

**DESIGN AND DEVELOPMENT OF AN ANDROID APPLICATION: CAMPUS
BOI**

BY

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

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**DAFFODIL INTERNATIONAL UNIVERSITY
DHAKA, BANGLADESH
DECEMBER 2020**

APPROVAL

This Project titled “**DESIGN AND DEVELOPMENT OF AN ANDROID APPLICATION: CAMPUS BOI** ”, submitted by Tanveer Hasan ID: 171-15-9256 to the Department of Computer Science and Engineering, Daffodil International University, has been acknowledged as palatable for the halfway satisfaction of the prerequisites for the level of B.Sc. in Computer Science and Engineering and approved with regards to its style and substance. The presentation has been held on 27 January 2021.

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I hereby declare that, this project has been done by us under the supervision of **Narayan Ranjan Chakraborty, Assistant Professor, Department of CSE** Daffodil International University. I likewise proclaim that neither this undertaking nor any aspect of this project has been submitted somewhere else for grant of any degree or confirmation.

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ACKNOWLEDGEMENT

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

I really grateful and wish our profound our indebtedness to **Narayan Ranjan Chakraborty, Assistant Professor**, Department of CSE Daffodil International University, Dhaka. Deep Knowledge & keen interest of our supervisor in the field of Android app development to carry out this project. His unending tolerance, insightful direction, ceaseless support, steady and enthusiastic management, helpful analysis, important counsel, perusing numerous second-rate drafts and remedying them at all stage have made it conceivable to finish this project.

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

I might want to thank our whole course mate in Daffodil International University, who participated in this talk about while finishing the course work.

At last, I should recognize with due regard the steady help and patients of my parents.

ABSTRACT

I would like to develop and deploy “Campus Boi” a mobile application in our university campus. It’s a book sharing app for all dept and campus students in the Daffodil International university. This is the first time DIU students going to get book sharing platforms by installing on their android phones from the Google Play Store. We know that book is one of the most essential material for every student. Students have going to pass many semesters and after registering new semester then most of the time old semester books are not necessary. So, in this case a student can share his book to other students. Book will be shared in three way like, lead for 1 semester, gift and sell. Owner will be awarded from app when share a book as gift and lead for 1 semester On the other hand who need this book then collect this one from book owner. This book sharing app “Campus Boi ” will inspire the students to share their learning by sharing a book. On the other hand there is an another way to generate money by selling their unessential book in the Campus Boi app and it’s also provide the book resource around the campus. As a result, our junior students will be benefited more.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

"Campus Boi" is a book sharing android application for the Daffodil International University campus which is useful for DIU every one of the departments and all campuses. Here students can easily share, gather, and purchase new books. A Book is one the most and valuable study material for any students. Without a book the study will be more complex and incomplete. Now a days a number of students try to meet the demand for books with PDFs. Because of the price of new book, availability of book nearby book shop or Large book center is so far from Campus and time wasting. For which they lose interest in buying books. But PDF can't meet the demand for books ever and not healthy and efficient way to study. However, one student have to read more then 3-4 book in every semester. After completing a semester those books are not necessary at all except related course. As a result their books are on their bookshelves day after day.

So in the situation this will create a good communication way who have a unnecessary book and who need a book as course material for his/her semester. Junior student can easy collect a book from the book owner via a Campus Boi app and apart form this owner can also share his/her book as well.

1.2 Motivation

This is a book sharing android application and by implementing this application I will solve some common problem to senior students and beside of this It will be more beneficial for the junior students. Like by installing app from the google play store senior students can share their book in the three way such as Gift (he or she can gift the book to others) , Giving Back (book can be lead for 1 semester) and Paid (book can be sell).

On the other hands junior can collect shared book easily which are shared by the senior students. Student can also buy new book from the app.

1.3 Objectives

Campus Boi is a book share application for DIU understudies. By utilizing this application student can share his/her books in three-way like Paid, Gift, Giving Back. Alongside of this student can gather those books. They additionally purchase new books from here and another is they can demand for a book on the off chance that they need it.

Features:

- Share Book in 3 way (Paid, Gift, Giving Back)
- Collect shared book from owner
- Create account
- Login with phone number with phone verification
- Purchases new book
- Track order when order a new book
- Request for a new book
- Student's leader-board who shared their book as a Gift or Lead for 1 semester
- Owner verification Blue sign
- Delete order , request , account
- Reading activity
- Categorized book by department and Campus
- Search Book by name
- Make direct call or mail from app
- Auto mail generate to contact with book owner
- Auto suggest book writer when user share their book
- Report against user

1.4 Expected Outcome

This app will create a helpful and easiest platform of book sharing in our university campus. Suppose a student has one more book which is unnecessary then he/she can gift, lend and also sell his book and make a money. But who share their book as gift or lend then Campus Boi will recognize top 3 student as Torch Bearer and get award in every semester. As a result students will inspire to share their unnecessary book as gift or lend to others.

At the same time junior students can collect shared book without any cost and also buy old book with minimal price of book. Books are categorized by every department, campus and shared type that's why one can easily find a book what he actually wants.

Students not only shared their academic book, they can also share story, novel or others book. There is a good effective feature for reader, suppose suddenly I want to read a book but you can't find this book in the app. So in this case students can request for a new book by adding book name and writer name and before accepting this request Campus Boi admin will notify the price of book.

Apart from this, student can purchase new book from here also buy story book and skill development book. By implementing this feature there will be a good business. There will be a good profit from selling a book. In future I have a plan to add certain amount of percentage for selling old book. So this is the another way to generate profit. But this will be not mandatory, if you don't share a book for sell without pay certain amount of percentage then within 3 days admin will delete this book from the Campus Boi app but if you pay us then campus boi will allow your book for 4 months.

1.5 Report Layout

In our report we have six chapter such as the introduction, motivation, objective, expected outcome and report layout of my project has been describe in chapter one. In chapter two, we covered basically the background of my project and also covered the related work. Comparative studies, scope of the problem and challenges for my project.

Beside business process model , requirement collection and analysis , use case modeling and description , design requirement and logical data model are covered. In chapter four, mainly we discuss details specification of my project including with front-end design, back end design and interaction design and UX and implementation requirement . In chapter five, I covered the details of implementation and testing part including with implementation of database, implementation of front-end design and test result and report. In chapter six, I describe the conclusion and future idea of this app.

CHAPTER 2

BACKGROUND

2.1 Introduction

Campus Boi is android application. It is developed in the Android Studio IDE which is so heavy perform and make sure the developer pc has a good configuration of RAM, Hard Disk or SSD. So 1st time it was a difficult moment. Sometimes in the update version of IDE they depreciate some built in function and introduce new facton instead of the previous functions. That's why I have to updated in code writing , sometimes error in occurred in code because of using depreciate function and then I have to study the Google Android developer documentation site , StackOverflow website then solve this error. For app developing purpose I have to knowledge in Java programming language and for Rest api need knowledge about PHP language and for database connection , data insert , retrieve , manipulation need SQL Quarry also.

2.2 Related Works

For the user there is an Admin app of the Campus Boi application. By using this app all user activity can be monitor like see all users, list of users , sell all shared book , add new book ,track new book order and also able to take immediate action against any unnecessary occurrences such as disable user account . delete user account, delete shared book if book's information is graphical violence or inaccurate information.

2.3 Comparative Studies

At first I have to know about the students in every department that which books they read in their courses, then collect the book image. Form this book image find out the writer name and insert to the app server. After that when a use enters the book information like book name and writer name for sharing a book then auto suggest the writer name. I have

also learn about Android studio ide like how to install this and what are the minimum requirement of pc configuration to install and setup properly and know about Java home as system advance environment variable to support java program or compile java code.[4]

I have searching in Google play store but I found one or app for book sharing app but don't similar with Campus Boi concept. Campus Boi has many unique features like book share type , categorized book , buy new book many others features. And I will try to make it user friendly design and functionality.

2.4 Scope of the Problem

We can't implement AI in this app that's why campus boi app can't identify that the book image is accurate or not. On the other hand, if a user can upload any violence picture as a book image then app also don't understand. In that case we have to monitor physically like after doing this violence within 5-6-hour Campus Boi admin delete this content and disable this user account for one semester or more. As a result, user can't use this id or any activity in the app.

Campus Boi won't take more user user traffic. If there are 5000 + user uses this app at a time then the server will be down and application not responding (ANR) is occurred. In the app developing there is a common programmatical problem is java null pointer exception. Null Pointer Exception is a Runtime Exception. In Java, an uncommon null data can be allocated to an item reference. Null Pointer Exception is tossed when the program endeavors to utilize an item reference that has the null data. In many time this problem is aslo occurred when I run the app, but it is some to difficult to find out why compiler show this type of error, however I have fixed those problems by doing code study.

2.5 Challenges

When a developer develops an app there are many challenges comes to him/her. In my project the first challenge is I was beginner in android development so that some of features I didn't start because I had no knowledge about that. Then I searched in YouTube, Google , Stackoverflow . After getting knowledge that I have implemented in this app. Still now there are also many challenges like App server maintenance, appear new bug in the app then have to fix asap, getting updated with new android version and android SDK. Last week google announced that they change their user device permission access policy for Android 10 and Android 11. So as a result some of doesn't work in previous procedure then I had modify those code according to the new user permission [1][5].

CHAPTER 3

REQUIRMENT SPECIFICATION

3.1.1 Business Process Model

Business measure displaying is the activity of speaking to the cycle of a business, so that the current cycle might be examined, improved and robotized. BPM is regularly executed by the business investigation, who gives the capability in the displaying discipline. The fundamental capacity of Business Process Modeling improves the way the measures are finished.

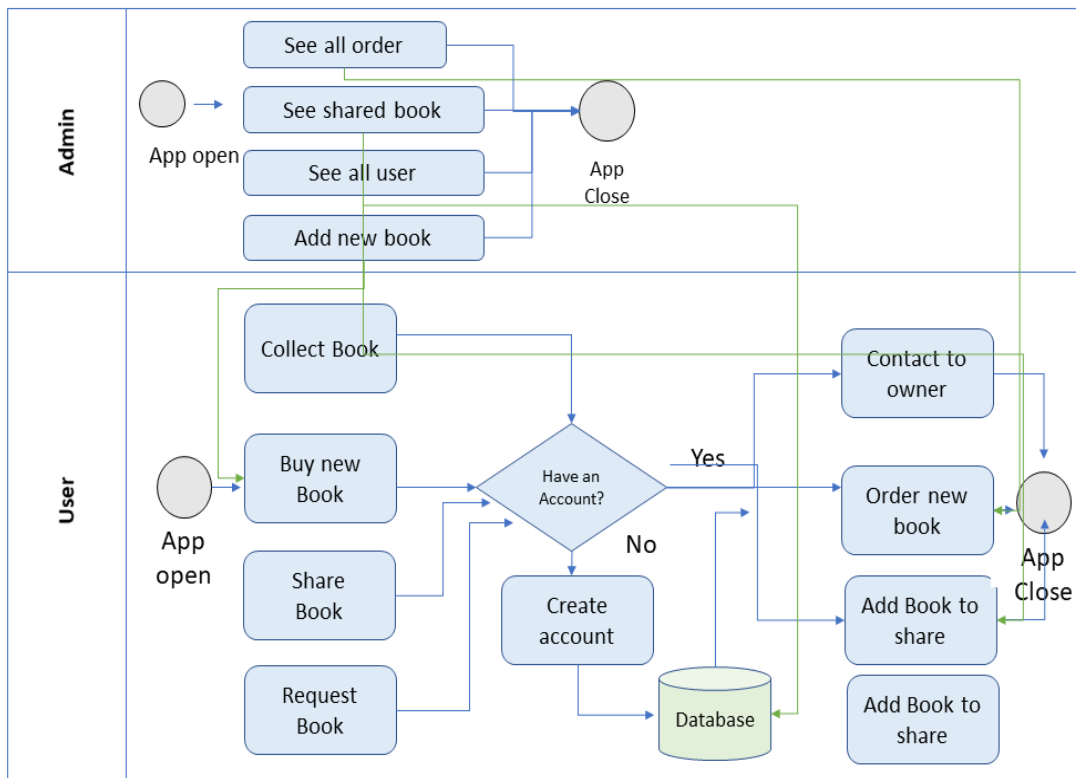


Figure 3.1: Business Process Model

3.1.2 Block Diagram

A block diagram is a specific flowchart used in designing to imagine a system at a significant level. It is used to plan new systems or to explain and improve existing ones.

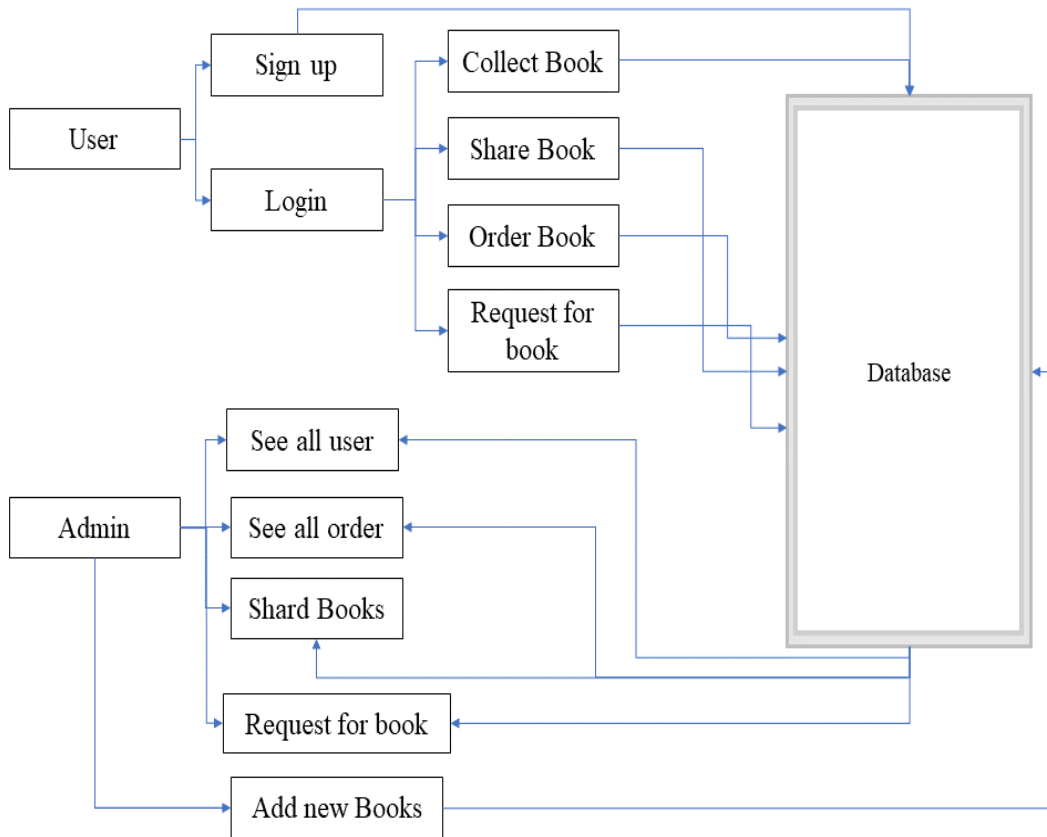


Figure 3.2: Block Diagram of the System

3.2 Requirement Collection and Analysis

Before to start coding the initial states is requirement collection analysis. There are types of requirement such as functional requirement and non-functional requirement. Functional requirements are how the app works, features and user interface. The non-

function requirements are the performance, responsiveness, security, availability, reliability. As a functional requirements I have talk to my university class mates, senior and junior and shared my idea, prototype of app then they also suggested me that I will be looks good and helpful if will implement this procedure. In case of functional requirement my honorable supervisor sir advise me many more things.

3.2.1 Feasibility Study

This study is the most important to for develop a app. After selecting the idea you have to feasibility study about our idea or project concept. That mean is your idea unique, how appropriate for target audience, stability and usability of app and how solve a problem of user by this idea etc. , is your service is feasible for user. Suppose you develop a excellent app by investing a good amount of money for Bangladeshi Rickshaw puller and by using this app you want to solve a good problem to them. But in this case to matter your app is excellent or good working because your target audience are not capable to use this at all. Before to develop this app you must have to study about them like how many rickshaw puller have a smart phone or are they use internet or not , are they interest to use this service , how about this area and so on.

I did feasibility study about my idea and implementation. For the 1st, I search in google play store and I noticed that there is no app , website or any platform about this same idea for book sharing our university campus. So my idea is unique and then I have reached every dept student then ask them Is this app will be helpful? How they will able to share their book in the easiest way and what will be the features of the application. After this study realized that actually student are facing some problem like after ending a semester there are almost useless or not so important for the next semester or sometimes they want to sell their old book but they can't because there are not any platform for this

situation. Moreover, there are no rich book shop around the campus. So, I hope that this idea will be more demandable.

In the feasibility study for an android or web application developer must have to know about the user activity like who many user use the app or website at the same time, who about the traffic of service. Because according to the user traffic developer have to design database , database capacity and maximus how many user can take the service at the same time. In that case for the 1st time there are not a biggest amount of user don't use this app. So that's why I designed the app database , database storage capacity and user traffic speed.

3.3 Use Case Modeling and Description

Use case is a depiction of how a client will utilize the framework to finish his business objectives. The application speaks to an utilitarian or an item. There are two primary segments of an utilization case graph. Entertainers in an utilization case graph are any element that acts in framework.

In use case diagram is give below :

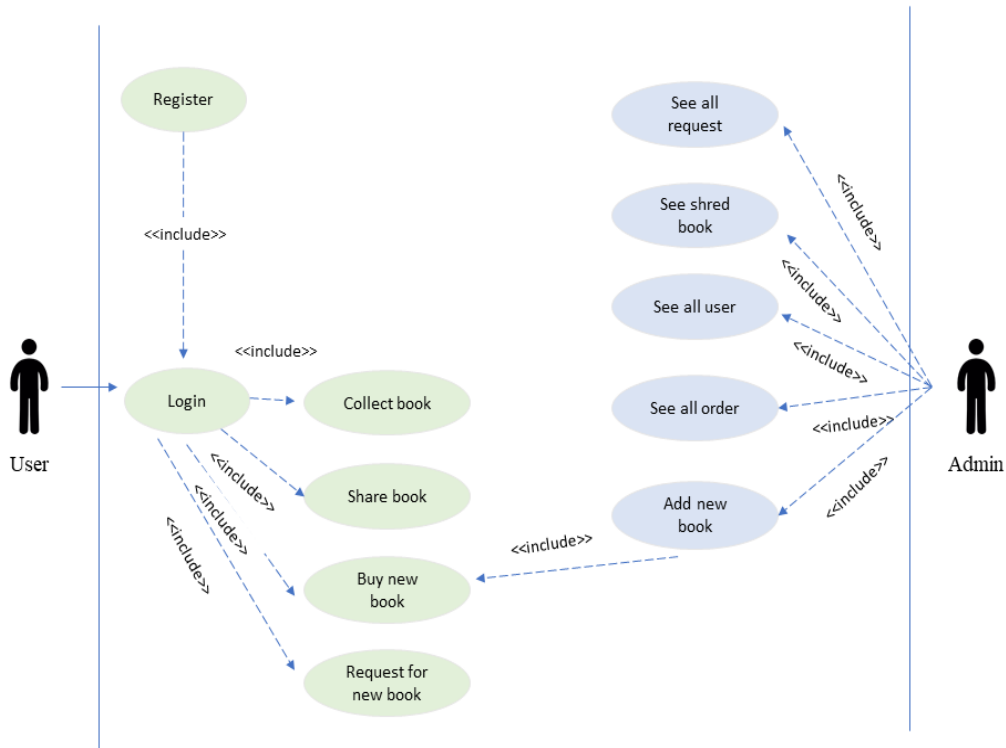


Figure 3.3: Use Case Diagram

3.4 Logical Data Model

Basically, logical data model is diagram that define that how data stored in database. This is including all entities and relationship between tables and this diagram in called E-R diagram.

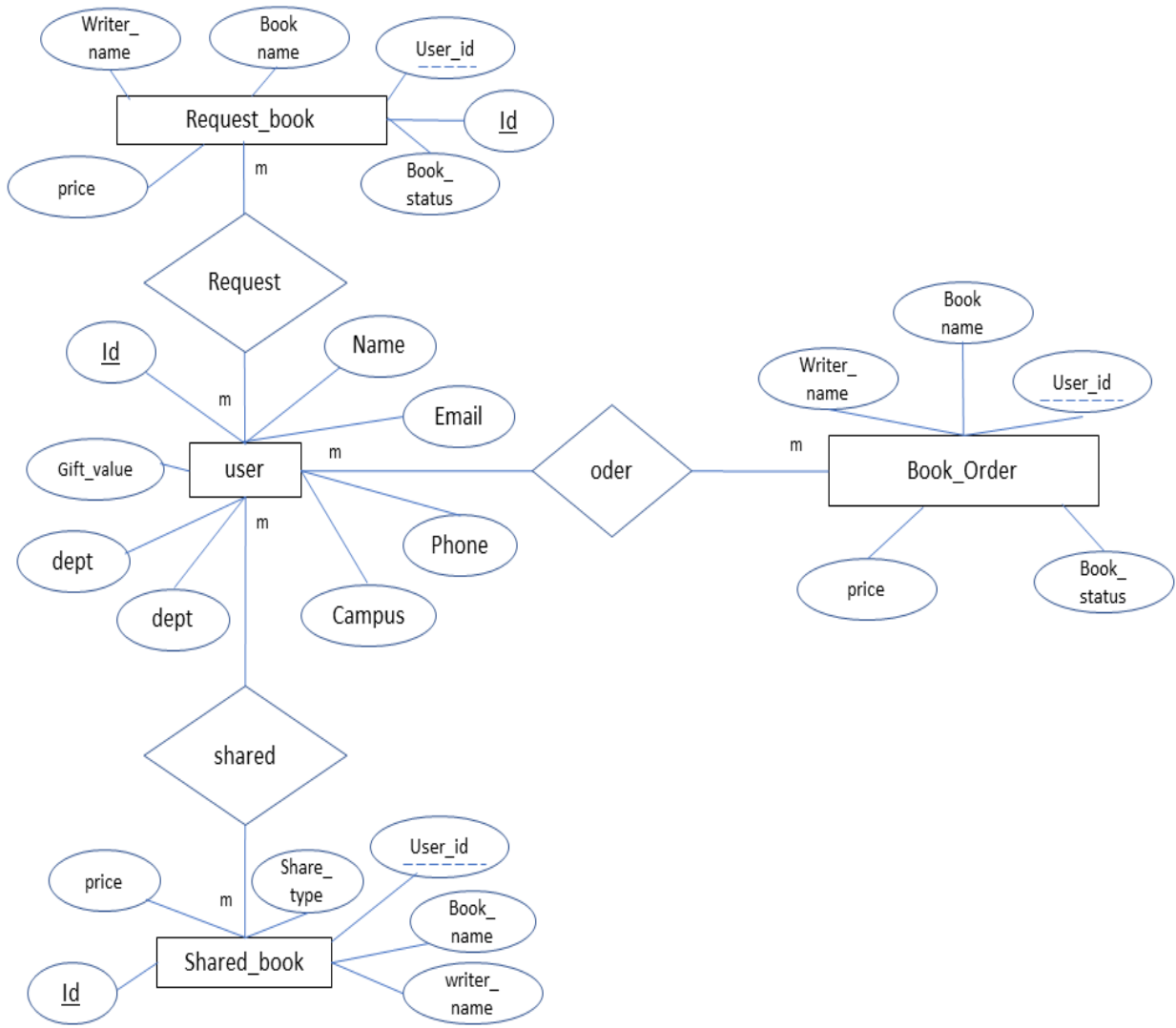


Figure 3.4: ER Diagram of the system

3.5 Design Requirements

Developing an application starts with requirements design. Because with all the process are depend upon the requirement design. Some important requirement is given below:

- Book are categorized by dept
- Suggest writer name when user share a book
- User authentication
- Track order when user order a book
- Upload book image
- Convert Image size
- User authentication using phone number

CHAPTER 4

DESIGN SPECIFICATION

4.1 Front-end Design

This is the most important section of mobile application. It is worked on presentation layer and user can directly interact with users or a person. Now-a-days people are attractive to short and easy things. So I tried to make the app user interface is very friendly to user and easy to interaction. Sometimes I use google material design for good user interface and easy to interact.

In the figure 4.1 is home page of this app. Here all book are available in a list. Book are categorized by book share type and their own department. So user can collect shared book or buy new book as well. They can search book by name and request for a new book by adding book name or writer name.

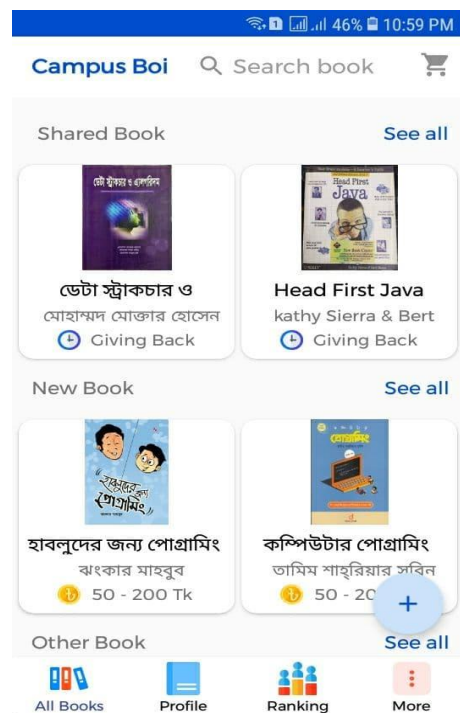


Figure 4.1: Home

This is the page of user profile here use can see their order , request and shared book list. User can also edit their profile by clicking their name. Moreover in this page user rating and number of gifted book

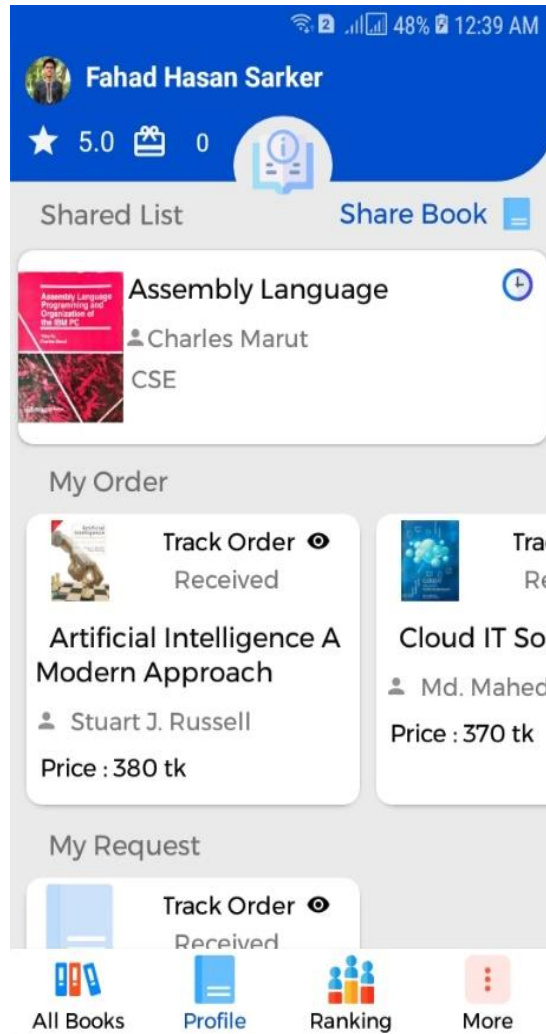


Figure 4.2: Profile

Torch Bearer Ranking who shared their book as Gift or Lead for one semester or more. In the end of semester, the top 3 Torch Bearer will be reward from the Campus Boi app then leaderboard will be created and ready for new semester.

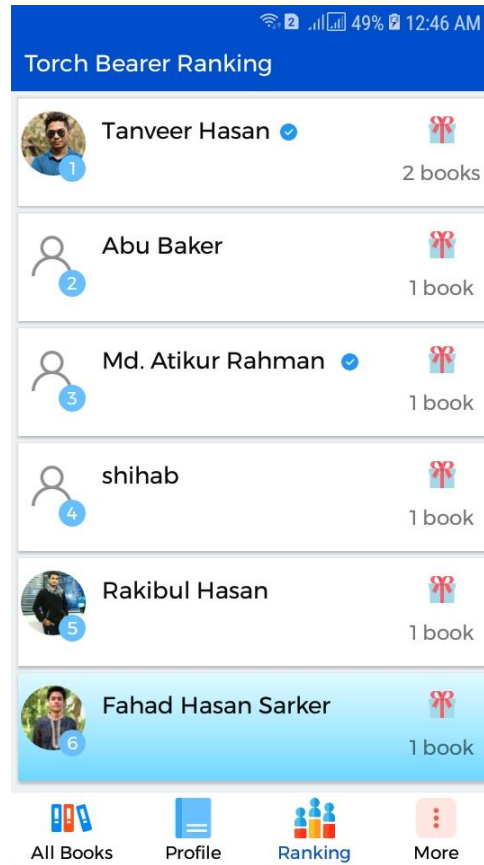
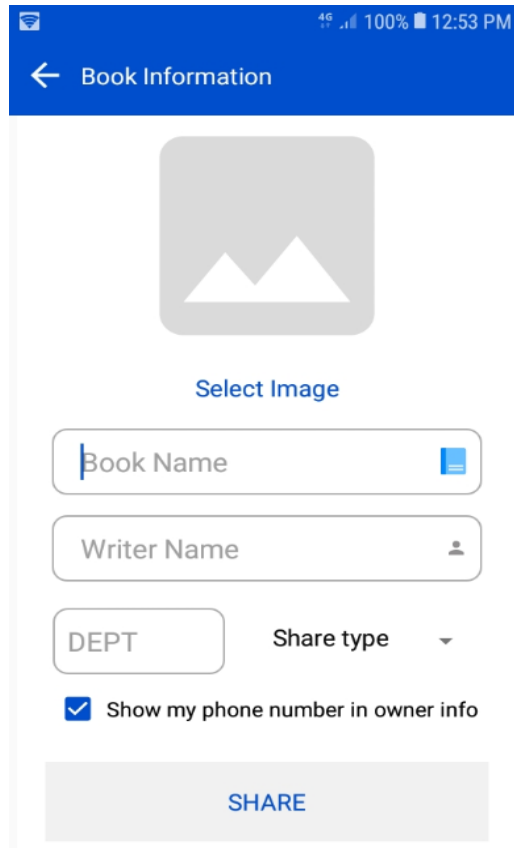


Figure 4.3: Ranking

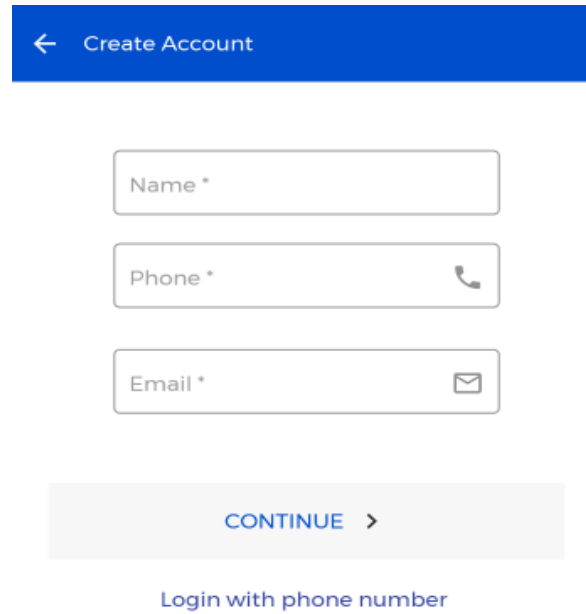
In fig 4.5 there is a option of sharing a book. Just click share book button then fig 4.6 is appear to the user then user enter their book information which use want to share with others like book name , writer name ,book category , select share type.



The screenshot shows a mobile application interface for sharing a book. At the top, there is a blue header with a back arrow and the text "Book Information". Below the header is a large grey square with a white mountain-like icon, representing a book cover. Underneath this icon is the text "Select Image". Below that are three input fields: "Book Name" with a blue book icon on the right, "Writer Name" with a person icon on the right, and "DEPT" with a dropdown arrow. To the right of the "DEPT" field is a "Share type" dropdown menu. Below these fields is a checkbox labeled "Show my phone number in owner info" which is checked. At the bottom of the screen is a large grey button with the text "SHARE" in blue.

Figure 4.6: Shard Book

User interface of Create Account by name ,email address , phone number and Login With phone number to access some important features.

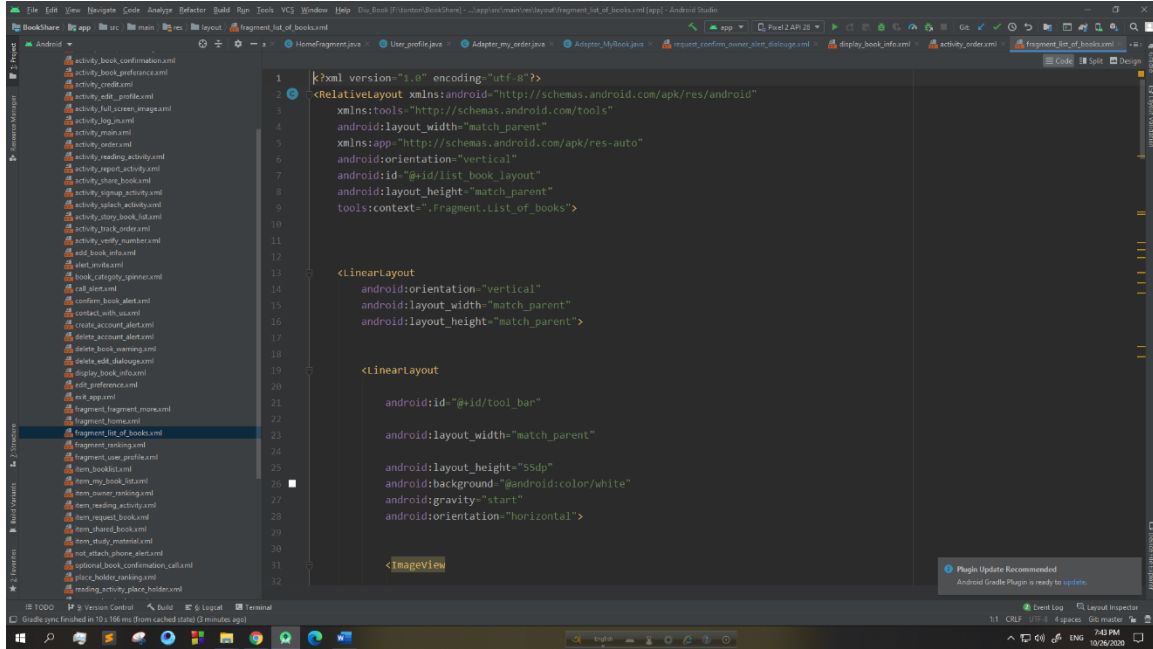


The image shows a user login form with a blue header bar containing a back arrow and the text "Create Account". Below the header are three input fields: "Name *", "Phone *", and "Email *". The "Phone *" field has a phone icon on the right, and the "Email *" field has an envelope icon on the right. Below the input fields is a light gray button with the text "CONTINUE >". At the bottom of the form is a link that says "Login with phone number".

Fig 4.7 : User Login

4.2 Back-end Design

This is the design xml code for “All Book” features.



```
1 <?xml version="1.0" encoding="utf-8"?>
2 <RelativeLayout xmlns:android="http://schemas.android.com/apk/res/android"
3     xmlns:tools="http://schemas.android.com/tools"
4     android:layout_width="match_parent"
5     xmlns:app="http://schemas.android.com/apk/res-auto"
6     android:orientation="vertical"
7     android:id="@+id/list_book_layout"
8     android:layout_height="match_parent"
9     tools:context=".Fragment.List_of_books">
10
11
12
13     <LinearLayout
14         android:orientation="vertical"
15         android:layout_width="match_parent"
16         android:layout_height="match_parent">
17
18
19         <LinearLayout
20             android:id="@+id/tool_bar"
21
22             android:layout_width="match_parent"
23
24             android:layout_height="55dp"
25             android:background="@android:color/white"
26             android:gravity="start"
27             android:orientation="horizontal">
28
29
30
31     <ImageView
```

Figure 5.1: All Books xml code

This the screenshot of xml code for user profile

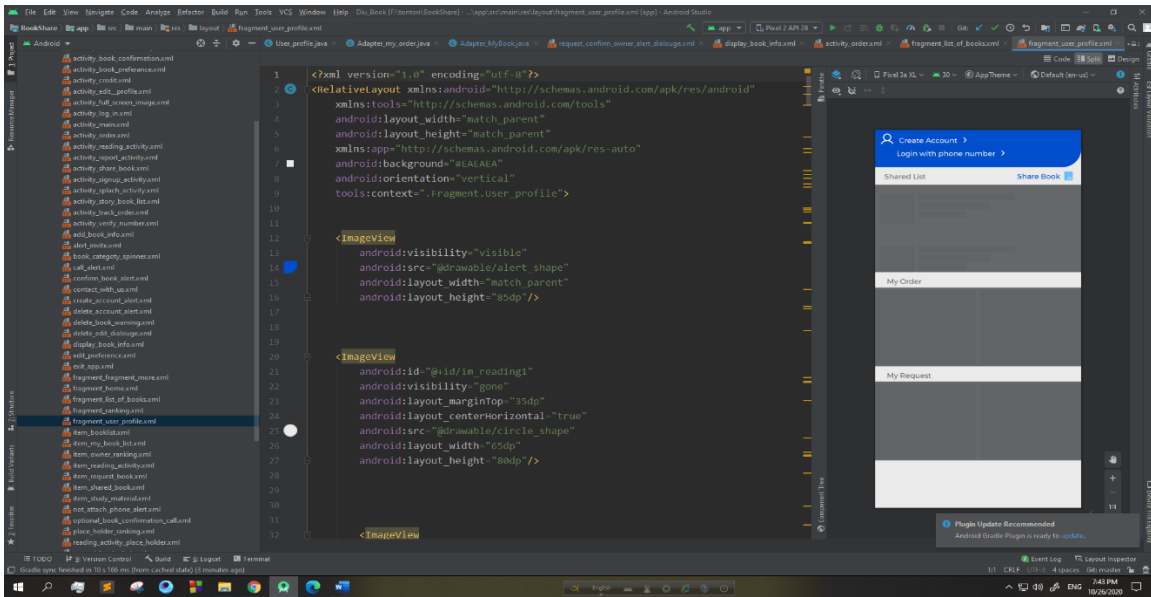


Figure 5.2: Profile xml code

Xml design for user Login by their phone number.

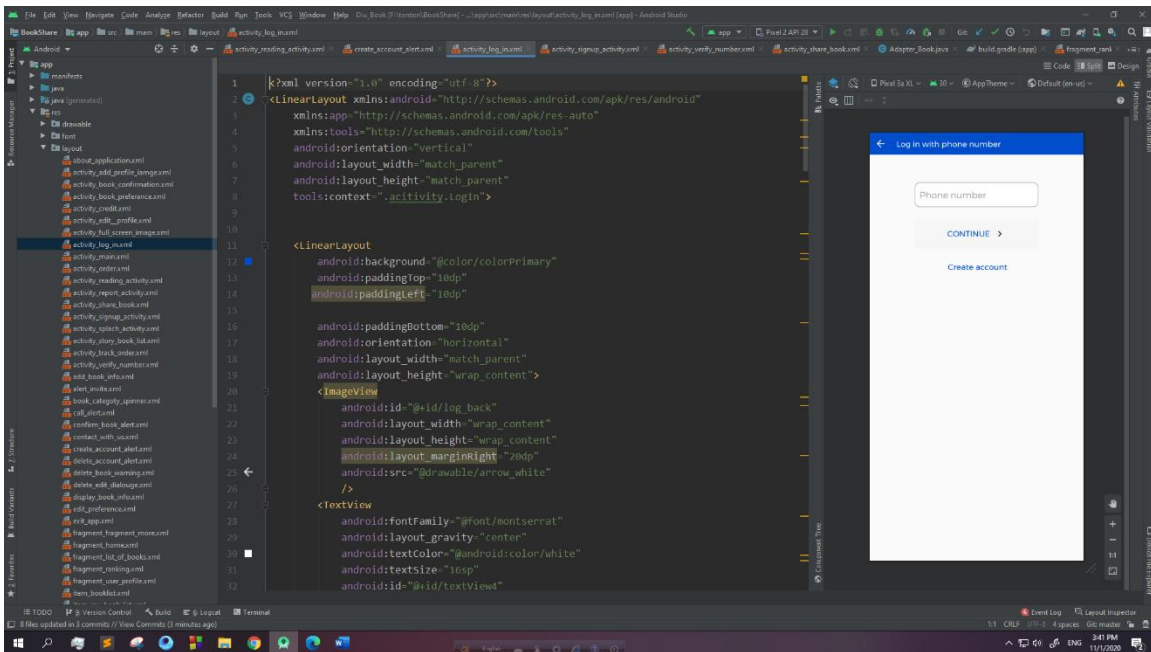


Fig 5.3 : User Login

Xml design code for user create an account by entering their name , email and phone

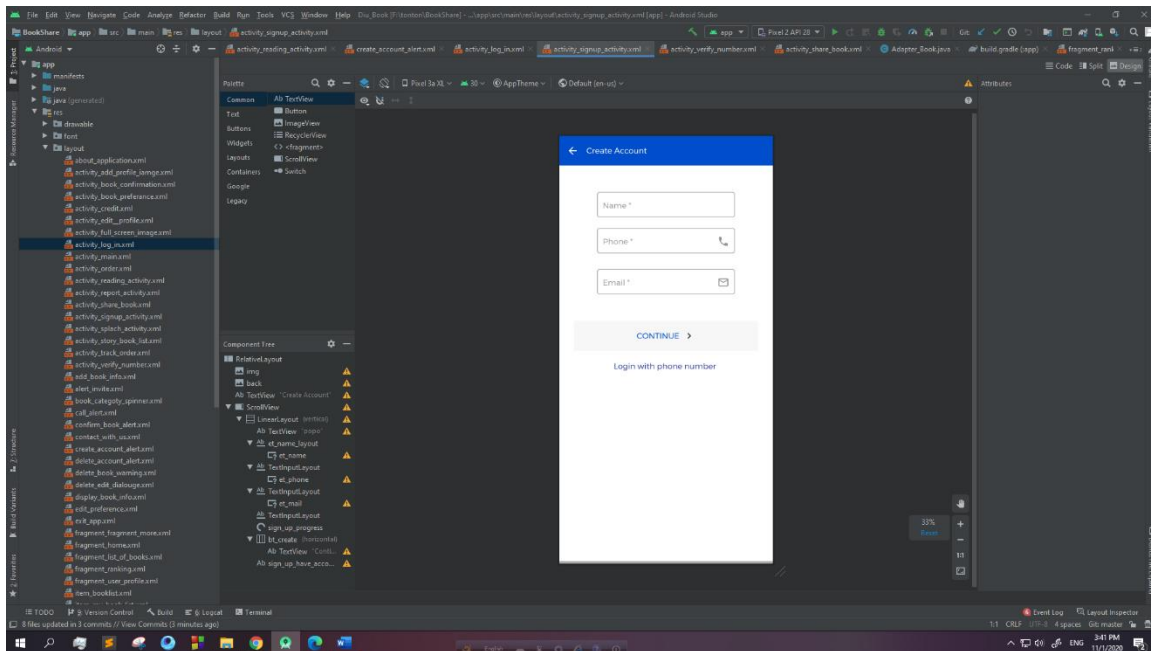


Figure 5.4: User create account

4.3 Interaction Design and UX

Interaction design is a basic thing, it is the plan of the communication among client and substance. Regularly when individuals consider cooperation plan, the items will in general be programming items like applications or site. Interaction design is the cycle which can comprehends client issue, measure the issue and discover the normal outcome, perform activity by the regarding results and tackle the issue for good. The objective of the intuitive plan is to make items that empower the client to accomplish their goals in the best and short manner conceivable.

4.4 Implementation Requirements

To implement this app need one more programming language like Java , PHP , SQL and as a tools need Android studio which is open source platform by Google. And also some third party API or library to implementation all requirement.

4.4.1 Java

For a native app most the developer develops their app in java programming language. Moreover, app can be developed by many languages like Kotlin, Flutter, Dart. In my app I have used java. Java is object-oriented programming language. The portable release of Java is called Java ME. Java ME depends on Java SE and is upheld by most cell phones and tablets. The Java Platform Micro Edition (Java ME) gives an adaptable, secure climate for building and executing applications that are focused at installed and cell phones. The applications that are manufactured utilizing Java ME are versatile, secure, and can exploit the local capacities of the gadget. Java ME tends to the limitations that are associated with building applications that are focused at cell phones. Fundamentally, Java ME tends to the test of executing applications on gadgets that are low on accessible memory, show, and force. There are different approaches to assemble applications for

Android gadgets, however the prescribed methodology is to use the Java programming language and the Android SDK.

4.4.2 PHP

MYSQL is utilized as a database at the web server and PHP is utilized to bring information from the information base. Our application will speak with the PHP page with fundamental boundaries and PHP will contact the MYSQL information base and will get the outcome and return the outcomes to us. PHP is additionally used to bring the

record from the MySQL database whenever it is made. So as to bring record some data must be passed to the PHP page with respect to what record to be retrieved. Moreover, for creating Restful API, app database connection I use PHP language. Most of the developer use this language for their API. Sometimes NodeJS language is also used for creating API.

4.4.3 Restful API

Retrofit is a REST Client library utilized in Android and Java to make a HTTP request and furthermore to handle the HTTP reaction from a RESTful API. It was made by Square, you can likewise utilize retrofit to get information structures other than JSON, for instance Simple XML and Jackson. Before proceed, how about quickly characterize REST Client and REST API in our unique situation. A REST API means a set of functions which programmer can requests and get responses via HTTP protocol such as GET and POST. in our case, It can also simply say that a RESTful API is an application program interface (API) that uses HTTP requests to GET, UDATE, POST and DELETE data.

4.4.4 SQL

SQL represents Structured Query Language. SQL is utilized to connect with a database. As per ANSI (American National Standards Institute), it is the standard language for social information base administration frameworks. SQL articulations are utilized to perform undertakings, for example, update information on a data set or recover.[7] information from an information base. Some normal social databases administration frameworks that utilization SQL are Oracle, Sybase, Microsoft SQL Server, Access, Ingres, and so forth Albeit most information base frameworks use SQL, the vast majority of them likewise have their own extra restrictive expansions that are normally just utilized on their framework. In any case, the standard SQL orders, for example, "Select",

"Addition", "Update", "Erase", "Make", and "Drop" can be utilized to achieve nearly all that one needs to do with an information base. This instructional exercise will furnish you with the guidance on the rudiments of every one of these orders just as permit you to put them to work on utilizing the SQL Interpreter.

4.4.5 Google Material Design

Material design is a plan language created by Google which, at its center, is an incredibly complex and very much characterized set of rules to support the two originators and end-clients imitate Google's work just as clarify why things in Google look and react the manner in which they do. [2] However I have also follow google material design in app like content spacing , text size , text color , margin , grids, scale active button, app color and so on. That mean the material design provide a complete gaudiness for app at all.

4.4.6 Third Parity API Library

Third-party libraries are generally used in Android applications to ease improvement and upgrade functionalities. Be that as it may, the joined libraries additionally bring new security and protection issues to the host application and obscure the bookkeeping between application code and library code. Under this circumstance, an exact and solid library finder is profoundly attractive.

Truth be told, library code might be redone by engineers during the mix and dead library code might be wiped out by code obfuscators during application construct measure. In the Campus Boi app I have also include many third party library that helps this app development is more efficient and productive such as event bus , retrofit , OkHttp ,Picasso or Glide , Gson .

Event bus : It is an open-source library for Android and Java programming languages. Android improved event bus that builds a simple communication between Activities, Fragments, Threads, Services. It also ignore complex and mistake inclined dependencies and life cycle issues. By adding this line (implementation'org.greenrobot:eventbus:3.2.0') in android project Gradle file take the access of library.

Retrofit: It is a RESR HTTP client for Android and Java. Buy using this library makes the HTTP API calling from your application a breeze and of one the easiest way to upload and retrieve JSON from any webservice. By adding this line com.squareup.retrofit2:converter-gson) in android project Gradle file take the access of library.

OkHttp : OkHttp endures when the network has any problem. It will quietly overcome basic connection issues. On the off chance that your administration has different IP addresses to OkHttp will endeavor other address if the first associate falls flat.

Picasso or Glide : Glide or Picasso is a quick and effective open-source media the executives and picture loading components for Android that wraps media translating, memory and plate reserving, and asset pooling into a straightforward and simple to utilize interface. If we use library then we have to add those line in project gradel file .

```
implementation 'com.github.bumptech.glide:glide:4.11.0'  
annotationProcessor 'com.github.bumptech.glide:compiler:4.11.0'
```

Gson : GSON is a Java library that changes over your JSON objects into an original Java Object and vice versa. This easy process makes GSON too helpful as some JSON articles can get very hard to peruse utilizing the default JSON peruser. It's helpfulness particularly becomes known when attempting to connect with RestAPIs that return in

JSON. You have add this line to use gson library in your application: implementation 'com.google.code.gson:gson:2.8.6'

Facebook Shimmer Library: The shine is an Android library that gives a simple method to add a gleam impact to any view in your Android application. It is helpful as an inconspicuous loading marker that was initially created for Facebook Home.

The Shimmer for Android is executed as a design, which implies that you can just home any view inside a ShimmerFrameLayout tag and call to begin the liveliness from your code. That is everything necessary. The format will utilize the qualities you indicate either on the tag (utilizing custom credits) or automatically in your code and create a movement on the fly.

If we use library then we have to add those line in project gradel file . “ implementation 'com.facebook.shimmer:shimmer:0.5.0' ”

Recycler View Library: The RecyclerView class expands the ViewGroup class and implement the ScrollingView interface. It is presented in Marshmallow. It is a serious adaptation of the ListView with improved execution and different advantages. RecyclerView is generally used to plan the UI with the fine-grain authority over the rundowns and networks of android application. If we use library then we have to add those lines in project gradel file .

implementation 'com.google.android.material:material:1.0.0-beta01'

implementation 'androidx.recyclerview:recyclerview:1.1.0-beta0

4.4.7 API Level

API Levels commonly means that as a developer, you can speak with the devices' inherent capacities and usefulness. As the API level builds, usefulness adds up (albeit some of it can get expostulated). So a app developer must user the least api level otherwise some of feature or library doesn't support not working properly. Current the latest android api level is Android 11 (API level 30)

CHAPTER 5

IMPLEMENTATION

5.1 Implementation of Database

Database store information of all sort of data to make a simple stage for ID and capacity. Information base is making the data access simple, speedy and adaptable for the client. A table is made by the examination of relative records. To plan and store information we need to assemble away from about structure of the table which contains the table name, table's section names, unfamiliar key and essential key.

In my application I utilized MySQL. This information base administration framework for making and control the information base. It is giving the orderly method to recover, make, update, erase the information.

5.1.1 Firebase Database: This database is provide by Google. It is more secure , fast and easy to handle and it's real time database. By the google Gmail account one can create project then make a database. Firebase is not only for database it has also many services like cloud storage , Firebase Machine learning , Cloud functions , User authentication , Hoisting , Cloud messing , Push notification , Test lab etc. [3] This is one of the best platform for any project back-end services. But those services are not free at all. After a crossing the limitation the you have to pay google according to their payment policy. Meanwhile the firebase database is a parent-child tree type database

In the Campus Boi app I have been using two services such as User authentication using phone number by sending one time password (OTP) to login or phone verifying purpose. In phone authentication google send 10k OTP for free but after uses of limit then you

have to pay for OTP. [3] However there are also some authentication like authentication by Facebook , Email , GitHub ,Google account and so on. For app push notification I have

also enrolled Firebase cloud messaging service. It has also a uses limitation after that you have to pay. By using this service easily send a push notification to all user for any announcement , awareness SMS or others.

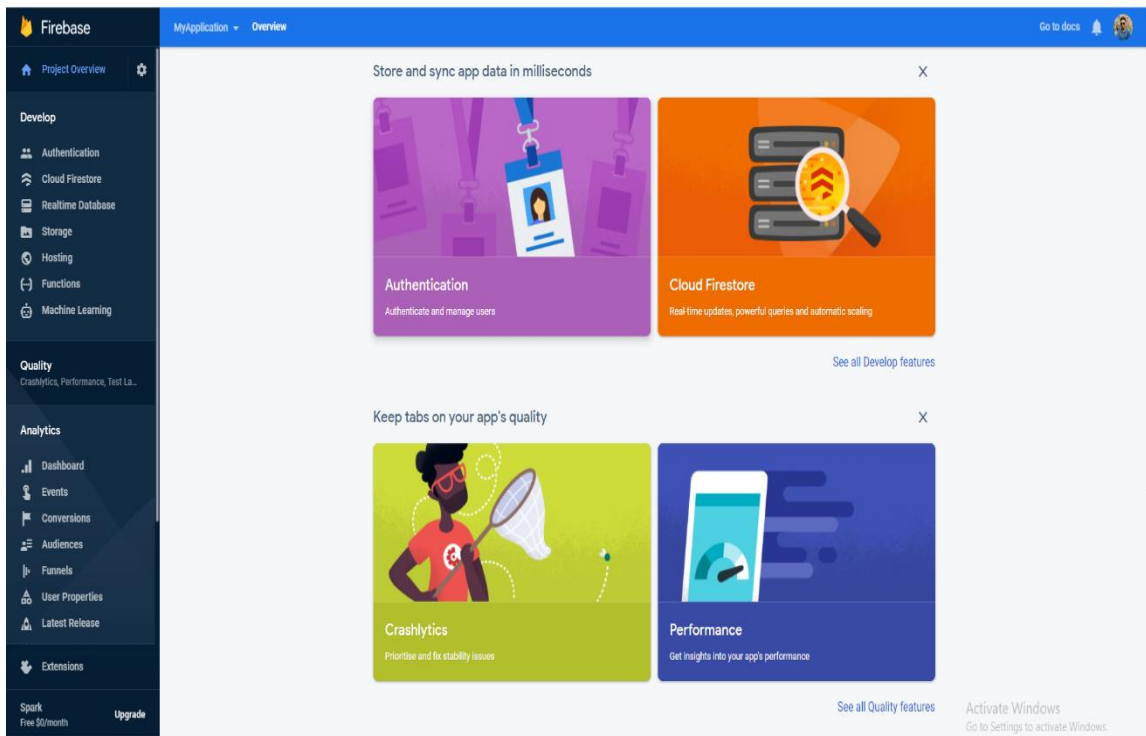


Fig 5.1 : Firebase Database dashboard

5.2 Implementation of Front-end Design

Front-end design is very important for mobile application because user always interact here. They won't be able to see the back-end code. So no matter how good your code is, if the design is not good, people will not use this app. In the front-end design there is a most effective side is responsive design that means for very display size of phone the design will look same. In my app in maximum time I use constrain layout. This layout design is responsive for all size of display. Sometimes I also use Linear layout with weight sum , it also make the design responsive.

Android Layout design : The Layout Editor empowers you to layout assemble formats by hauling UI components into a visual plan manager as opposed to composing design XML by hand. The plan proofreader can see your format on various Android gadgets and adaptations, and you can progressively resize the design to be certain it functions admirably on various screen sizes.

Constrain layout design : ConstraintLayout, which is currently the default format in Android Studio, gives you numerous places to put objects. You can compel them to their compartment, to one another, or to rules. This permits you to make enormous, perplexing, dynamic, and responsive perspectives in a level chain of command. It even backings activities!

5.3 Testing Implementation

Based on user activity , the test Case table of Campus Boi user app features

Test Case	Test input	Expected output	Actual Output	Result	Tested On
Database Connection	Test in API	Successfully connected	Connection Successful	Passed	27-10-2020
Create account	Test in edit test filled, and Insert API	Successfully Created	Created Successful	passed	27-10-2020
Login	Test in edit test filled, and login API	Successfully login	Login Successful	passed	27-10-2020
Shared book	Without book image or name	Will show invalid information	Showed waring message	passed	27-10-2020
Edit book	Empty filled	Will show invalid information	Showed waring message	passed	27-10-2020
Edit profile	With Emil invalid format	Will show invalid email	Showed waring message	passed	27-10-2020
Delete Account	Delete API	Successfully deleted	Deleted Successful	Passed	27-10-2020

Table 5.1: Test Case Table for user of Campus Boi app

Based on admin activity, the test Case table of Campus Boi admin app features

Test Case	Test input	Expected output	Actual Output	Result	Tested On
See all user	Get user API	Successfully Showed	Showed Successful	Passed	27-10-2020
See all shed book	Get book API	Successfully Showed	Showed Successful	Passed	27-10-2020
Add new book	Insert API	Successfully Inserted	Insert Successful	Passed	27-10-2020
See all order	Get order API	Successfully Showed	Showed Successful	Passed	27-10-2020
See all request	Get request API	Successfully Showed	Showed Successful	Passed	27-10-2020

Table 5.2: Test Case Table for user of Campus Boi Admin app

5.5 Test Results and Reports

Test report is obligatory to reflect testing brings about a conventional way, which gives an occasion to appraise testing result quick. To get the correlation and cautioning results with object, need to portray the natural or operational condition. The result will store in a record. This called is the test outcome report.

In this way, toward the end I can discover the outcomes as the advantages of ease of use testing as far as possible of the student.

- Best UI performance for user interaction
- Data parsing is so fast
- Easy to share a book

CHAPTER 6

Impact on Society, Environment and Sustainability

6.1 Impact on Society

Campus Boi is a book sharing application for our university campus so in that case the society is DIU campus and student and teacher. This app will create a good impact here. Before that there was no way of book sharing , this is the first time Campus Boi will create this opportunity. So hope it will crate a signification effect in the campus of Daffodil International University .

6.2 Impact on Environment

It will create a good learning and sharing around the whole campus. Ensure the availability many book to read free and inspire the student to read a book. Book is the best material rather then slide , pdf and beside of this junior students will be more benefited.

6.3 Ethical Aspects

We know that Perfection comes from teaching one thing to another. This app will inspire a student to be a broad-minded by sharing their book as gift or lead for one semester. And the import thing is it will create a good communication, respect with the senior and junior students.

6.4 Sustainability Plan

Before a develop app or project always think the sustainability of plan. This is the most important part for a app in future. If the plan or idea is not sustaining then in future the app will not working at all. Sustainability is depending on the app target audience, culture, environment and current trend.

Campus Boi concept is very sustainable because the content is study material. So in a university the study material is highly demandable. In every department student need a book in every semester.

CHAPTER 7

Conclusion and Future Scope

7.1 Conclusion

My project android application “Campus Boi” a book sharing application is successfully implemented by myself and with help of my supervisor sir. After deploying the beta version in short range in my class mates the app is working good with all features and functionality and they enjoying this so much. They can easily gift, lead or sell their unnecessary book with others apart from the junior student can collect those shared books easily. It will be a good middle ware between senior students and junior student by sharing and collecting their book around the campus. On the other hand, we ensure users personal data security and privacy when a user shared their book or interact in others features and also concern and monitoring to detect any usual activity in the app . This app is user friendly app and tried to use minimal UI design so that user can interact the app easily and get benefited. Hopefully this application will help the students and make availability of book. So that’s why students will inspire to gain a knowledge by reading a book.

7.2 Future Scope

- Image processing to check the book image to detect any graphical violence before upload automatically.
- Picture of text converter for auto filled book name and writer name
- Get automatic book name and writer name from image
- Add study material
- Add payment method to buy a new book
- Add paid service to sell a book

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