

**TOUR MATE:  
A MOBILE APPLICATION FOR DETAILED TOUR PLANS  
BY**

**SABID EBNA AHMED  
161-15-7648**

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

Supervised By

**AHMED AL MAROUF**  
Lecturer  
Department of CSE  
Daffodil International University

Co-Supervised By

**SHAH MD. TANVIR SIDDIQEE**  
Assistant Professor  
Department of CSE  
Daffodil International University



**DAFFODIL INTERNATIONAL UNIVERSITY  
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## **APPROVAL**

This Project/internship titled “Tour mate a mobile application for detailed tour plans” Sabid Ebna Ahmed ID No: 161-15-7648 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 7<sup>th</sup> December 2019.

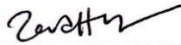
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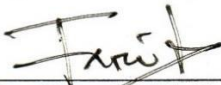
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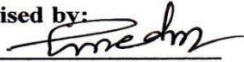
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## DECLARATION

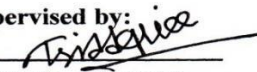
I hereby declare that, this project has been done by me under the supervision of **Ahmed Al Marouf, Lecturer, Department of CSE** Daffodil International University. I also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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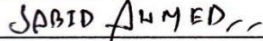
**Ahmed Al Marouf**  
Lecturer  
Department of CSE  
Daffodil International University

Co-Supervised by:



**Shah Md. Tanvir Siddiquee**  
Assistant Professor  
Department of CSE  
Daffodil International University

Submitted by:



**Sabid Ebna Ahmed**  
ID: 161-15-7648  
Department of CSE  
Daffodil International University

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## **ABSTRACT**

My project aim is to develop a tour planner application where users can effectively organize, plan and execute a tour event. This system is based on android application. This project is considered to be the best and fastest method of organizing a tour event. This application is secure to use, every user will have their individual profiles. A user can keep track of the weather forecasting, can create and delete events, also a user can keep track of the financial budget of the event. The application also allows one to capture moments (taking pictures) and also to find the nearby places example: banks, ATM, restaurant, mosques, banks etc. By using geo fencing technology. The system is developed in android studio, it uses firebase database, google play services and weather API.

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# CHAPTER 1

## INTRODUCTION

### 1.1 Introduction

This project is to design and develop a reliable system which can organize, plan and execute a tour event and to monitor certain aspects of tour events based on mobile application. It'll eliminate the problems related to manual works. This system is developed with extended GUI by using android studio.

### 1.2 Motivation

Travelling is on the latest trends nowadays. Everyday people get to know about places they've never known before with the blessings of internet. Peoples are sharing their experiences of travelling through social media, which is making a lot of people interested in travelling. But travelling all by oneself is expensive, inconvenient and boring that is why people prefers to travel in groups. But organizing a tour event is also much of a hassle. There is a lot of manual works to do like meeting, planning, budgeting etc. The main motivation of this project is to get rid of all these inconveniences and organize and plan a tour more effectively.

### 1.3 Objectives

01. To design and develop a reliable tour planner application.
02. To eliminate the problems related to manual planning.
03. Keeping the event members always updated.
04. Making the tour event more convenient by adding features like (searching for places, weather forecasting).
05. Budgeting the event more conveniently and accurately.
06. Sharing the moments (pictures) among all the members

## **1.4 Expected Outcome**

The expected outcome of this project is people will have an online platform where they can create events, budget events, and plan events. This will reduce a lot of stress and hassle for organizing a tour event manually and will reduce a lot of work corresponding to organize an event as it is completely online and have features like weather forecasting, searching nearby places, taking pictures and even call the members by their phone numbers. People won't have to use different applications for these different purposes as they are getting all these features under one platform.

## **1.5 Report Layout**

This document is consisted of total six chapters where different aspects of the project is elaborated, a brief of the report layout is discussed in this section.

### **Chapter 1: Introduction**

In chapter one I've elaborated about the motivation, objectives and expected outcome followed by report layout

### **Chapter 2: Background**

In this chapter I've elaborated about the background of my project, related works, Comparative studies, scope of the problem and challenges regarding my project.

### **Chapter 3: Requirement Specifications**

In this chapter I've elaborated the specification of my project like business process modeling, requirement collection and analysis, use case modeling and description, logical data model and design requirements.

### **Chapter 4: Design Specification**

This chapter is about the design specification of my project, how the project looks on front end, back end both sides other specifications like interaction design and UX, implementation requirements are also covered.

**Chapter 5: Implementation and Testing**

This chapter is consisted of implementation of database, implementation of front end design, implementation of interactions, testing implementation, test results and reports.

**Chapter 6: Conclusion and Future Scope**

In this chapter the conclusion of the report and scope for further development of my project has been discussed.

## **CHAPTER 2**

### **BACKGROUND**

#### **2.1 Introduction**

Travelling is connected with building social relationships, opportunity to learn and grow. It gives us chance to enjoy ourselves, relax ourselves away from the stress, work and our lifestyle. Tourism is one of the fastest growing industries nowadays. So people are using intermediary or third party applications and websites to ease out the process of organizing a tour event. So online platforms are on demand. My application is quite suitable for this purpose it lets user to easily manage an event and connect with each other, It is easy to operate people of any age can operate tour mate with ease. The Interface is simple only the most features related to travelling are added. Feature like having the knowledge of weather with weather forecasting, searching nearby places like restaurants, hotels, ATM's, budgeting the whole event with specifics. Tour is a complete useful package for a traveler.

#### **2.2 Related Works**

There are a lot tour planner application available on the internet, some of them are better and some of them are not but in my opinion most of them are designed and developed only targeting a specific number of users which leaves other kinds of users in difficulties. Some of the related works are described below

##### **2.2.1 Triplet Travel Planner**

It lets you book a flight, hotel, car or other reservations. Access and share plans, provides airport and terminal maps, monitor flight refunds etc.

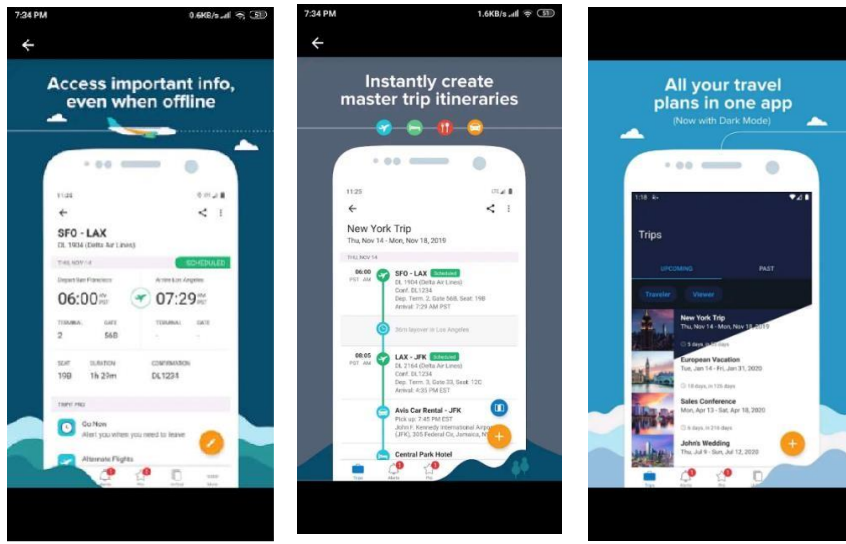


Figure 2.1 Triplet travel planner

### 2.2.2 Mobili: group travel planner & itinerary organizer

Makes planning a weekend trip, a vacation to overseas or visiting multiple destinations around the world easier user can manage travel, accommodation and activities. Lets organize group trips around the world

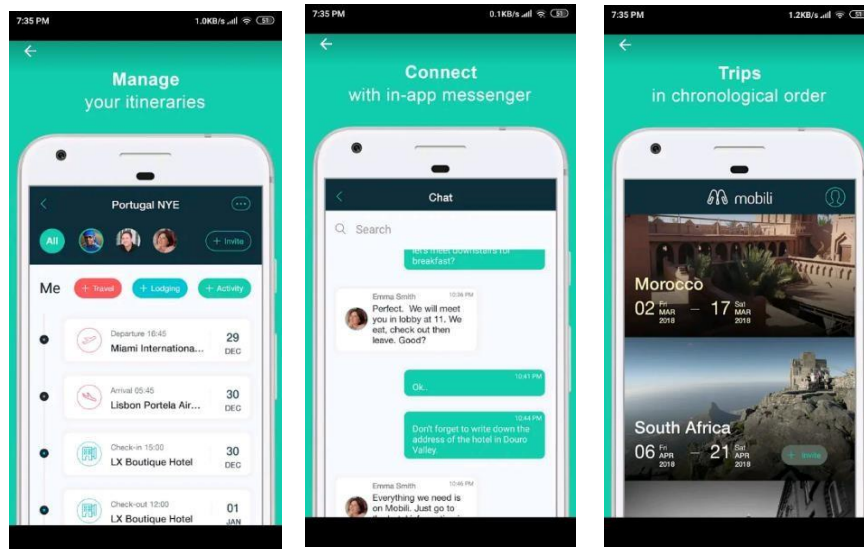


Figure 2.2 Mobili group travel planner & itinerary organizer

## **2.3 Comparative Studies**

Currently the apps which are available in the market place are not that helpful for all kinds of users. I've studied some applications regarding the concept, much of the applications are quite complex some their features is not necessary for a successful tour planning another thing is many of these application have designed and developed their app considering abroad tourism which is completely useless when it comes to domestic tourism. My app is does not target either abroad or domestic tourism but both of them with utmost simplicity and user friendly interface.

## **2.4 Scope of Problems**

My project is compacted with most useful features related to travelling which makes it better than other similar projects

01. It is easy to operate, no complicated features.
02. One can learn about the weather updates through the application.
02. Create and delete events whenever the user wants.
03. User can budget the event with expense details.
04. User can set the starting and ending dates of the event.
05. User can search nearby places like restaurants, mosque, ATM, bus stations
06. User can take pictures or upload pictures.

## **2.5 Challenges**

No work is done without facing problems, for me I had also faced a lot of difficulties while developing this project as I'm not a professional.

01. Learning about the android platform and various aspects of it which was a very tough process.
02. Challenge to deliver a more personalized user experience system across various devices.
03. Implementing all the feature together using the possible error free methods, implementing the API's
04. Designing a user friendly interface.

# CHAPTER 3

## REQUIREMENT SPECIFICATION

### 3.1 Business Process Modeling

Business process modeling is a graphical representation of a systems workflow. It a development process model which specifies some activities that according to the model should be performed and the order in which they should be performed. In figure 3.1 shows the business process modeling of my project

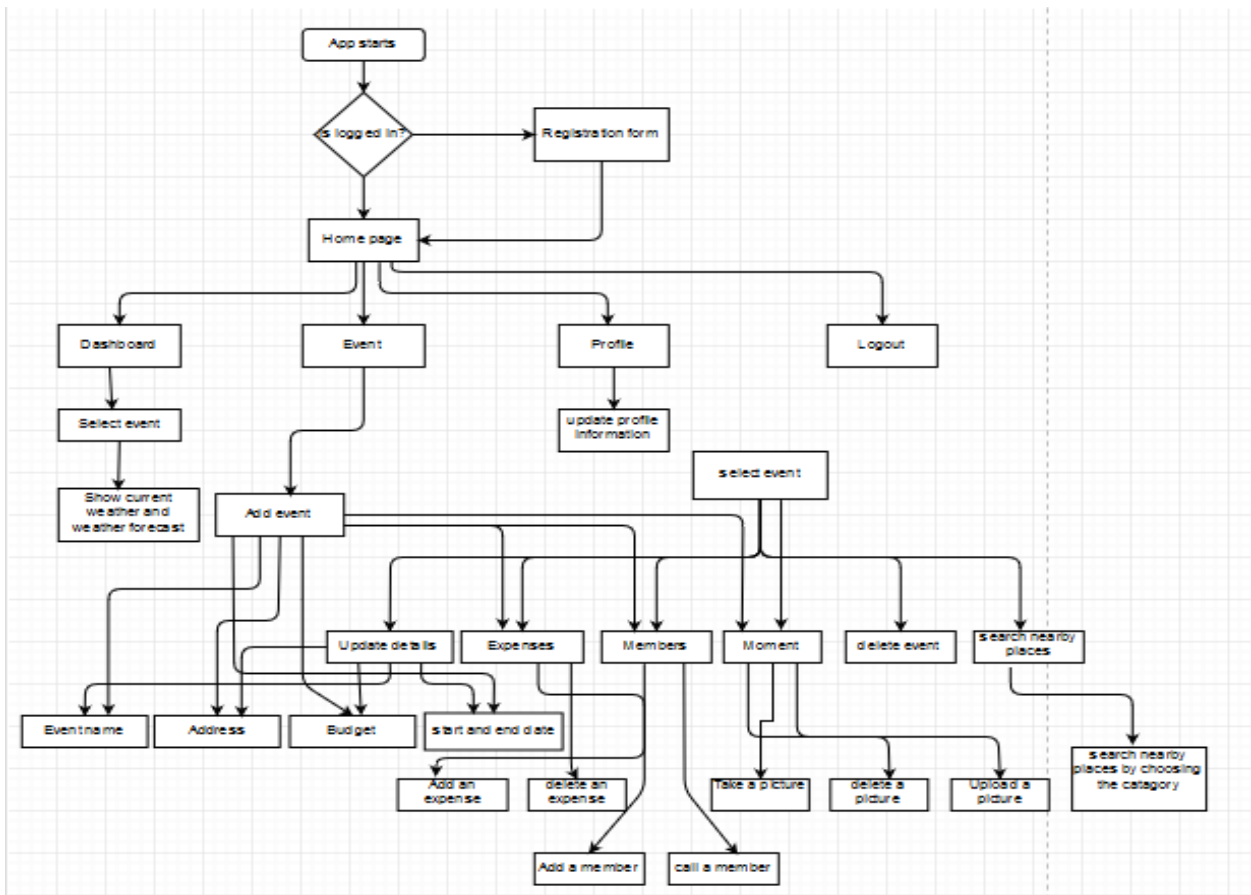


Figure 3.1 Business Process Model.



## **3.2 Requirement Collection and analysis**

Requirement analysis is critical to the success or failure of a system or a project it is one of the primary conditions for development and deployment of a project. There are two types of requirement one is functional and other is non-functional. My requirement collection and analysis activities are given below

### **01. Identify the users need**

The users need is to have a platform where they can find relevant features for tour planning which would be safe and easy to operate. Tour mate gives a user all these features with firebase authentication and also easy to operate.

### **02. Evaluate system feasibility**

The system is quite feasible, there are they applications performance is well tested, bugs and errors are fixed the testing implementation and results are given in chapter five.

### **03. Allocate functions to system elements**

All the functionality and task of the system is well tested the error rates are low and technical feasibility is good.

### **04. Create system definitions**

System definition activities are conducted to describe details of a system, which could be flowcharts, UML diagrams, business process modeling. The UML diagram of the project is described on the next topic.

## **3.3 Use case modeling and description**

01. Use case diagram specify the events of a system and their flows

02. It is also used to determine the functional requirements of a system

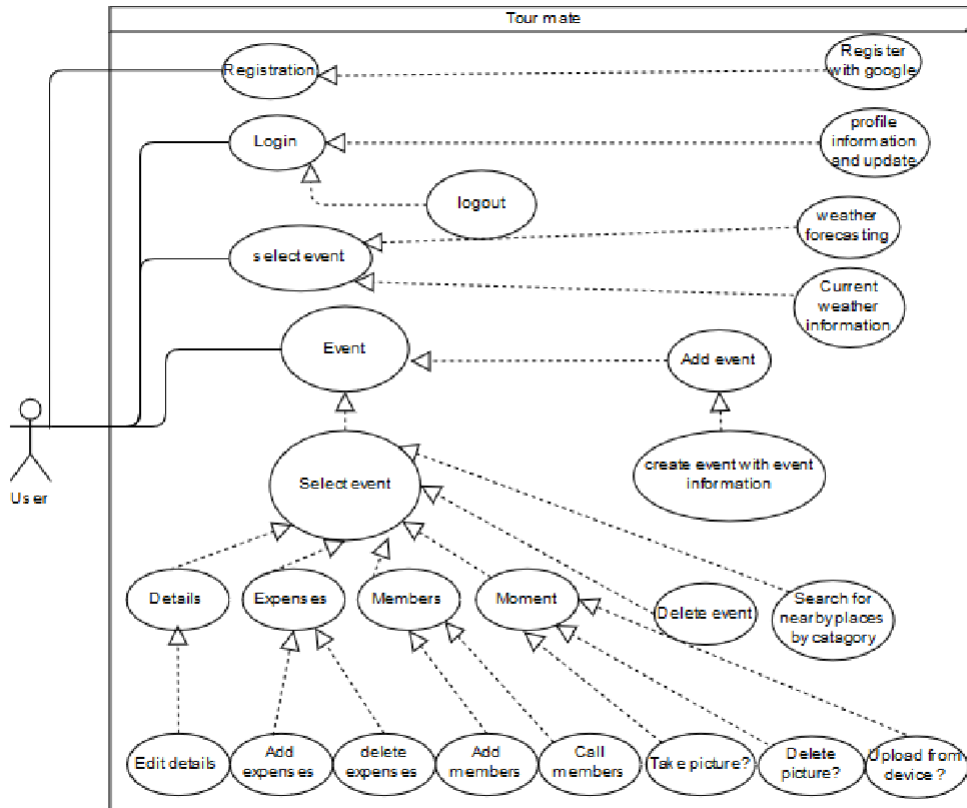


Figure 3.2 use case diagram

### 3.4 Logical data model

Logical data model of my project is given below

**Table 3.1: Logical data model for start**

Use case	Login
Primary Actor	User
Actor's Goal	Plan tour with friends
Pre-condition	Run the application
Post-condition	Tap on event and create an event and create the event with event details

**Table 3.2: Logical data model for weather forecast**

Use case	Select event
----------	--------------

Primary Actor	User
Actor's Goal	To get weather forecast
Pre-condition	Create an event
Post-condition	Tap on select event and choose the event

**Table 3.3: Logical data model to get event related features**

Use case	Event
Primary Actor	User
Actor's Goal	Set event details, delete event, budget the event, add members, call members, take photos, search for nearby places
Pre-condition	Tap on event, create event
Post-condition	To delete the event tap delete button, To set the expenses tap to add/delete button, to add members tap add button, To call them tap call button, to take photos tap moments and select either take picture or upload picture option, to search nearby places tap map button

**Table 3.4: Logical data model to customize profile**

Use case	Profile
Primary Actor	User
Actor's Goal	Customize profile
Pre-condition	Tap on profile
Post-condition	N/A

### 3.5 Design requirements

Design requirements are the functional attributes that enables to convert ideas into design features. It's the most important part to develop a system. Key features, structure, criteria for success, major deliveries etc. must be planned out before developing a system. My project mainly planned on for better user experience and user friendly interface. And in future based on user requirements I look forward to make upgrades and make the application better [4].

## CHAPTER 4

### DESIGN SPECIFICATION

#### 4.1 Front End Design

The front end part on which a user interacts with the system is the most evident part of an application. It is very important to make the interface of your app more user friendly and simple which is straightforward and understandable to the users. I tried my best to keep my front end design simple and attractive so that user can use my app with ease. The tool I've used to design the front end part of my app is given below [3].

**XML:** Extensible markup language

I've used XML tool to design the front end of my application using android studio. Android studio provides a lot of features when it comes to designing like drag and drop feature. In my application I've used different layouts like linear layout, constraint layout, sometimes relative layout, frame layout etc. I've used different types of views, dialogue boxes, buttons, progress bar etc.

#### 4.2 Back End Design

Back end is the part of a system which handles behind the scene functionality. It's the code that connects the system to the database, manages user connections and powers the application itself. On my project I've use java for my back end functionalities.

**Java:** Java is a high level object oriented programming language it is one of the leading programming language which is preferred on developing android applications, it is designed to be platform independent and secure, its execution performance is very high and its dynamic executive [2].

#### 4.3 Interaction design and UX

User experience design is process that is used to provide meaningful and relevant experiences to the user. UX design is so important that success of a project almost depends on it, it helps to attract users. My objectives to interaction design are :-

01. Understanding the user's needs and objectives

02. Making the system useful, easy and pleasant
03. Keeping the UX consistent over the platform
04. Testing everything with real users
05. Evaluating the results [3].

## **4.4 Implementation requirements**

Implementation requirements is the overall resources that is needed to support the implementation of the project, the tools that are required to build up the project without problems. The tools I've used to build my project is described below:

### **4.4.1 Android Studio**

Android studio is the platform for android development which is an open source platform development is developed by google. Most of the development tools are available in this software like SDK (software development kit), emulator etc. Both front end and back end development is available in this platform. It provides gradle for building support, it also provide libraries for different functionality [1].

### **4.4.2 Android SDK**

Android software development kit is typically is a software development tool that enhances the functionality of the application with software packages, software framework, libraries, relevant documentation etc. This tool is provided with android studio which helped a lot to develop my project [1].

### **4.4.3 Emulator**

Android emulator is an android virtual device which lets you to prototype, develop and test your project without using an actual device. The emulator is a very essential tool for testing the application for a variety of devices with different versions and API levels [1].

# CHAPTER 5

## IMPLEMENTATION AND TESTING

### 5.1 Implementation of database

I've implemented firebase database in my project for storing and synchronizing data and for user authentication purposes. It is a real time and cloud hosted database used for mobile app and web application development. Data is synced in real time and remains available even when the app goes offline the data is stored in firebase cloud

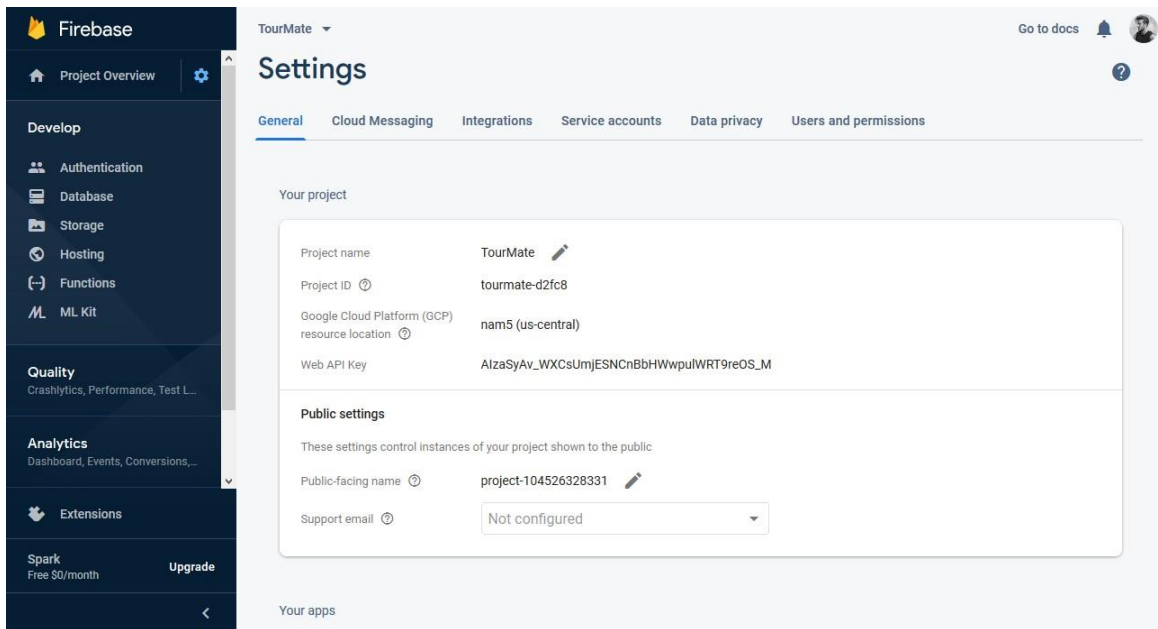


Figure 5.1: Implementation of database

### 5.2 Implementation of front end design

The success of an android application almost completely depends on the part with which a user interacts with the system which is known as the front end part of the app. Whenever a user uses an application the primary target is always how to accomplish the needs with utmost ease. If the front end design is not user friendly and simple the user will lose interest and as a result application will be considered as a failure.

I've used android studio platform and XML as language to design the front end part of my application. I've kept the navigation of the application simple user friendly I've used relevant icons and text for corresponding features, also used dialog boxes and different types of views for the application to look better and work better. I also used constraint layout, relative layout, and linear layout wherever I saw fit. My application used google play services API for location purposes and open weather map API or weather forecasting purposes. Another thing is I've tried my best to keep my app light weight so that it doesn't lags in order to get maximum user friendly experience [3].

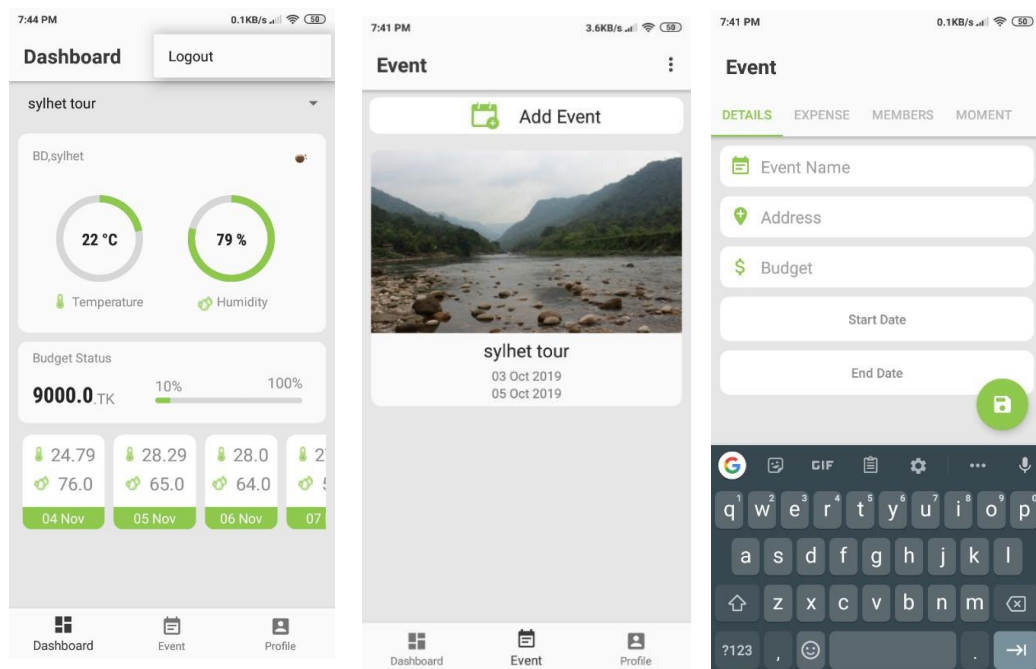


Figure 5.2: screenshots of activities and fragments

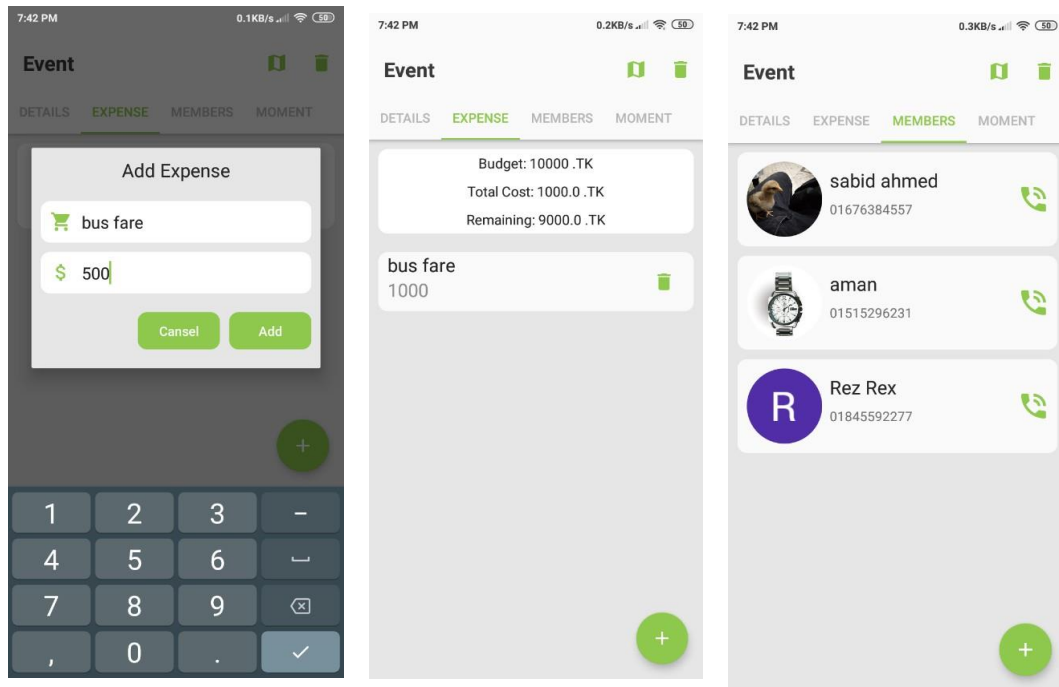


Figure 5.3 screenshots of activities and fragments

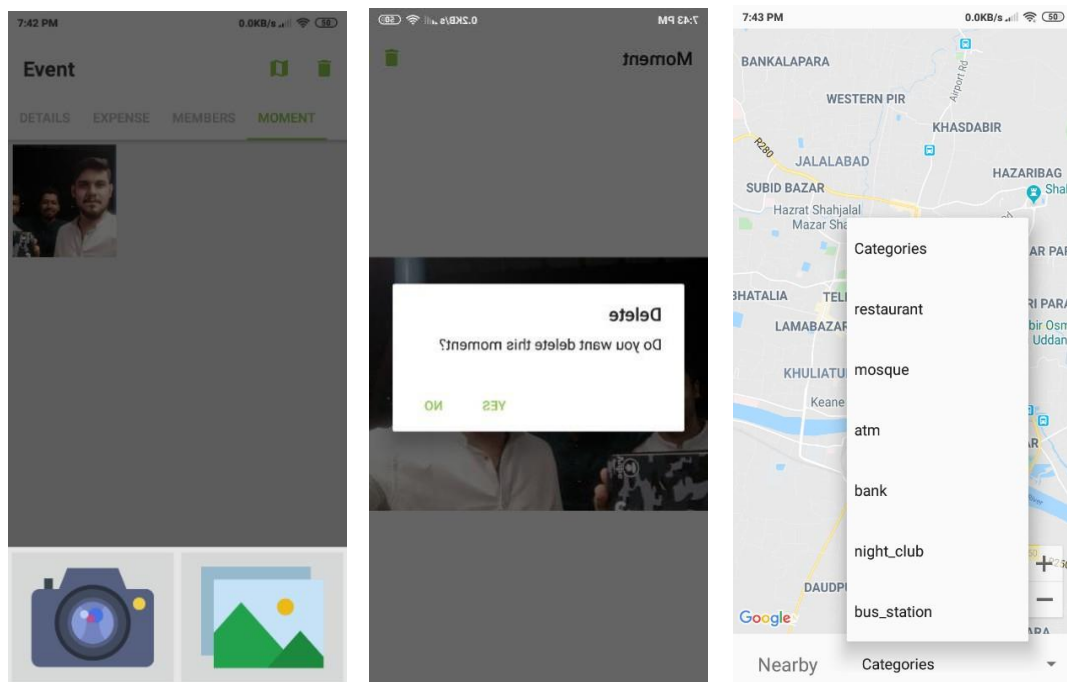


Figure 5.4: screenshots of activities and fragments



### 5.3 Implementation of interactions

The success of a system completely depends on the interaction with the user, the more user friendly the application is the more likely to it will gain popularity. This is what that makes a system popular and attractive. My project is implemented regarding the highest user friendly interactions. I've kept the navigation of the system very simple user can find all the features on the dashboard with quite ease.

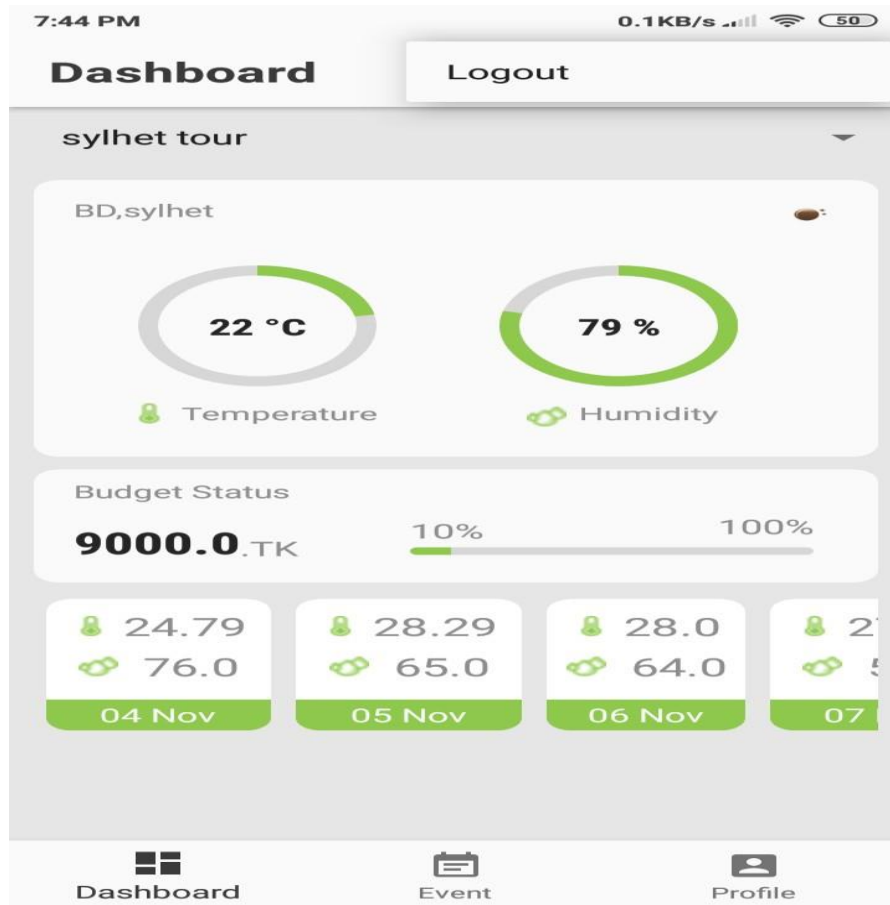


Figure 5.5: implementation of user friendly interactions

## 5.4 Testing Implementation

Testing implementation is a process of testing the functionalities of a system by using various testing cases. The main purpose of testing is finding out the implementation and limitations of the system. I've tested my project interfaces also tested the back end functionalities to determine whether my app is compatible and user friendly. I've also tested for the bugs and errors of my project to make my project error and bug free.

## 5.5 Test results and reports

The test case that were performed on my project most of them has given expected results. The testing results and reports of my project is given below:

**Table 5.1: testing implementation**

Test Case Number	Test Description	Expected outcome	Result (Pass/Fail)
TC-01	Tap on the App icon and it opens login or signup page	Opens login or signup page	Pass
TC-02	After login opens the dashboard page	Opens the dashboard page	Pass
TC-03	Tap on event to create an event with its details	Creates an event	Pass
TC-04	Tap on expenses to budget the event	Add expenses to the event	Pass
TC-05	Tap on moment to take or upload picture	Takes picture or uploads it	Pass
TC-06	Tap on map to find the nearby places	Finds nearby places	Pass  But sometimes fails because a free version of google play services api has been used
TC-07	Tap on members to add members to the event	Adds members to the event	Pass
TC-08	Tap on delete button to delete the event	Deletes the event	pass
TC-9	Tap on profile to update profile	Updates profile	pass

TC-10	Tap on select event to learn about the weather forecasting	Shows weather updates	pass
TC-11	Tap on logout to logout from the app	Logs out from the app	Pass

**Table 5.2: testing user percentage**

SN	User Number	Number of features tested	Percentage
01.	UID-001	18	100%
02.	UID-002	17	100%
03.	UID-003	15	100%
04.	UID-004	12	100%
05.	UID-005	10	100%
06.	UID-006	18	94.44%
07.	UID-007	8	100%
Total 7 User	Average Percentage		99.20%

## **CHAPTER 6**

### **CONCLUSION AND FUTURE SCOPE**

#### **6.1 Discussion and conclusion**

In essence my application fits the needs of today's travelers, tourism is a fast growing industry so tools like tour mate and other applications will be needed more in future. My app is also developed regarding this fact. In fact adding more features and upgrading the existing features will add up a new extent to my project. My resources or tools used in my project are up to date I've used firebase as my database which is a real time and cloud based database and developing in android studio platform gave me a lot of facilities which helped me a lot and allowed me to build my project with latest technologies.

#### **In a brief my projects Key Features are:**

01. Login or signup with firebase authentication
02. Update profile information
03. Get current weather and weather forecasting.
04. Create and delete event.
05. Edit event details.
06. Add or remove expenses.
07. Add members and call member.
08. Take pictures, upload pictures and delete pictures
09. Search for nearby places according to category.

These are all the features that is most needed when anyone wants to successfully plan a tour event I've tried my best to keep my project light weighted and not to put any type of unnecessary features, and also user friendly so that a wide range of users could easily use the application.

#### **6.2 Scope for further development**

There is a lot of scope for further development in my project

01. Chatting options with the members could be added
02. Hotel reservation, transport reservation feature could be added

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