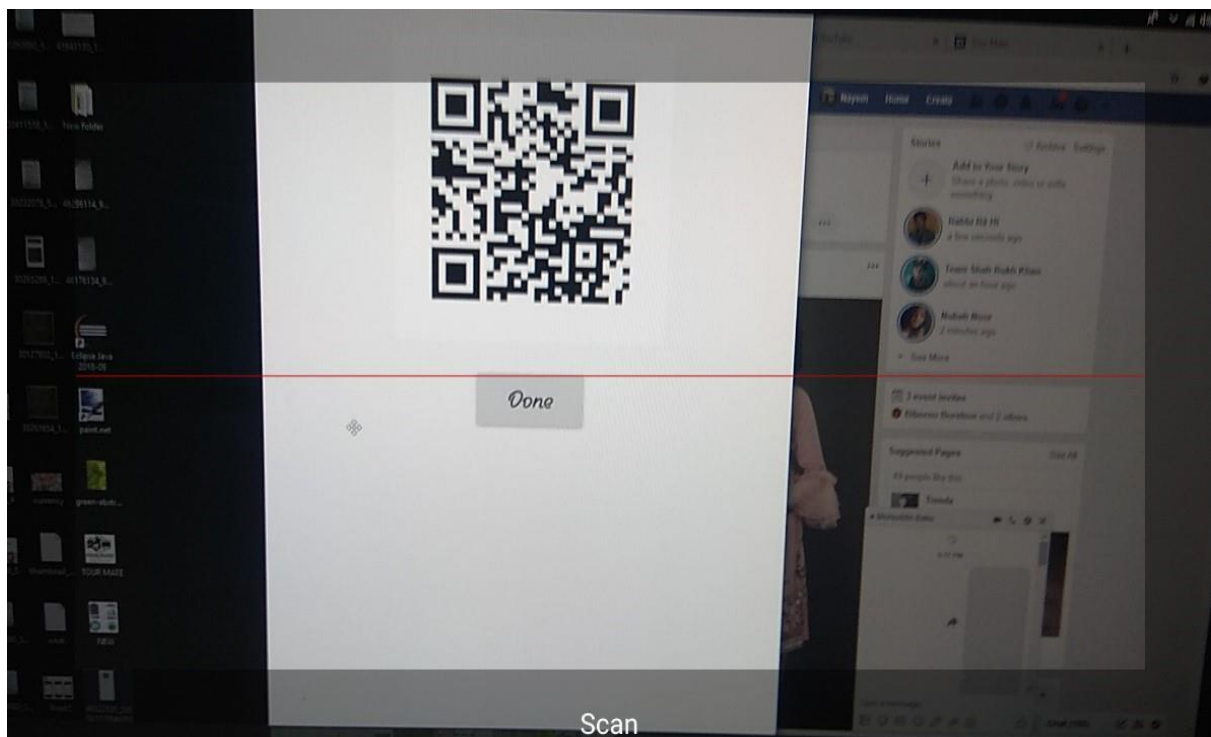
In this page,we can show QR code for add new event.



**Figure: 5.11:** QR code

## Scanning QR code:

In this part of this application, the app allows the user to scan QR code with the help of the camera of the device.



**Figure 5.12:** Scan QR Code

### Add Shared with Me Event:

This page shows the shared event that have been add to other user's Device.



**Figure 5.13:** Add Shared with Me Event

### 5.1.11 Implantation of Weather Forecast:

In this page, the application shows the weather forecast along with location in degree Celsius. It shows seven days forecast in a row.



**Figure 5.14:** Weather forecast

### 5.1.12 Implementation of Place Details:

In this page, the application shows every Tourist Place Details. Here, Six place demo fig 5.16 & 5.17 show place full details.



Figure 5.15: Place Name

## Show Place Details:

In this page, the application shows place details.

9:41 AM

TourMate

### ফয়েজ লেক



ফয়েজ লেক ( foy's lake ) :

ফয়েজ লেক ( Foy's Lake ) চট্টগ্রামের পাহাড়তলী রেলস্টেশন এর অদূরে (চট্টগ্রাম শহর থেকে মাত্র ৮ কিমি. দূরে অবস্থিত ) খুলশি এলাকায় অবস্থিত একটি কৃত্রিম রদ। এটি ১৯২৪সালে আসাম বেঙ্গল রেলওয়ে কর্তৃপক্ষ এর তত্ত্বাবধানে খনন করা হয় এবং সেসময় পাহাড়তলী লেক হিসেবে পরিচিত ছিল। পরবর্তীতে ইংরেজ রেলপ্রকৌশলী ফয়-এর (Foy) নামে নামকরণ করা হয় । বর্তমানে এটির মালিকানা বাংলাদেশ রেলওয়ের তবে এটি পরিচালনা করে কনকর্ড। ঢাকার ফ্যান্টাসি কিংডমও একই কোম্পানীর।

বেশ বড় মাপের (৩৩৬ একর জমি) এই লেকটি পাহাড়ের এক শীর্ষ থেকে আরেক শীর্ষের মধ্যবর্তী একটি সংকীর্ণ উপত্যকায় আড়াআড়ি ভাবে বাঁধ নির্মাণের মাধ্যমে সৃষ্ট। আড়াআড়ি ভাবে নির্মিত বাঁধটি চট্টগ্রাম শহরের উত্তর দিকের পাহাড় শ্রেণীর

**Figure 5.16:** Place Details

## 5.2 Database implementation

In Firebase, we have programmed to save the data. All the information like event budget, event destination, event date photos and other user information.

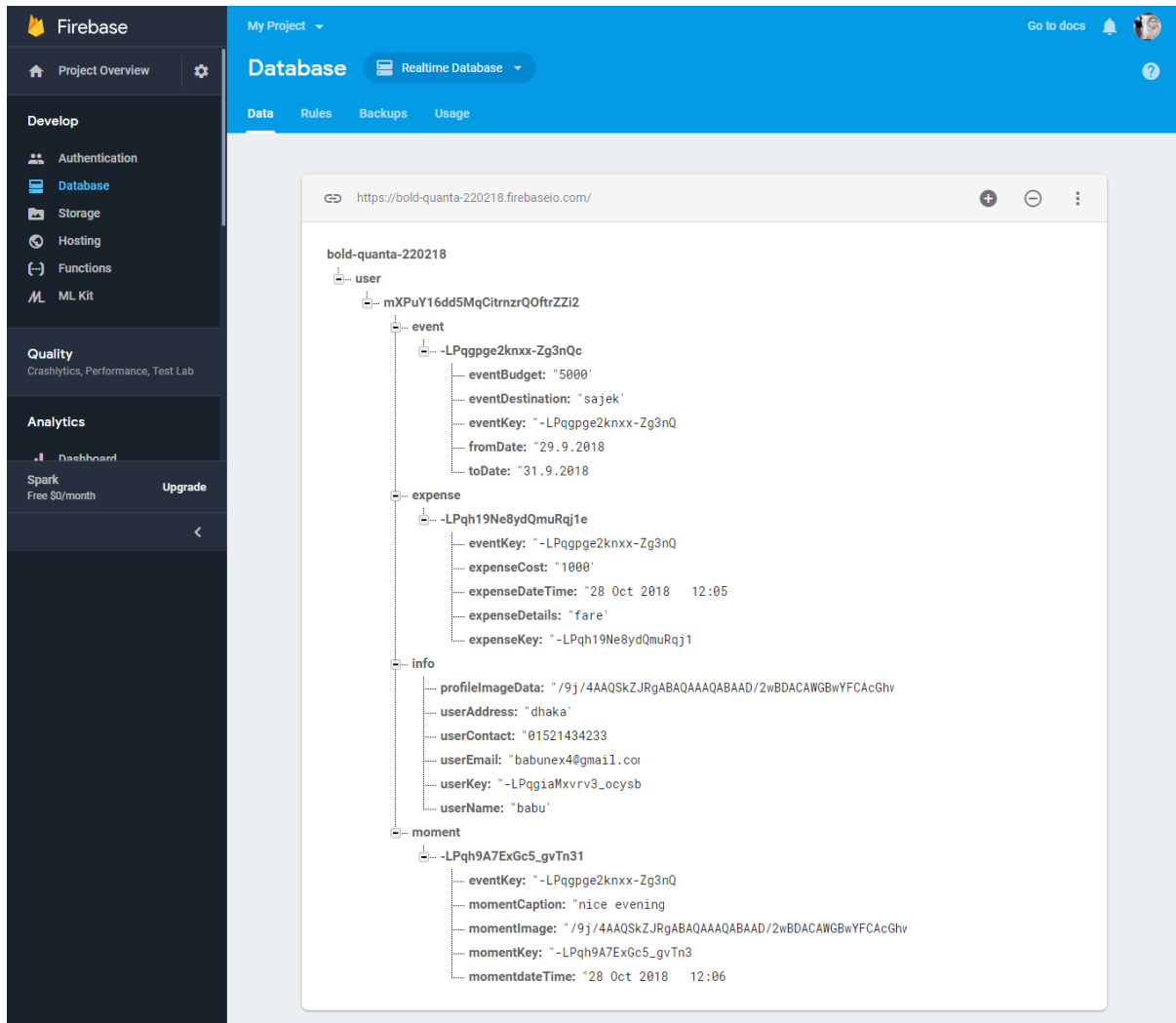


Figure 5.17: Database implementation



## CHAPTER 6

### CONCLUSION AND FUTURE SCOPE

#### 6.1 Discussion and Conclusion

We are living in the age of technology. Technology has made our life easier and better. Mobile application is a part of these technology. By this project, we have tried to make an easiest way of travelling and tourism. This project “Tour Mate” will make tourism easy and comfortable. By using this application, a user can take the taste of his/her journey without any worries. In this application, both a traveller and a tourist can get useful suggestion about tourism places through google map, get direction and even can get cost information and more nearest tourism places. A user can create event from this application which will allow the user to add more people who are interested to join in their journey.

So we hope that this mobile application will bring a revolutionary change in tourism and event management sectors.

#### 6.2 Limitation

- Maps API has limited quota on basic plan which is challenging for us to test.
- Maps API can be accessed 60 times a day.
- Maps advanced features like navigation, direction are not available because of this API.
- No marker shows on Map
- Fetching photo from firebase, takes a lot of time.
- App crashes when uploading large size picture in Moments

#### 6.3 Scopes for Further Development

We want to expand our project in future. So we have some plans for scopes for further development. They are mentioned bellow:

- We can make this application for IOS and Windows devices.
- We can convert this application into social platform
- We can make this app compatible for every country around the world.

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## APPENDICIES

### Appendix A: Project Reflection

Appendix provides an introduction to Project Reflection. It was a very challenging and enjoyable project to us. We enjoyed while developing it. We have get to know about many things during the developing period. It was fascinating just how productive our group meetings were. The time seemed to fly and yet we always got a lot done and managed to help another along the way towards the endpoint of having a substantive policy.

The following table A1 represents the real life user experiences.

**Table A1- Real Life User Experiences**

Name	No. of user	Rating (Scale of 5.0)	Feedback
TourMate	20	4.1	<ol style="list-style-type: none"><li>1. User friendly.</li><li>2. Useful application.</li><li>3. Unique idea and effective.</li><li>4. UI could be better.</li></ol>