APPROVAL

This Project titled **"Android Based Railway Reservation System"**, submitted by Shanta Sarbori Roy ID:142-15-3596, Mahfuza Hoque Happy ID:142-15-3811 and Rafi Uddin Ahmed ID:142-15-3758 to the Department of Computer Science and Engineering, Daffodil International University, for the partial fulfillment of the requirements for the degree of Bachelor of science in Computer Science and Engineering and approved as to its style and contents. The presentation will be held on 5th May 2018.

BOARD OF EXAMINERS

Dr. Syed Akhter Hossain   **Chairman**
Professor and Head
Department of Computer Science and Engineering
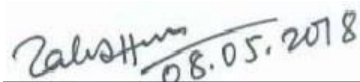Faculty of Science & Information Technology
Daffodil International University

Dr. Sheak Rashed Haider Noori   **Internal Examiner**
Associate Professor & Associated Head
Department of Computer Science and Engineering
Faculty of Science & Information Technology
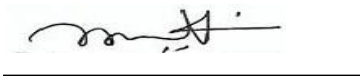Daffodil International University

Md. Zahid Hasan   **Internal Examiner**
Assistant Professor
Department of Computer Science and Engineering
Faculty of Science & Information Technology
Daffodil International University

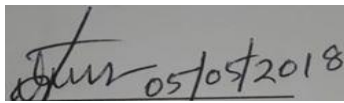**Dr. Mohammad Shorif Uddin**   **External Examiner**
Professor
Department of Computer Science and Engineering
Jahangirnagar University

DECLARATION

We, hereby, declare that, this project has been done by us under the supervision of **Tasnim Ahmed, Lecturer, Department of Computer Science and Engineering** 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.

Supervised by:

05/05/2018

Tasnim Ahmed
Lecturer
Department of Computer Science and Engineering
Daffodil International University

Submitted by:

Shanta Sarbori Roy
ID: 142-15-3596
Department of Computer Science and Engineering
Daffodil International University

Mahfuza Hoque Happy
ID: 142-15-3811
Department of Computer Science and Engineering
Daffodil International University

Rafi Uddin Ahmed
ID: 142-15-3758
Department of Computer Science and Engineering
Daffodil International University

ACKNOWLEDGEMENT

First, we express our heartiest thanks and gratefulness to almighty God for His divine blessing makes us possible to complete the final year project successfully.

First of all, express special thanks to **Tasnim Ahmed**, Lecturer, Department of Computer Science and Engineering, Daffodil International University. Without her help, it would be impossible for us to complete this project. Her endless patience ,scholarly guidance ,continual encouragement , constant and energetic supervision, constructive criticism , valuable advice ,reading many inferior draft and correcting them at all stage have made it possible to complete this project.

We would like to express our heartiest gratitude to **Dr. Syed Akhter Hossain,** Head of Department of Computer Science and Engineering, for his kind help to finish our project and also to other faculty member and the staff of Computer Science and Engineering department of Daffodil International University.

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

Finally, thanks go to our beloved parents. It is their encouragement and support from the very beginning of our life that make possible for us to come in this stage.

ABSTRACT

Our project has been modeled to represent the existing system and to remove the difficulties of the existing system. Day by day Railway reservation system develops our travelling management by using technological devices. Railway Reservation System contains the details about train schedules, booking and cancellation of tickets, check ticket details, train timetable etc. Our android application is not a static application, it is dynamic that means online application. In our android application, we use Firebase for real-time database. By implementing this android application, people will be equipped to use this application with internet for browsing and saving the important time and easily getting the proper direction, procedure and information. We have tried our best for developing our application in present time. We will add more important information for helping our countries people. At analog systems, people suffers for many kinds of hesitation and mismanagement of railway management but by using this app railway management system can remove the hole mismanagement, problems and sufferings of travelers .Moreover, with spreading science and technology all over our country, railway reservation application system can also provide another forward step to develop our communication system in railway because railway communication is major part of our country. Besides it can be very useful and attractive system by comparing with foreign country's railway management system.

TABLE OF CONTENTS

CHAPTER 4: DESIGN SPECIFICATION

CHAPTER 5: IMPLEMENTATION AND TESTING

CHAPTER 6: CONCLUSION AND FUTURE SCOPE

APPENDIX

REFERENCES

PLAGIARISM REPORT

LIST OF FIGURES

LIST OF TABLES

CHAPTER 1

INTRODUCTION

1.1 Introduction

The word territory remains for Government of the general population, by the general population, for the general population. Being a nation of law based, we are not generally take after the given gauge. So we attempt to accomplish something supportive that could be comfort the inconvenience of our nations individuals, constructing an application have gone ahead our brain. This application can help a man by giving right bearing and the real data.

"Railway Reservation System" to show the present framework and to expel the trouble of the present framework. The railway reservation system helps the travelers to check about the prepare points of interest, booking and cancellation of tickets, check ticket subtle elements, prepare timetable and so forth. The framework is essentially worried about the reservation and cancellation of railway tickets to travelers. The need of this framework is risen in light of the fact that just like the well-known certainty that Bangladesh has an expansive railway organize and to deal with physically is very intense employment. By digitizing will have the capacity to beat numerous its impediment and will have the capacity to make it more skillful.

They will have the capacity to utilize our application with web. In Today's this applications or sites are helping individuals like never before previously. PC applications or versatile applications has been of awesome help in this advanced world. .Distinctive capacities and structures are utilized to make an entire utilization of this dialect. This task is knowledgeable with the programming. Railroad reservation can without much of a stretch went with the assistance of this. Expectation the application will be served to everybody who needs to purchase the ticket with giving the best possible data.

1.2 Motivation

Presently, we are in the period of computerization. In this age, we feel the significance of in all computerization stages in our day by day life. We are endeavoring to create portable based computerization framework which will give bunches of offices to us.

This undertaking is intentional to-

- Imitation the surviving railway reservation system.
- To accommodate containing set of parts to upgrade their pragmatic points of confinement.
- To assess their organization in various plan.
- To recommend modifications for more noteworthy execution.

1.3 Objectives of this Project

Providing a right direction or way and also getting true information for doing the work properly.

- By implementing this android application, people will be equipped to use this application with internet for browsing.
- It is very user friendly android application to user and they can use and handle the android application very easily.
- The application won't be getting down any time.
- Saving their money from the broker.
- Saving the important time and easily getting the proper direction, procedure and information.
- Providing helping hand by this android application at their emergency time and they can easily solve their demanding problem by using this android application.
- People will easily understand all the components of this android application.

1.4 Expected Outcome

The Project "Railway Reservation" deals with the computerization of the reservation and analysis of the railway reservation system. It maintains all information starting from reservation to cancellation of tickets. It also acts as an enquiry system about the different trains available. It gives the details of the distance arrival time and departure time of the different trains. The computerization is aimed at job simplification and reducing the manual work and effective record maintenance. So it saves their time so much and without going people easily reserve.

1.5 Report Layout

Chapter 1: Introduction

In this section we have examined about the inspiration, destinations and the normal result of the task. Later took after by the report format.

Chapter 2: Background

We talk about the foundation conditions of our task. We likewise discuss the related work, correlation with other applicant frameworks, the extent of the issue and difficulties of the venture.

Chapter 3: Requirement Specification

This part is about the prerequisites business process modeling, requirement collection and analysis, use case modeling and description, logical data model, design requirements.

Chapter 4: Design Specification

In this section every one of the plans of the project. Front-end configuration, back-end plan, connection outline and UX and the implementation Requirements.

Chapter 5: Implementation and Testing

This part contains the execution of database, front-end plans, connections and the test aftereffects of the task.

Chapter 6: Conclusion and Future Scope

We examined about the conclusion and the extension for advance improvements which essentially infer about the project.

CHAPTER 2

BACKGROUND

2.1 Introduction

As we have expressed before keeping in our mind the positive attitude for our nations individuals, we have chosen to construct an android application that will straightforwardness to help individuals with web and the inconvenience of getting appropriate data about some administration office sees, news, laws, guidelines and control and their movement procedure. Following the thought we have begun gathering data with respect to the application which contains the classification of government office, related office's data, the workplace's news, the workplace's laws, principles and control, the workplace's new undertaking and exercises, and furthermore the workplace's notice board. These sorts of data, standards and controls likewise given by the administration office's authentic site, however the greater part of the circumstances the web servers are getting down and occupied and many individuals of our nation are insufficient benevolent with perusing sites. We take after their sites and furthermore duplicate their each data for making an Android Application. By utilizing our versatile application, individuals who are in basic circumstance can get the coveted office's data and everything what he/she require in a brief span as opposed to thumping into a specialist entryway or fall any sort of false trap. However looking through the web, we have discovered that in play store there is no Android Application for this sort of reason. So from our reasoning of view, we won't just form an application however enable a great many our nations to individuals in their basic time. That implies we need to make another stride for our nations individuals by building this kind of use which isn't just help the general population yet in addition make facilitate the procedure of some administration office with legitimate course.

2.2 Related Work

When we settle on a choice that we will construct these sorts of an Android Application for our last year venture, we scan in Google play store for related application. We have discovered some Android Application as like our application topic in Google play store. Presently we need to examine about these Android Application.

2.2.1 Bangladesh Railway

Bangladesh Railway is an Android Application .However ,it isn't authentic application from Bangladesh Railway. It causes general individuals to give essential data as like prepare points of interest, prepare plans, prepare following, railroad related news. Individuals check this site and discover railroad related data.
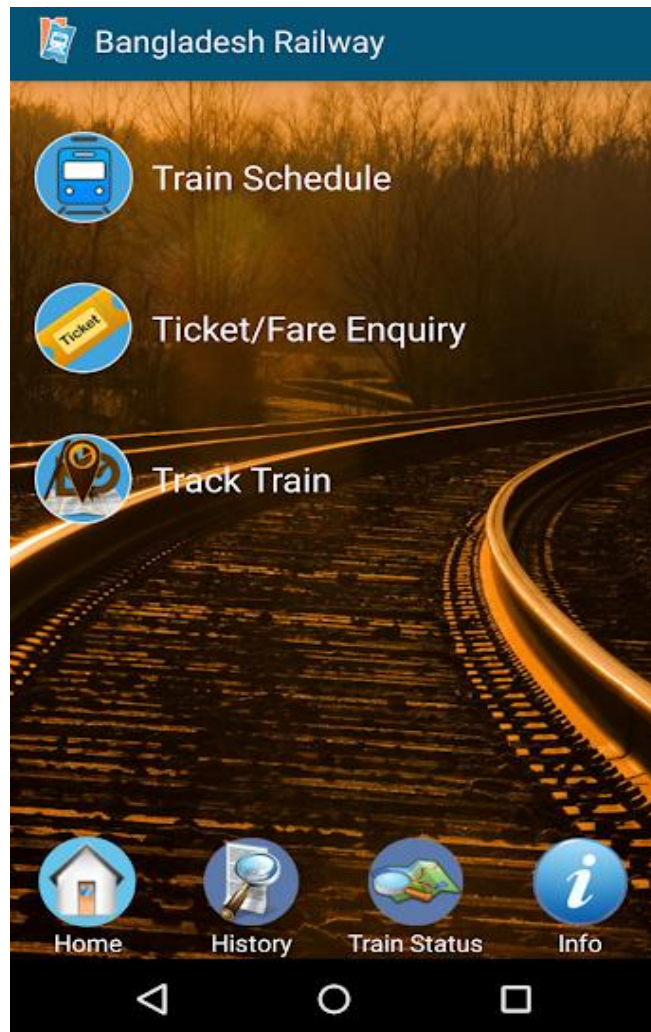
Figure 2.2.1(a): Bangladesh Railway

Arrival Time	Departure Time	Station Name
__:__	15:20	DHAKA
15:47	15:52	BIMAN_BANDAR
16:43	16:45	NARSINGDI
17:20	17:23	BHAIRAB_BAZAR
17:46	17:50	BRAHMAN_BARIA
18:20	18:23	AKHAURA
19:28	19:32	COMILLA
20:04	20:07	LAKSAM
20:57	21:02	FENI
22:50	__:__	CHITTAGONG

Figure 2.2.1(b):Screenshot of Bangladesh Railway

2.2.2 Train Ticket & Schedule in BD

Train Ticket & Schedule in BD is also an android application and people are interested to journey by train than people can easily use this app. User can find time schedule of all train and many other information of train in Bangladesh. This application is based on Bengali language which is also helpful our countries people.

Figure 2.2.2: Screenshot of Train Ticket& Schedule in BD

2.2.3 Amader Rail

Amader Rail is an android based application by which individuals can without much of a stretch access all data identified with Bangladesh Railway. Individuals can without much of a stretch discover his/her closest Station utilizing Station Map in this application.

Figure 2.2.3: Screenshot of Amader Rail

2.3 Comparative Studies

These android applications have some problems, drawbacks and limitations. Most of the application is static application and they use a lot of buttons. They collect all information from these government websites. If any types of information, notices or news is changed, User can't find the feedback against these changes. Because, these application is static that means offline application. So they did not give real-time server for user. Most of the application has also a major problem. These application's structured is so much complex. So these applications are also not user friendly for any type of user. But in our android application we try to fix all of the problems, drawbacks and limitations. Firstly, our android application is not a static applications, it is dynamic that means online application. In our android application, we use Firebase for real-time database. Though it doesn't show any types of information without connection of internet, but from the statistics of 2016 more than 30 million of the people in our country use internet. Now-a-days we call our country as 'Digital Bangladesh'. So we believe that the client of our application won't be confronted any sorts of issues to utilize web association. Expectation our android application is so easy to use than another related android application. That is the reason we trust that client can appreciate by utilizing our android application in light of effectively handle the application and the android application will be useful for the circumstance.

2.4 Scope of the Problem

All the manual work ought to be changed over into modernized with the goal that the heap of representatives should diminish. The database ought to be put away in PC as opposed to in enroll/physically.

The extent of this undertaking is restricted to a designing destinations. This task intends to keep up traveler and prepare data. Different extents of this venture are as per the following:

• Transportation income upgrade

• Passenger income upgrade

• Improved and propel benefit

2.5 Challenges

At the point when any designer needs to make anything distinctive sorts of reasoning, at that point the engineer has dependably to confront some unique kinds of difficulties, challenge, rivalry and deterrents. As like this circumstance, our venture has some extraordinary kinds of difficulties, challenges, rivalry and snags as well. Our venture is about social helping kinds of undertaking by giving data. Yet, now-a-days every one of us dependent with Facebook, What's App, Viber, Imo, Instagram, Snap-talk and numerous other web-based social networking application. So it is very difficult to happen for it in our nation .And we are attempting to giving 100% substantial data to client. On the off chance that we confront any kinds of issue about any catch or data of our application, we are attempting to deal with these issues and tackle these sorts of issue. Wrong data is destructive for individuals. We are giving our 100% diligent work to build up this task. So we trust that one day it will be put as most loved use of the client in view of easy to understand and supportive work in the general public. Presently this is our fundamental objective. Presently to complete our main goal, every one of those things may challenge for us.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

Business process displaying (BPM) is the movement of speaking to procedures of a venture, with the goal that the present procedure might be examined, enhanced, and mechanized. The term 'plan of action' is in this manner utilized for a wide scope of casual and formal depictions to speak to center parts of including reason, structures, operational procedures and approaches . The principle normal for the philosophy depends on chart as 'Stream Diagram'. Here we are endeavoring to portray our undertaking's plan of action utilizing Data Flow Diagram. Regularly, Data Flow Diagram portrays how information is handled through a framework or task.
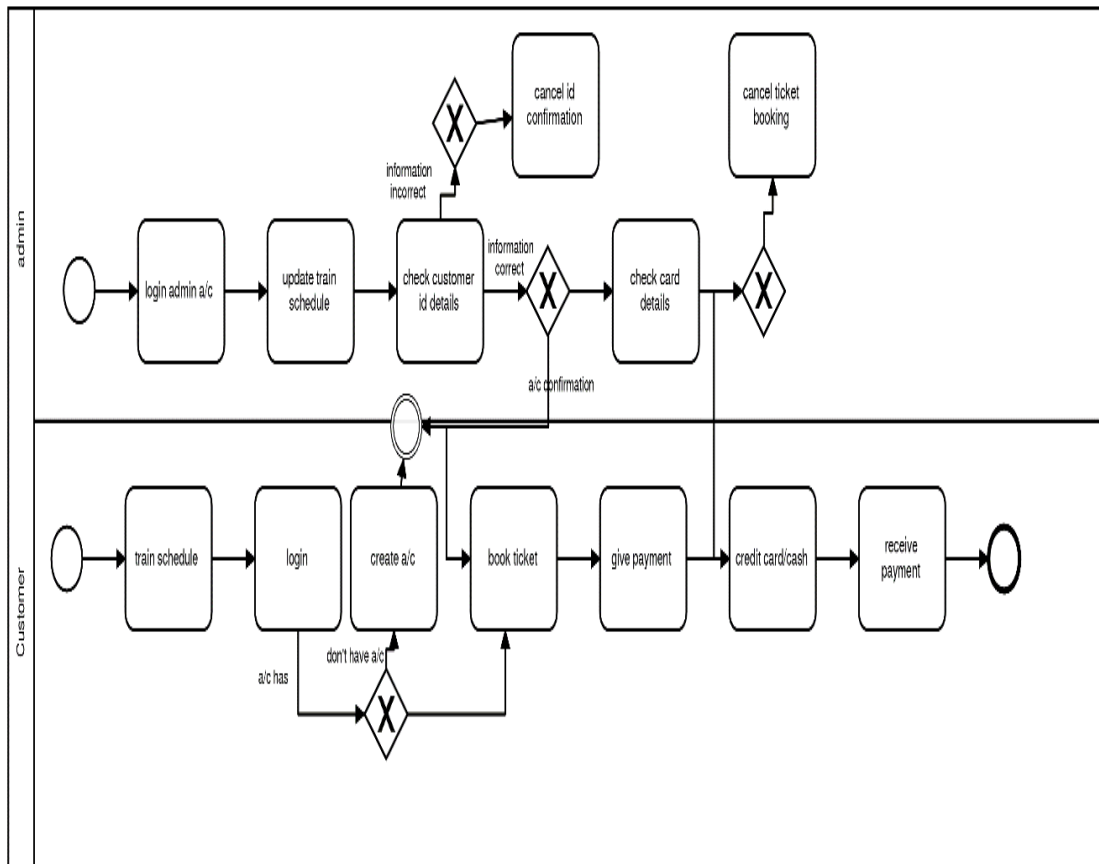

Figure 3.1: Business Process Modeling of the system

In the figure 3.1, we are trying to draw a level of Data Flow Diagram of our system. In figure: 3.1 represent the Data Flow Diagram of our project's system.

3.2 Requirement Collection and Analysis

Necessities examination is additionally called as requirements building which is the way toward deciding client desires for another framework. These highlights, called, requirements must be quantifiable, applicable and definite. Requirements examination includes visit correspondence with framework clients to decide particular component desires, determination of contention or uncertainty in necessities as requested by the different clients or gatherings of clients, shirking of highlight crawl and documentation of all parts of the undertaking improvement process from beginning to end. For the venture advancement process, there are two sorts of necessities. One is the useful necessity and another is the non-practical requirements.

3.2.1 Functional Requirement

Functional necessities are those which are identified with the specialized usefulness of the framework as like application programming can perform. From the perspective of our framework, the application has numerous practical necessities as like keeping up database and keeping up server where just administrator area individual can get to.

3.2.2 Non-functional Requirement

Non-useful necessity is a requirement that determines criteria that can be utilized to judge the activity of a framework specifically conditions, as opposed to particular practices as like the application is how much effective, easy to use, execution issue of the application and so forth. From the perspective of our framework, the application has numerous useful prerequisites as more proficient, pertinent, advance execution, memory devouring, smoother activity, stacking on rapidly and parsing information from online at the earliest opportunity. Application's User Interface is likewise so easy to understand and ravishing for astounding client encounter.

3.3 Use Case Modeling and Description

A utilization case is a rundown of activities or occasion steps regularly characterizing the collaborations between a part and a framework to accomplish an objective. Here a part is referred to in the Unified Modeling Language as a performer. Utilize case investigation is an essential and important necessity examination strategy that has been broadly utilized as a part of present day programming designing. There are numerous approaches to compose a utilization case in content, from utilize case brief, easygoing, diagram, to completely dress and so on and with shifted layouts.
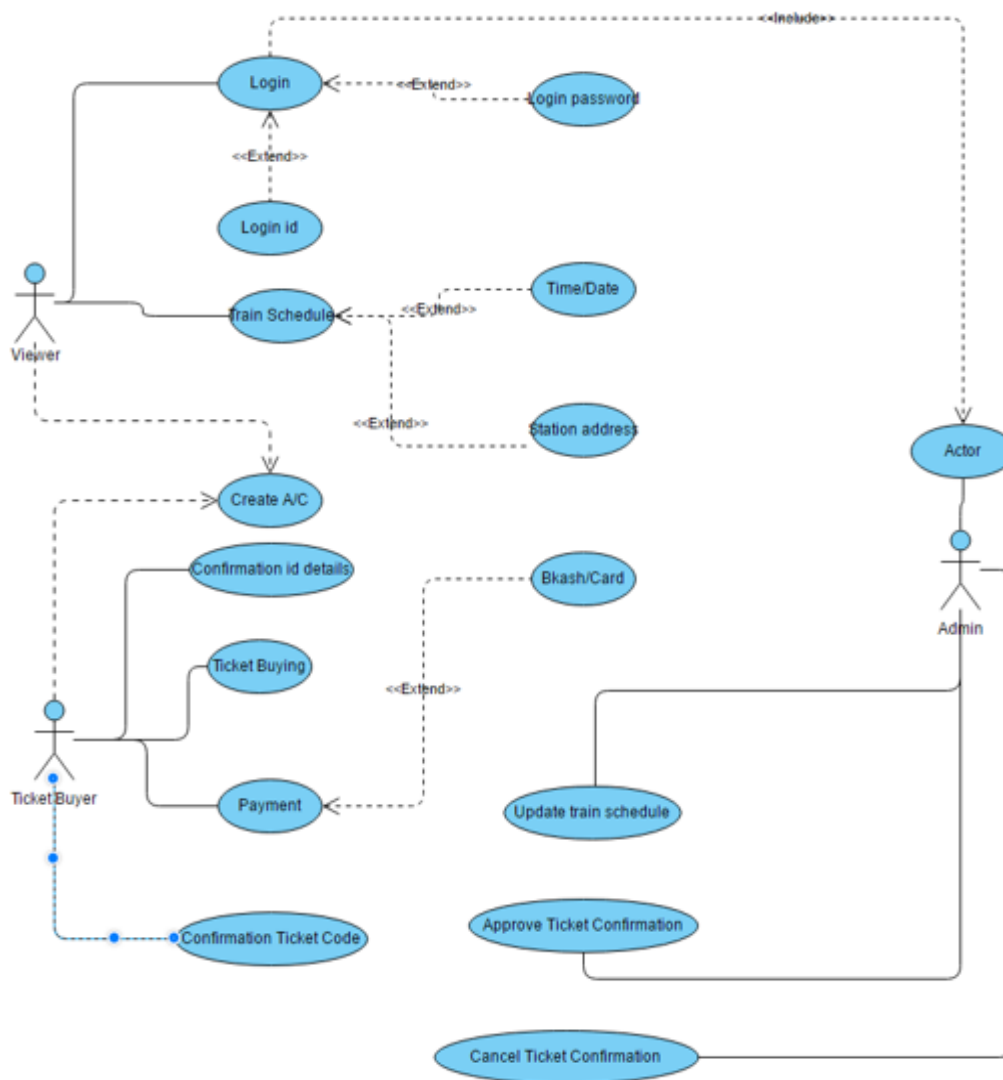

Figure 3.3: Use Case of the system

In the figure 3.3, we are trying to draw a level of use case for our system. In Figure: 3.3 represent the use case of our project's system.

3.4 Logical Data Model

A logical information demonstrate or intelligent construction is an information model of a particular issue space communicated freely of a specific database administration item or capacity innovation yet as far as information structures, for example, social tables and segments, object-oriented classes, or XML labels.
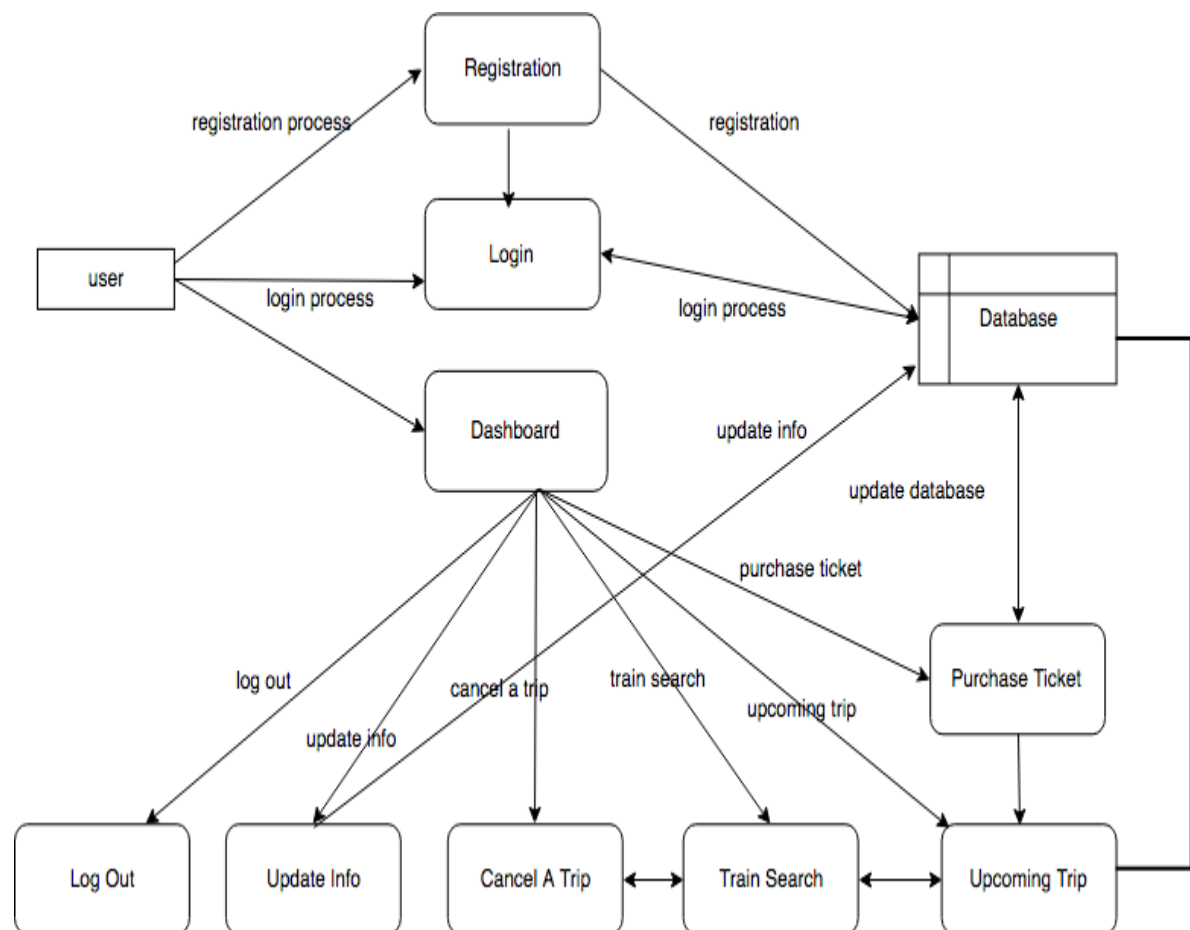

Figure 3.4: Logical Data Model of the system

In the figure 3.4, we are trying to draw a level of Logical Data Model for our system. In Figure: 3.4 represent the Logical Data Model of our project's system.

3.5 Design Requirements

The design requirements for our project will be creating deference between other projects. Because, at first we were simulated some projects and also found out some problem of these project. Then we are working for designing our project which is based on to solve specific problems and our problem statements. We attempt our best from our heart for planning our task. We try to make our project user friendly. We likewise attempt to give everything to our task which are fundamental for a client to utilizing our application effectively. As like, we give a great deal of government workplaces address, telephone number, portable number, news, sees, laws, principles and directions et cetera.

- In our android application, we design a normal front page so that any user can easily understand our application.
- We design train information page and also connect with database for providing a lot of information to user.
- We outline online form as a constant arrangement. That implies our application isn't statics, it is dynamic variant.
- We design a reservation system button.
- We design a form for the user.

We are attempting to fabricate our as complex free. We consider client when we plan our application. On account of this reason, our android application.

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

The front-end is everything required with what the client sees, including plan and a few dialects. The front-end configuration is the User Interface plan what the client can see when he/she opens the application or sites. That implies the most essential things of a project is front-end planning. Normally a large portion of the clients expect a basic User Interface or Graphical User Interface from the engineer, when he/she needs to open any application or site. On the off chance that the front end configuration is so intricate, the application neglects to draw in of the client. Hence, we endeavored to outline our application front-end as basic as could be allowed. We likewise attempted to effectively open graphical User Interface for the client. In any case, it is extremely so intense issue when anybody outline a graphical User Interface for giving these sorts of office to the client. Be that as it may, we attempted our best for a straightforward outline of our application. Expectation, our application is so easy to use and the client can without much of a stretch access to our application. We connect our android application's front-end configuration as takes after:
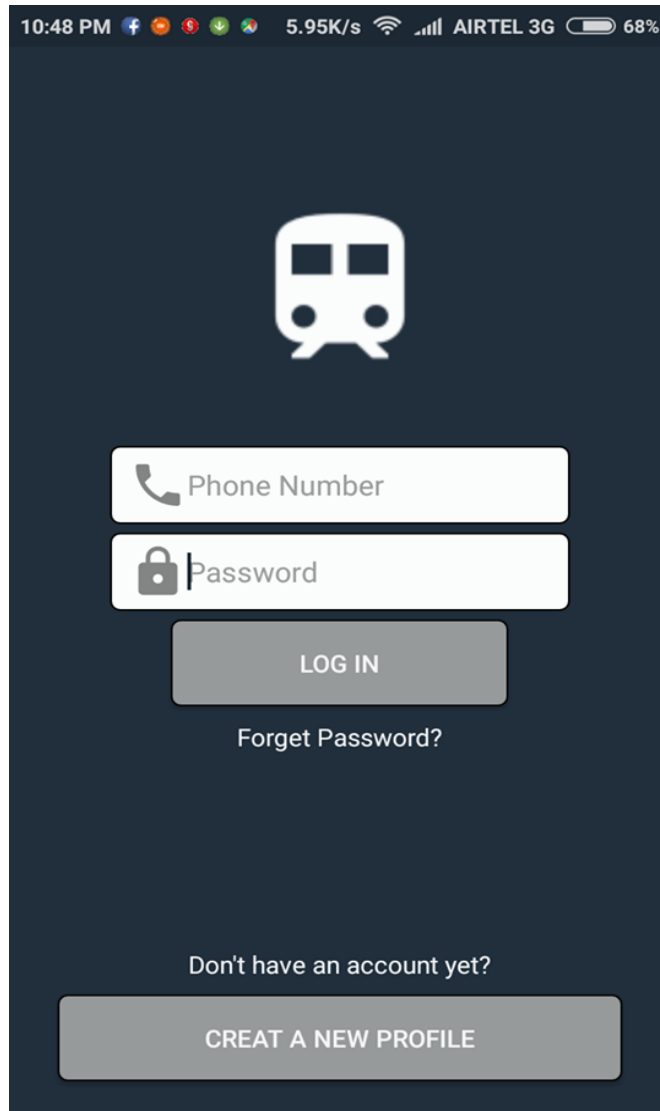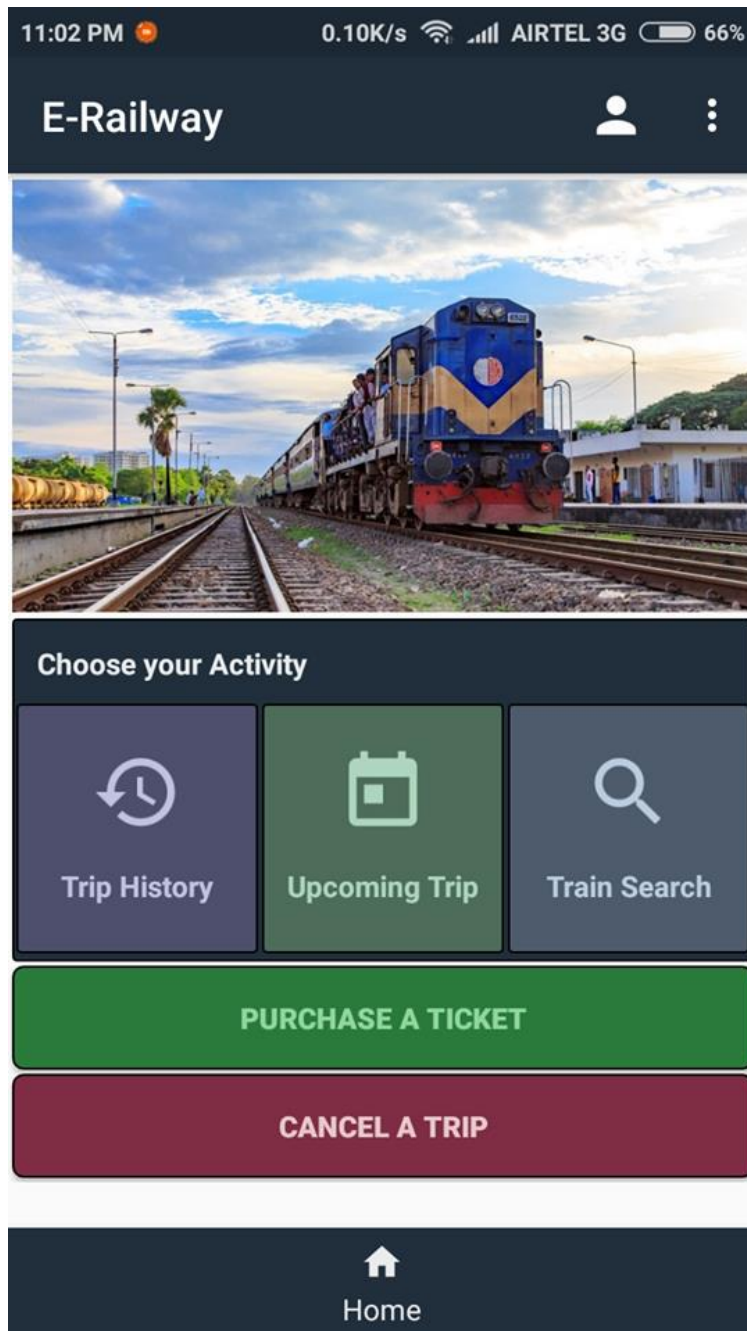
Figure 4.1 (a): Screenshot of Front-end Design

Figure 4.1 (b): Screenshot of Front-end Design

4.2 Back-end Design

The back-end is additionally called as or server-side outline. The back-end configuration is essentially how the site functions, refreshes, changes, upkeep and in addition to other things. The majority of that attempts to help the front-end of the site. The back-end configuration alludes to everything, the client can't find in the program, similar to databases and servers. Normally individuals who deal with the back-end are called software engineers or designers. Back-end engineers are generally stressed over things like security, structure and substance administration. The back-end has three sections to it, for example, Server, Application and Database. Be that as it may, it is so hard to deal with back-end part in android application than web application. Since, web gadget segments and qualities are not restricted, but rather android gadget parts and traits are so constrained. In any case, we attempted our best for back-end outline of our application. We utilize Firebase as database server for our application's database. We connect our android application's back-end configuration as takes after:

```
package com.example.rafi_pc.railwaysystem;

import ...

public class MainActivity extends AppCompatActivity {


    Button purchesTicket,cancel;
    ViewFlipper vf;
    Animation fade_in,fade_out;
    GridView gridView;



    String[] options={"Trip History","Upcoming Trip","Train Search"};




    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);


        purchesTicket=(Button)findViewById(R.id.button_purchase_ticket);
        vf=(ViewFlipper)findViewById(R.id.vf) ;
        gridView=(GridView)findViewById(R.id.grid_options);
        cancel=(Button)findViewById(R.id.button_cancel_ticket);



        fade_in= AnimationUtils.loadAnimation( context: this,R.anim.fade_in);
        fade_out= AnimationUtils.loadAnimation( context: this,R.anim.fade_out);
        vf.setAutoStart(true);
```

Figure 4.2: Screenshot of back-end Design

4.3 Interaction Design and UX

Communication Design is an essential part inside the mammoth umbrella of User Experience (UX) plan. Collaboration configuration is particularly a train which looks at the cooperation between a framework and its client by means of an interface and User encounter (UX) plan is the way toward making items that give important and actually pertinent encounters. It might likewise consolidate configuration concentrated on how data ought to be exhibited inside such a framework to empower the client to best comprehend that data however this is frequently thought to be the different train of "data plan" as well. In our application, a few highlights can interface with the client and application. We included an email choice by which any client can send letters to us. In the event that any client faces any issues, needs or disadvantage, they can send letters to us for tackling these sorts of issues. Then again, our application depends on data. On the off chance that client needs to download any pdf from our application, he/she can download the required pdf by download alternative. For User Experience (UX) outline we have attempted our best to design a straightforward and effortlessly portable application. We have endeavored to give some phenomenal and well involvement by utilizing our application. We keep our application excessively basic and furthermore effectively for better involvement, emotions and execution for the client of utilizing our application. Expectation our frameworks data is secured and supportive for the client.

4.4 Implementation Requirements

To execute our android application project, we used diverse sorts of mechanical assemblies, attributes and parts which are helped us to develop our android application venture viably. In Implementation necessities zone, we discuss every last one of those mechanical assemblies, qualities and parts that we have used to develop our android application undertaking and making charming to the customer.

4.4.1 Android Studio

Android is a product stack for cell phone that incorporates a working framework, middleware and applications. Android is fueled by Linux bit, at first created by Google and later the Open Handset Alliance. It enables engineers to compose oversaw code in java dialect, controlling the gadget by means of Google created java library. Dislike different well known adversaries, for example, Microsoft window portable or Symbian OS, android utilize created java library since java isn't only a programming dialect; it's an entire dynamic stage offers intense help for implanted gadgets that must keep up some type of dynamic conduct. In addition, java runtime condition can be coordinated into any implanted gadget while java virtual machine incorporates interfaces that enable it to be promptly coordinated with RTOS and other local library. The RTOS bolsters multi-string (planning), memory administration, systems administration, and fringe administration for java VM.

4.4.2 Basic Android Overview

Android is an extensive stage, which implies it is a total programming stack for a cell phone. It gives every one of the apparatuses structures to creating portable application just, rapidly and effortlessly. We plan our application with Extensible Markup Language (XML), association with database server with Java Language in Android Studio. Android is additionally open source stage where engineer can make any kinds of UI which the designer needs to plan his/her application. The designer can compose any programming dialect for his/her application in android studio. So designer can undoubtedly create diverse sorts of portable application by utilize it for client cooperation.

4.4.3 Android architecture

- Application layer: Android provides a lot of applications which come with its release including an email client, SMS program, calendar, maps, browser, contacts, and others. All applications are written using the Java programming language. Moreover, the number of developers who interested in developing Android's application is increasing and provides a huge market of application to choose.

- An application framework layer enabling reuse and replacement of components. Not like Window mobile which restricts developer from system API, developers have full access to the same framework APIs used by the core's applications. The strength points of Android is that the application architecture is designed for reusing of components which means any application can publish its capabilities and any other application may the make use of those capabilities base on the definition of Intent which will be described later.

- The figure below shows the Android's general architecture:

Figure 4.4.3: Android Architecture

4.4.4 The Emulator

An emulator is an Android Virtual Device (AVD) that represents a specific android device for emulating any types of android application or project. The developer can use an Android emulator as a target platform to run and test his/her Android applications on his/her Personal Computer (PC). By Using Android emulators is optional. We run our application in both our personal device and Android emulator too. The emulator runs the same code base as actual device. The emulator is so pretty for emulating android projects.

4.4.5 Java Development Kit (JDK):

The Java Development Kit (JDK) is an implementation of either one of the Java SE, Java EE or Java ME platforms released by Oracle Corporation in the form of a binary product aimed at Java developers on Solaris, Linux, Mac OS X or Windows. Since the introduction of the Java platform, it has been by far the most widely used Software Development Kit (SDK). On 17 November 2006, Sun announced that it would be released under the GNU General Public License (GPL), thus making it free software. This happened in large part on 8 May 2007, when Sun contributed the source code to the Open JDK.

4.4.6 Android SDK

Android development starts with Android SDK (Software Development Kit). Android SDK is a set of collection of development tools used to develop and build of any kind of android application for android platform. That means Android SDK is essential tools for both developing and building any android application. We use Android SDK for both developing our android application and also testing our android application when need to run for seeing output.

Prominent features of the SDK are as follows:

- The debugger, capable of debugging applications running on a device or in the emulator.
- A memory and performance profile to help you find memory leaks and identify slow code.

- The device emulator, based on QEMU (an open source virtual machine to simulate different hardware platforms), which, although accurate, can be a bit slow at times.
- Command-line utilities to communicate with devices
- Build scripts and tools to package and deploy applications

Alongside any good SDK comes extensive documentation. Android's SDK does not fall short in this area and comes with a lot of sample applications. You can also find a developer guide and a full API reference for all the modules of the application framework at http://developer.android.com/guide/index.html

4.4.7 Apache Server

We have used Apache Server as file upload and connection server to develop our android application. The Apache Server is a free hosting server but it is also a real-time server. Connection and Pdf File are stored as JSON and synchronized in real-time to every connected client or user. User can get any kind of information by JSON Parsing of our application from our apache server via using internet. If user needs to download any types of information which are given as pdf file, then the user can download these pdf file with connecting internet by using our application.

4.4.8 Android Studio:

Android Studio provides the fastest tools for building apps on every type of Android device. World-class code editing, debugging, performance tooling, a flexible build system, and an instant build/deploy system all allow you to focus on building unique and high quality apps.

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

The usage stage is the place designer introduces the Database Management System (DBMS) on the required equipment, streamline the database to run best on that equipment and programming stage, and make the database and load the information. The underlying information could be either new information caught specifically or existing information imported from a DBMS. The engineer can set up database security and give the different clients that the designer has recognized access appropriate to their requirements.

5.1.1 Database Design

We have used Myself Server as data manager to store our android application data. Our application is all about information based. So the database of our application is a major issue. There are a lot of features of using Firebase database. These are given below:

- Support for most Firebase features:
  - browse and drop databases, tables, views, fields and indexes
  - create, copy, drop, rename and alter databases, tables, fields and indexes
  - maintenance server, databases and tables, with proposals on server configuration
  - execute, edit and bookmark any Firebase-statement, even batch-queries
  - manage Firebase user accounts and privileges
  - manage stored procedures and triggers

- Intuitive web interface
- Import data from CSV
- Export data to various formats: CSV, Firebase, XML, PDF, ISO/IEC 26300 – Open Document Text and Spreadsheet, Word and others

- Administering multiple servers
- Creating graphics of your database layout in various formats
- Creating complex queries using Query-by-example (QBE)
- Searching globally in a database or a subset of it

Figure 5.1.1(a): Screenshot of Database Design

In figure 5.1.1(a), it shows the screenshot of Database Design.
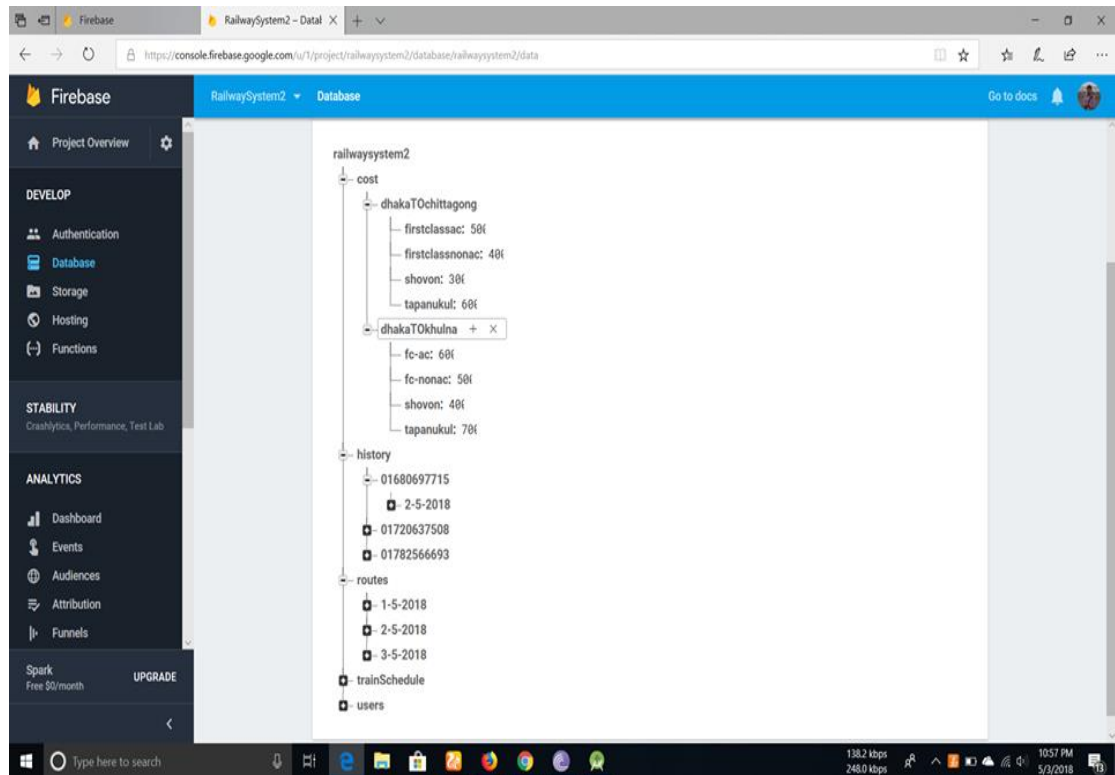
Figure 5.1.1(b): Screenshot of Database Design

In figure 5.1.1(b), it shows the screenshot of Database Design.

For all these features, we decided for using Firebase Server as Database for our android application. This database is store unlimited data, also secure for storing data. Developer can easily and simply handle this database. The major fact is that is a real-time as online database.

5.2 Implementation of Front-end Design

It is really a good challenge to develop a gorgeous front-end design which will be attracted to user. Because, for developing a design for android devices, all the time developer has to consider the display dimension of android device. Sometimes it can't fix with the display for many reasons. So, a developer needs to check several times of his/her android application by building or running within an android device. For interactive design we always try to think as a simple and easier in user interface design for creating user attraction to our android application. We also try some

materials and tools design for making and creating attraction to the user. So it was really a good challenge to us when we were designed our android application's user interface. But most challenging part is to make our android application. There are a lot of and many types of smart-phones that support android. But all of these are not same quality assurance. Some of them have very weak hardware component, in a little bit pressure those device getting hang and behave like weird. These reasons occur for different types of version. So we design the application which will be support to all the devices as like older to newer version and we insure that our android application is secure and will not create any extra pressure on devices. We attached our application front-end implemented design below:
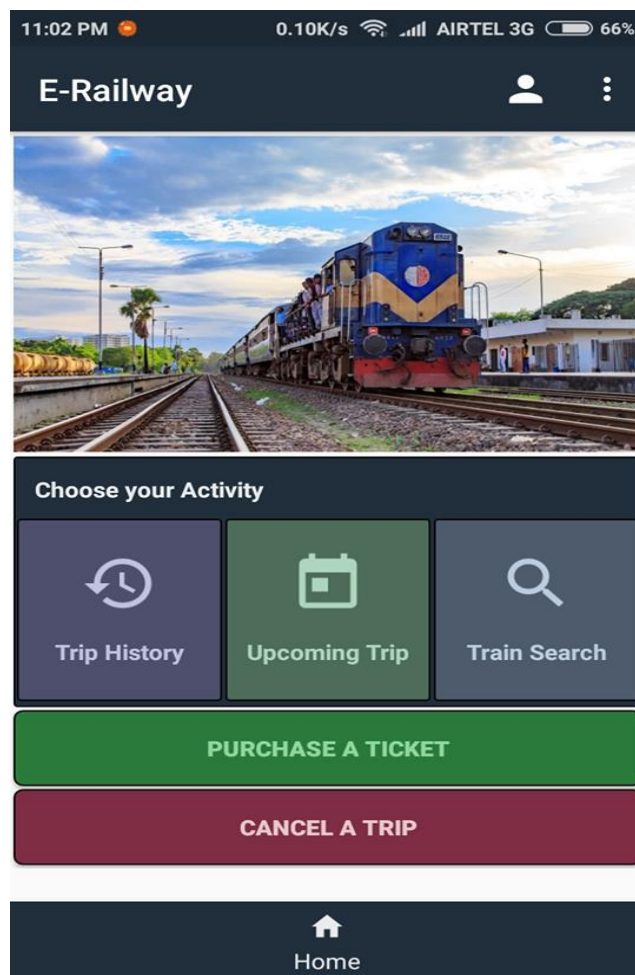

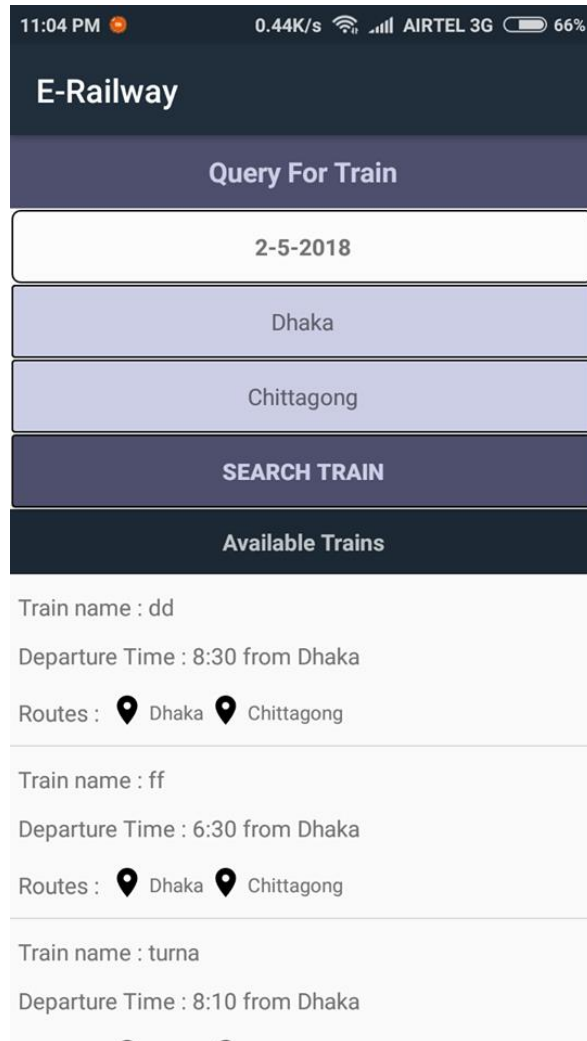Figure 5.2(a): Screenshot of Front-end Design
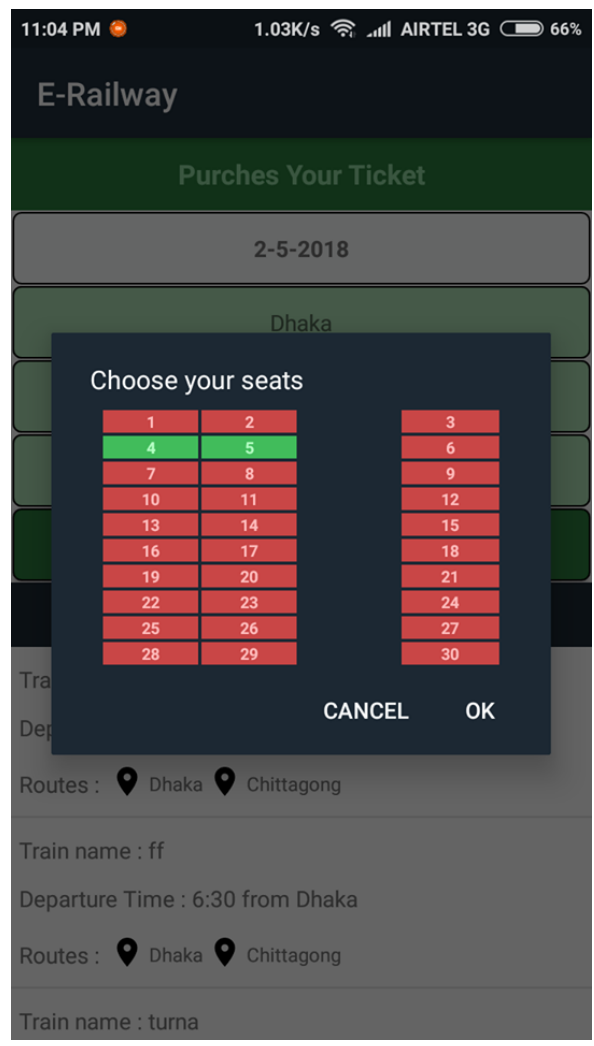
Figure 5.2(b): Screenshot of Front-end Design

Figure 5.2(c): Screenshot of Front-end Design

5.3 Implementation of Interactions

Here to make our system (Railway Reservation System) we have implemented responsive User Interface for better user experience. In the cases make things easy we use icon, text link and button. The system design of our android application is user friendly. Both Company and students will need to create profile for the access.
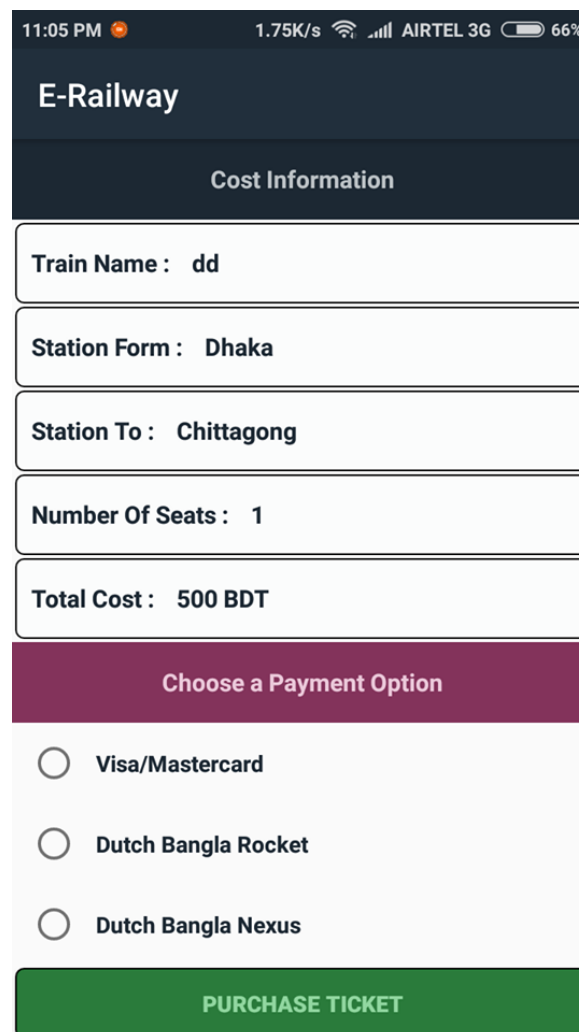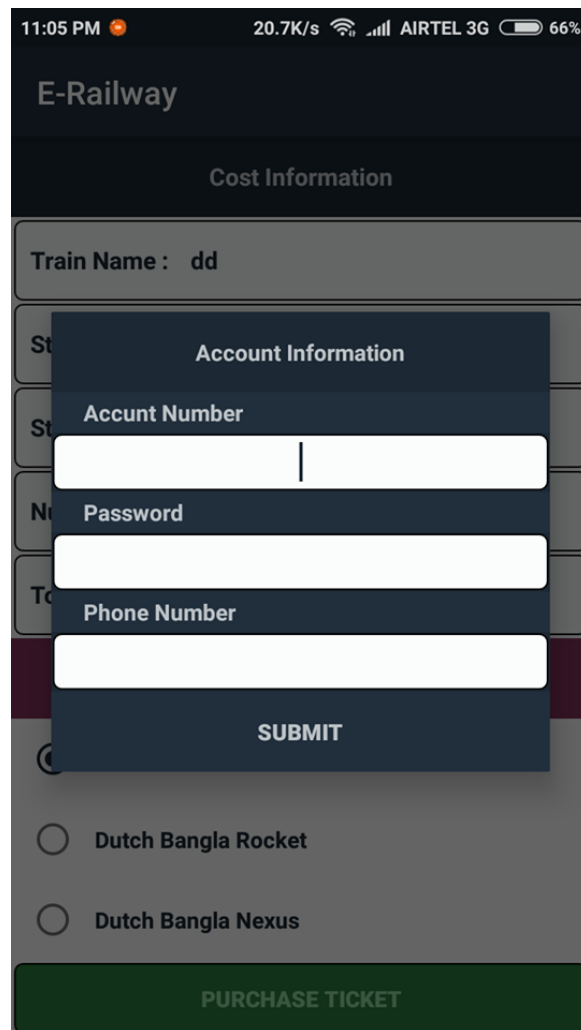

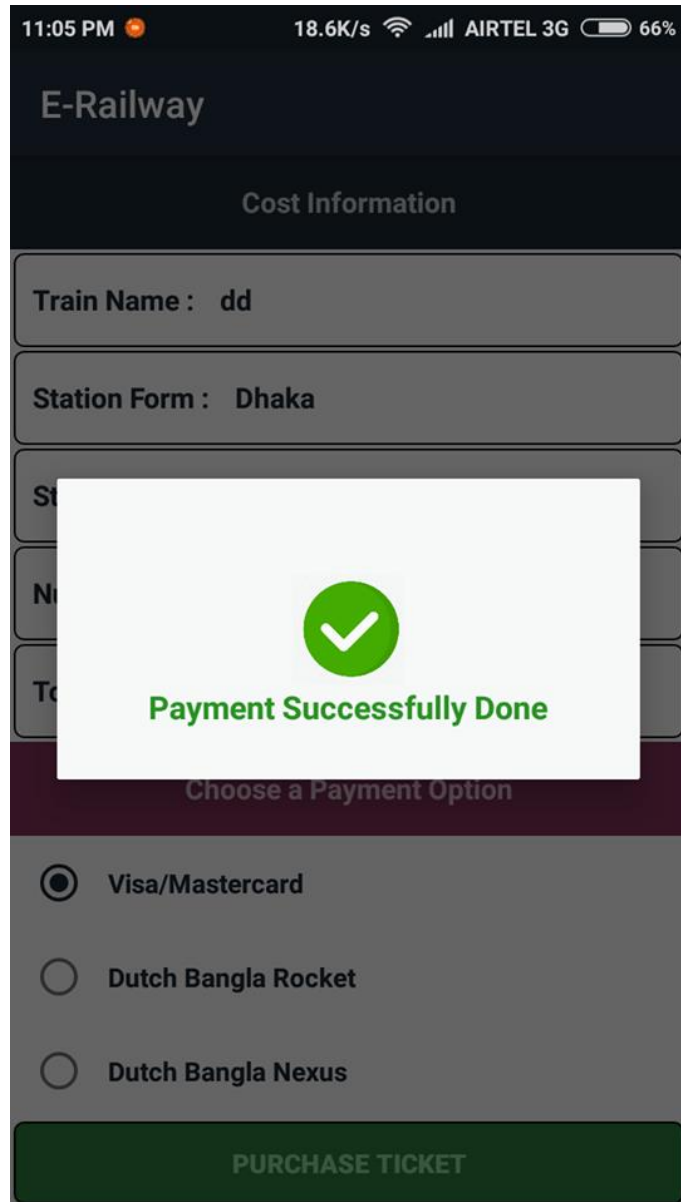Figure 5.3(a): Screenshot of Buy Tickets

Figure 5.3(b): Screenshot of Payment

Figure 5.3(c): Screenshot of Payment

5.4 Testing Implementation

Testing execution is procedure of testing forthcoming usage of a framework, where analyzer or framework planner will see cases and detail, is it implementable or have impediments.

Scenario 1: Test if user is able to login successfully.	User must be registered already	Valid username and empty password	Input correct username and password
Scenario 1: train search with all route stations	Enter source corresponding trains are displaying or not	Destination codes or source and destination corresponding trains are displaying or not	Enter train number and date source and destination with all stations are displaying or not
scenario 2: check availability of seats	Search seats for Ac ,sleeper ,seat	Check upper middle ,lower births	Ticket fare for corresponding criteria
scenario 3 : booking	Book the tickets with corresponding criteria by cash or card	Any conception for senior citizen if applicable	Ticket fare for corresponding criteria

Table 5.4: Test Case for Project on Railway Reservation System

5.5 Test Results and Reports

Test report is expected to mirror the aftereffect of testing the application formally, which gives a chance to appraise the consequence of testing rapidly. It is an archive that records information got from a decide explore in an association way, depict the natural or working frameworks conditions and demonstrates the correlation of test comes about with targets, which are so imperative for any kinds of utilization. We locate our normal outcomes for our application. The test outcome was very fruitful. The client fulfills to utilizing our application. Our desire will be that client can without much of a stretch utilize and comprehend our application as a superior User Interface.

CHAPTER 6

CONCLUSION AND FUTURE SCOPE

6.1 Discussion and Conclusion

Our android based mobile application has been successfully implemented. We are finally completing our application work. For implementing our application, we have tested the application with many types of smart phones and we saw that our application worked properly and it also gave the required data from database server, send mail to us, view pdf file and download pdf file. The application design is very user friendly. The user interface is so simple and not looking like as a complex view. User can easily handle our application. We tried our best to complete all requirement file of our application. We hope that people will use our application and will get required a proper service.

6.2 Scope for Future Developments

We have tried our best for developing our application in present time. If we find any scope for developing in future, we want to develop and change something of our application. Our future developments scopes are given below:

- In future, we will try to make this application for all platforms in smart phones.
- We will try to add maps in our application so that user will be able to find location.
- We will add more important information for helping our countries people.

APPENDIX

Appendix A: Project Reflection

From Summer-2017 semester we had started our journey to make a system, where companies and students can find their desire jobs and employers and it will save valuable times as well. We followed the model to implement and monitor our system, with the all hard work and spending a lot of time finally we were able to reach our goal at last. So we believe that our "Android Based Railway Reservation System" will be a positive and effective thing for both the companies and the students. And we will be continuously upgrading our system as early as possible.

Appendix B: Related Diagrams

Figure 4.1(a): Screenshot of Front-end Design

Figure 4.1(b): Screenshot of Front-end Design

Figure 4.2: Screenshot of back-end Design

Figure 5.1.1(a): Screenshot of Database Design

Figure 5.1.1(b): Screenshot of Database Design

Figure 5.2(a): Screenshot of Front-end Design

Figure 5.2(b): Screenshot of Front-end Design

Figure 5.2(c): Screenshot of Front-end Design

Figure 5.3(a): Screenshot of Buy Tickets

Figure 5.3(b): Screenshot of Payment

Figure 5.3(c): Screenshot of Payment

REFERENCES

[1] Learn about Use Case, BPM, SDLC at https://en.wikipedia.org/wiki/, last accessed on 01-01-2018 at 10.00pm

[2] Learn about Android Studio at https://en.wikipedia.org/wiki/Android_Studio, last accessed on 21-02-2018 at 11.00pm

[3] Database, available at <<http:en.wikipediaorg/wiki/Database>>, last accessed Date: 07.02.2018

[4] "Train Ticket & Schedule in BD - Apps on Google Play", at https://play.google.com/store/apps/details?id=com.sattartechtunesbd07.trainticketbangladesh&hl=en_US, last accessed Date: 01.02.2018

[5] Bangladesh railway time schedule | train station and Tickets , at http://www.mediabangladesh.net/bangladesh-railway-train-schedule-tickets/ , last accessed on: 29.12.17

[6] Bangladesh Railway Website ,at http://rootsbd.com/tag/bangladesh-railway-website/ ,

last accessed on: 1.10.17

[7] Bangladesh Railway - Wikipedia, at https://en.wikipedia.org/wiki/Bangladesh_Railway ,

last accessed on: 1.9.17

PLAGIARISM REPORT