HOSTELMATE

A Mini Project Report

Submitted in partial fulfilment

for the award of the degree

of

Bachelor of Technology

in

Computer Science & Engineering

By

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to the

GOVERNMENT ENGINEERING COLLEGE,

BILASPUR (CHHATTISGARH)

SWAMI VIVEKANAND TECHNICAL UNIVERSITY

Session 2021-22

DECLARATION

We solemnly declare that the report of the project work entitled **"HOSTELMATE"** is based on our own work carried out during the course of our study under the supervision of **Prof. Sanchita Chourawar** . We assert that the statements made and conclusions drawn are an outcome of the project work.

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CERTIFICATE

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Before introducing our thesis work, we would like to thank the people without whom the success of this thesis would have been only a dream. We express our deep sense of gratitude and indebtedness to **Prof.Sanchita Chaurawar,** Department of Computer Science Engineering, for her valuable guidance, continuous assistance and in the critical appraisal of the thesis. We express our sincere thanks to **Prof. Sourabh Yadav,** HOD, Department of Computer Science Engineering, for providing the facilities required for the completion of this project work. It is with great pleasure, we extend our gratitude and thanks to **Dr. B. S. Chawla,** Principal, Government Engineering College, for his encouragement throughout the project.

We feel short of words to express our heartfelt thanks to all family members and friends and all those who have directly or indirectly helped our team during our course.

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ABSTRACT

Mobile Applications can be one of the best ways to keep consumers engaged with a brand as they are on the move.

With the increase in demands for smartphones and efficiency of wireless networks, the demand for mobile applications has increased incredibly. Android is the most popular open source platform that offers the full access to the frameworks APIs so as to build innovative applications.

Hostelmate is a mobile based application available for android based devices that helps users to find and access **Hostels and Tiffin centres** in their nearby location. It displays the list of Hostels in a specific location and provides the relevant details of each hostel. Similarly, it also lists various Tiffin Centres in the locality, with relevant information of the food provided by the Tiffin centres. Also it provides a quick highlight about the rating of the particular hostel as expressed by the reviewers.

The main aim of this project is to build an android application that helps the users, more specifically the students, find better food and shelter in their locality.

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Chapter - I

Introduction

INTRODUCTION

Hostelmate:-

HostelMate is an **Android Application** that collects data manually from the students and local people and helps the students to find a decent place to stay, and good quality food service according to their requirements.

Once the user logins and authenticates their details, they can browse for the **Tiffin Centers, Hostels/PGs** in their nearby location. The results include the prices, reviews and ratings, location, contact details and timings of the Facility. They can even add a new Tiffin Centre, Hostel's details. The app includes HostelMate Zone section where the user can find the FAQs, post a new Query or post any suggestion for the betterment of the app.

1.1 MOTIVATION

As we know, Food and Shelter are the two basic priorities of every individual. In the true sense, Food does not mean “something that satisfies hunger” ,it should be nutritious, and Shelter does not mean “a house” , it is a home, similarly hostel is the second home to a student, a place which each one of us can boast about; a place where we return after spending a hectic day .

Students from various cities take admission in a college. Most of them suffer to find basic necessities like finding a good hostel and tiffin service. And even if they do find the resources, it is very hard to find reliable reviews and feedback in an unfamiliar city. At the same time, the students who are living in the city for a long time and the local people, know a lot about the available resources. Driven by this idea, we aim to build an Android Application that bridges this gap and solve this problem.

1.2 TECHNOLOGY

1.2.1 Android Studio

It is the official Integrated Development Environment (IDE), for Google's android Operating System built on JetBrains IntelliJ Idea software and designed specifically for Android development. It provides a unified environment where we can build apps for Android phones, tablets, Android Wear, Android TV, and Android Auto. Structured code modules allow us to divide our project into units of functionality that we can independently build, test, and debug.

1.2.2 Programming Languages

For Frontend -**XML**

XML tags define the data and are used to store and organise data. It's easily scalable and simple to develop. In Android, the XML is used to implement UI-related data, and it's a lightweight markup language that doesn't make layout heavy. XML only contains tags, while implementing they need to be just invoked.

For Backend - **Kotlin**

It is a statistically-written programming language that effectively runs on Java and can be successfully compiled into JavaScript source codes. The Kotlin compiler and standard libraries are very concise and easy to use. Kotlin is designed to be more secure and reliable than Java. It can compile to Java bytecode, so it runs on the JVM.

1.2.3 Google Firebase

Google Firebase is a Google-backed application development software that enables developers to develop iOS, Android and Web apps. Firebase provides tools for tracking analytics, reporting and fixing app crashes, creating marketing and product experiments.

1.3 LIMITATION OF PROJECT

Every project has limitations. For our project the following are some limitations:

- The application is restricted to a particular locality for now.
- The application cannot help users book a hostel or order tiffin services.

Chapter - II

Literature

2.1 Existing System/Application

The existing system is not a proper system which can overcome the challenges faced by students .Our project does.

There exists several applications that showcase their own Tiffin Service details and their services, which will basically facilitate only the Owner.
What if the user wants to have a glance at all the services nearby him/her and then compare them?

We may have many applications related to our field and we have found that mobile applications are the best and efficient solution to any problem.

Similar to our App, there may be applications like:

- College App: This kind of application may help the user find better options of college for himself/herself and compare them accordingly. There may be options like Rating, Fee details, Location, etc.

- Food App: This kind of application may help users order food online.

2.2 Description of our Project

Like other applications, our application is also built with a sole purpose to benefit users, more specifically the Students by saving their precious time, which they might spend in searching for better food and hostel for themselves.

The application will best serve as the solution to the problem faced by Students who settle in different/ unknown cities where they are not acquainted with many people as the place is new to them.

The User has to first Register himself/herself in the application. After Logging into the Application , the user will come across four sections : Hostel , Tiffin Centres ,Safety Service and Hostel Mate Zone .

The application lists the Tiffin Centres in the nearby location and also the relevant details such as Cost, Rating ,etc.
Similarly , the application also lists down the Hostels in the nearby location along with the necessary details such as the Location, Rent, Rating, etc.

The Application is a user friendly application, we can this because of the below mentioned reasons:

- There is a search bar at the top , which may help users search for the desired Hostel and Tiffin Centre and get the details about it.
- Also, there is an option to sort/filter, so that the user can accordingly filter .
  In the case of Hostels, the user may sort the list of Hostels on the basis of Boys/Girls Hostels, or any other criteria.
  In the case of Tiffin Centres, the user may sort the list of Tiffin Centres according to the Rating, Fee, etc.

More basic aspects of the application includes the Safety Service and the HostelMate Zone, wherein the Safety Services provides an alarming feature in case of any emergency. And in the HostelMate Zone, the user may review the app or send a feedback, which will be considered further.

2.3 Proposed System

The development of this application contains the following activities:

- The application maintains the personal information of Admin Address and contact details.
- This application is overall user friendly and easy and flexible to understand.
- Authentication is provided for this application. Only the Registered members can access.
- The application has the access control to data with respect to admin.

2.4 Objectives of Study

Special objectives of this project consists of:

- An application with one set solution to both the problems, of finding better food and a better hostel.
- Admin can view the details entered by the Users.

- Users can login through their Username and Password, once they are Registered Successfully.
- Users can also add any Hostel or tiffin Centre and its details via the google form in the app.
- The information entered by the user will be authenticated by the Admin, whether it is True or not.
- Admin may reject the data/information if found irrelevant.

2.5 Choice of Methodology

For any software/application development, we need to go through some stages that are called Software Development Life Cycles .The Software Development Life Cycle (SDLC) refers to a methodology with clearly defined processes for creating high-quality software. In detail, the SDLC methodology focuses on the following phases of software development:

- Requirement analysis
- Planning
- Software design such as architectural design
- Software development
- Testing
- Deployment

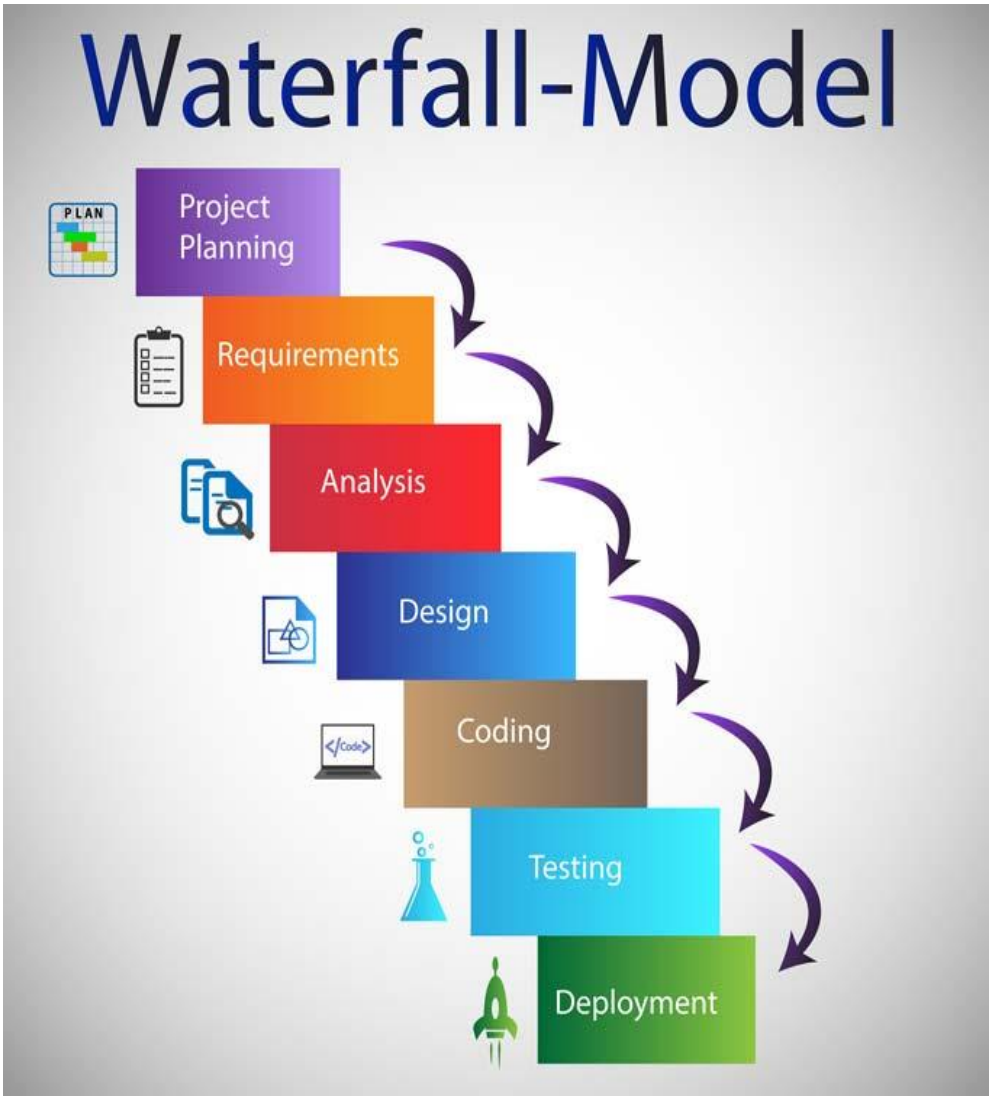


Figure 2.1 The waterfall development methodology diagram

Chapter III
Methodology

METHODOLOGY

3.1. Activities:

There are different activities in the application “HostelMate”:

3.1.1. Splash Activity

This activity displays the Splash Screen of the App.
A splash screen is a screen that appears when we open any app on our device.

3.1.2 Login Activity

This activity displays the Login screen of the App.
A login screen is a screen to a web/mobile application that requires user identification and authentication, regularly performed by entering a username and password combination.

3.1.3 Home Activity

This activity displays the first screen to appear when the user launches the app.
In every app there is a Main Activity, which in our app is the Home Activity.
It is basically a parent activity which will lead to other activities of the app.

3.1.4 Hostel Activity

This activity lists down the names of different hostels.
Along with name, it also shows:

- Whether it’s a girls hostel or a boys hostel
- The cost/rent
- The rating

3.1.5 Add hostel Activity

This activity has a WebView , which loads the Google Form wherein the user can add the details of any particular hostel which will be further verified by the admin, and then added to the list.

3.1.6 Hostel details Activity

This activity is inside the Hostel Activity.
This activity opens up when the user wants to get all the details of any particular hostel.
This is done by clicking the name of the hostel whose details are to be displayed.

3.1.7 Tiffin Activity

This activity lists down the names of different Tiffin Centres, just like the Hostel Activity does. Along with name, it also shows:

- ➢ The cost/rent
- ➢ The rating

3.1.8 Add tiffin Activity

This activity has a WebView, which loads the Google Form wherein the user can add the details of any particular Tiffin Centre which will be further verified by the admin, and then added to the list , just as the Add hostel Activity.

3.1.9 Tiffin details Activity

This activity is inside the Tiffin Activity.
This activity opens up when the user wants to get all the details of any particular Tiffin Centre.
This is done by clicking the name of the Tiffin Centre whose details are to be displayed.

3.1.10 HostelMate Zone Activity

This activity has two sections:
One is the Feedback section, where the user can review the app and provide the Feedback for the app.
And the other is, the FAQs section, wherein the user can get some queries cleared regarding the app.

3.1.11 Safety Activity

This activity is the Safety Activity, specifically it’s a kind of Safety Service that the app provides for Women.
Here in, three contacts are to be entered by the user, which gets saved in the app, and on shaking the mobile phone in case of any emergency, the first number gets dialed.

3.2 DATA FLOW DIAGRAM

A data flow diagram (DFD) maps out the flow of information for any process or system. It uses defined symbols like rectangles, circles and arrows, plus short text labels, to show data inputs, outputs, storage points and the routes between each destination. Data flowcharts can range from simple, even hand-drawn process

overviews, to in-depth, multi-level DFDs that dig progressively deeper into how the data is handled. They can be used to analyze an existing system or model a new one. Like all the best diagrams and charts, a DFD can often visually "say" things that would be hard to explain in words, and they work for both technical and nontechnical audiences, from developer to CEO. That's why DFDs remain so popular after all these years. While they work well for data flow software and systems, they are less applicable nowadays to visualizing interactive, real-time or database-oriented software or systems.

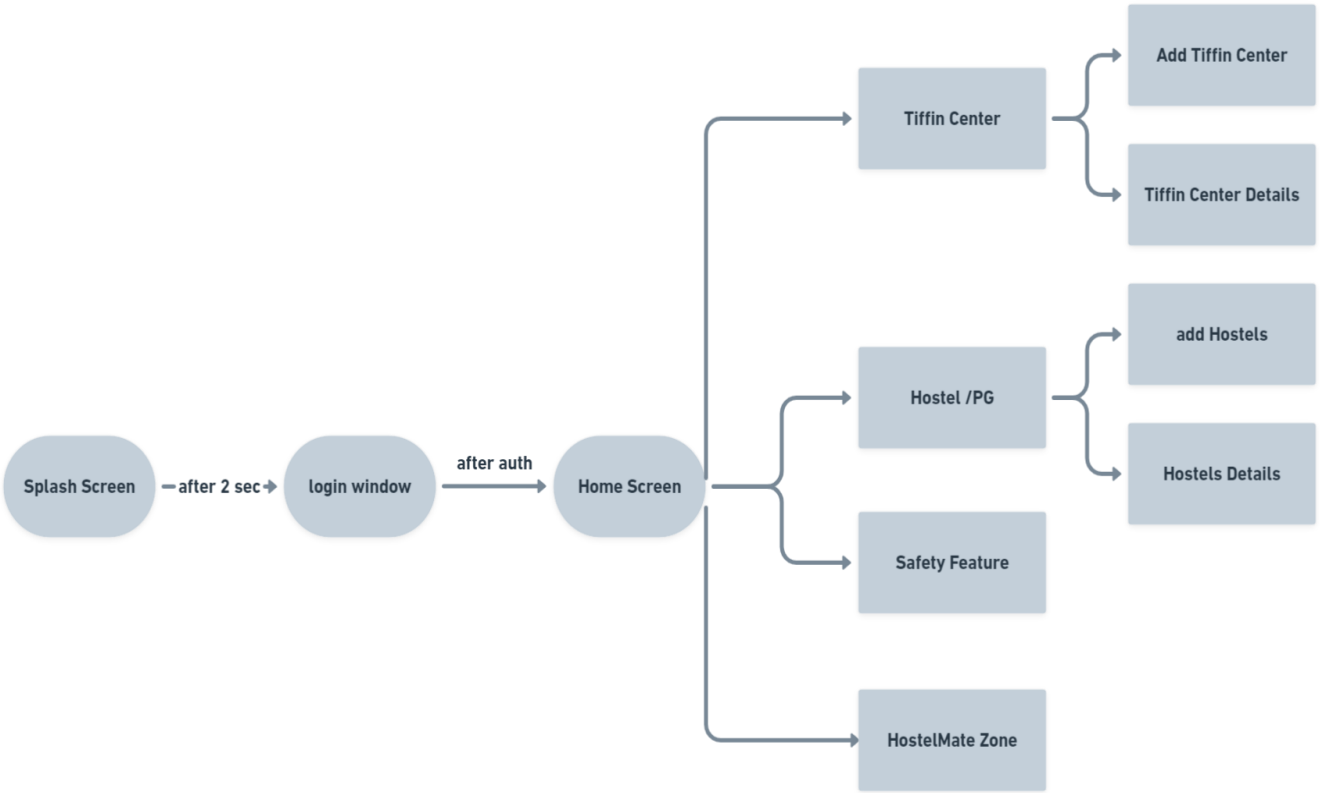


Figure 3.2 Data flow Diagram

3.3 INPUT/OUTPUT DESIGN

Input design is an important part of the Development process. Since wrong and inaccurate data are the most common cause of error in data processing, It consists of developing specifications for entering into a system in a simple manner. The aim of the input design is to make the data processing as easy and errorless as possible.

Input Design for Users:

i) For adding any new Hostel or Tiffin centre and its details the User has to click on the Add Hostel or Add Tiffin button, which will direct the user to a Google form. Here the user provides its input, which is the details regarding Hostels or Tiffin Centres.
ii) Another one is the Feedback section, where in the user inputs its review/feedback for the app

Output Design:

The design of output is the most important task of any system. During output design, developers identify the type of outputs needed, and consider the necessary output controls and prototype report layouts.

In the App,
Once the data is submitted by the user, it is authenticated and verified by the admin. The user cannot output the data directly .It can only be displayed/output for other users after the admin permits it to be there.

3.3 SOFTWARE DESIGN:

3.3.1 Android Studio:

Android Studio is the official integrated development environment for Google's Android operating system, built on JetBrains IntelliJ IDEA software and designed specifically for Android development.

The following features are provided in a stable version of the IDE :

- Gradle-based build support
- Android-specific refactoring and quick fixes
- Lint tools to catch performance, usability, version compatibility and other problems
- ProGuard integration and app-signing capabilities
- Template-based wizards to create common Android designs and components
- A rich layout editor that allows users to drag-and-drop UI components, option to preview layouts on multiple screen configurations
- Support for building Android Wear apps

- Built-in support for Google Cloud Platform, enabling integration with Firebase Cloud Messaging (Earlier 'Google Cloud Messaging') and Google App Engine
- Android Virtual Device (Emulator) to run and debug apps in the Android studio.

3.3.2 Kotlin:

Kotlin is a cross-platform programming language that may be used as an alternative to Java for Android App Development.

Kotlin is much simpler for beginners to try as compared to Java .

Kotlin is sponsored by Google, announced as one of the official languages for Android Development in 2017.

Kotlin programming language is multi-platform, i.e. easily executable on a Java Virtual Machine.

3.3.3 XML:

- XML (Extensible Markup Language) is a markup language similar to HTML, but without predefined tags to use.
- Instead, wedefine your own tags designed specifically for our needs.
- This is a powerful way to store data in a format that can be stored, searched, and shared.
- The Android platform uses XML files in projects for many purposes, from providing basic configuration of the application in the Manifest File, to using XML Layout Files to define the user interface.

3.4 DATABASE:

A database is an organised collection of structured information, or data, typically stored electronically in a computer system.

In our Project we have made use of Firebase for the Database.

Firebase:

- Firebase is a Backend-as-a-Service, and it is a real-time database which is basically designed for mobile applications.

- It is a mobile platform that helps you quickly develop high-quality apps, grow your user base.
- Firebase is made up of complementary features that we can mix-and-match to fit our needs, with Google Analytics for Firebase at the core. We can explore and integrate Firebase services in our app directly from Android Studio using the **Assistant** window .

Firebase provides with the following key features useful in App development:

- ➢ **Authentication:** It supports authentication using passwords, phone numbers, Google, Facebook, Twitter, and more. The Firebase Authentication (SDK) can be used to manually integrate one or more sign-in methods into an app.
- ➢ **Realtime database:** Data is synced across all clients in real time and remains available even when an app goes offline.
- ➢ **Hosting:** Firebase Hosting provides fast hosting for a web app; content is cached into content delivery networks worldwide.
- ➢ **Test lab:**The application is tested on virtual and physical devices located in Google's data centres.
- ➢ **Notifications:** Notifications can be sent with firebase with no additional coding.

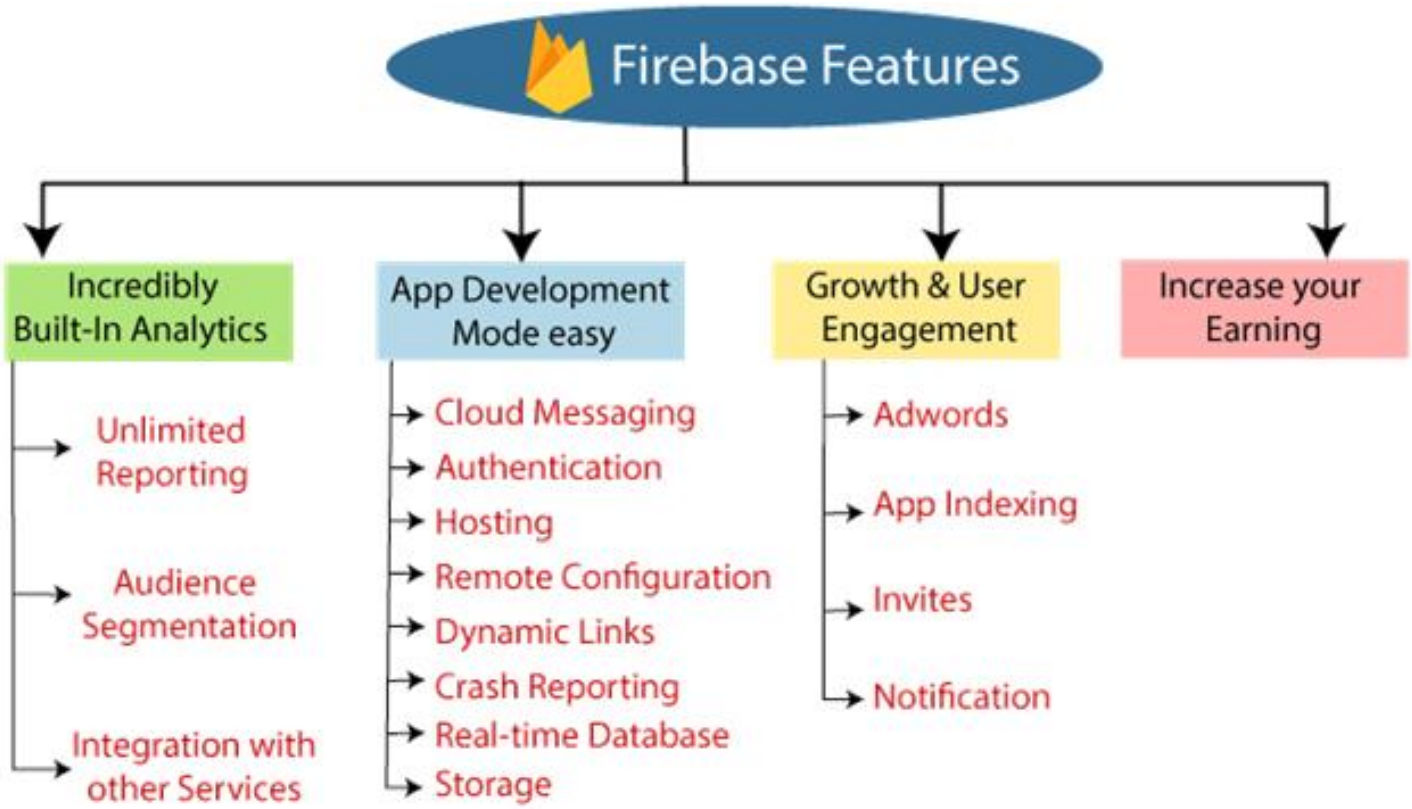


Figure 3.4 firebase Features

Chapter IV
Implementation And Result

IMPLEMENTATION

Implementation is the stage in the project where the theoretical design is to be turned into a working system and is giving confidence on the new system for the user that will work efficiently and effectively. It involves careful planning , investigation of the current system and it's constraints on implementation, design of method to achieve the change over, and evolution of change over method. Apart from planning, major tasks of preparing the implementation are education and training of users. The implementation process begins with preparing a plan for the implementation of the system. According to this plan, the activities are to be carried out, discussion made regarding the equipment and resources and the additional equipment has to be acquired to implement the new system. In a network backup system no. additional resources are needed.

The project "HOSTELMATE" includes several type of user work, the user can manage the whole system like login, filters and also user details.

INTERFACE

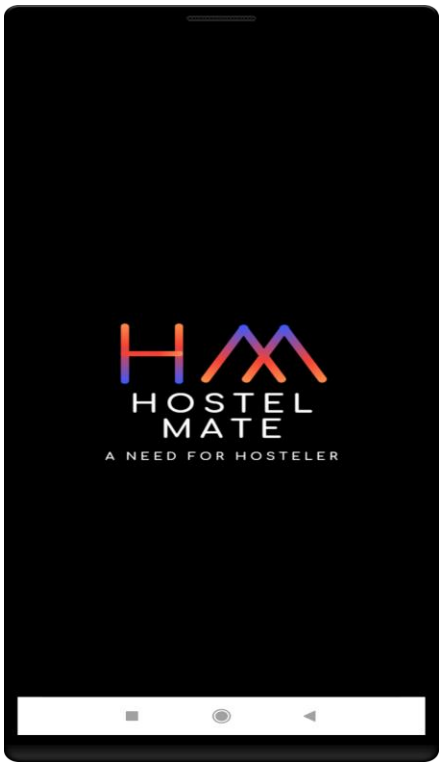


Fig.(4.1): Splash screen

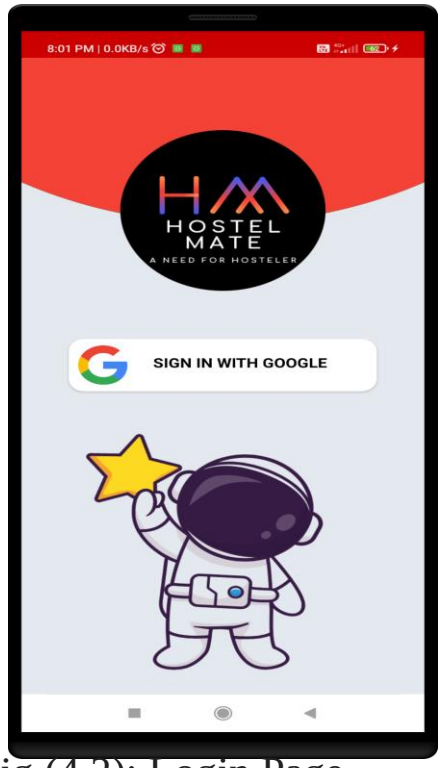


Fig.(4.2): Login Page

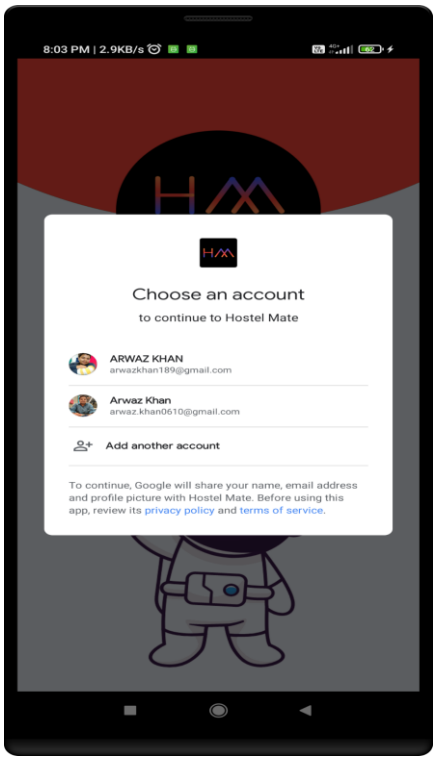


Fig.(4.3): Choose Email Account

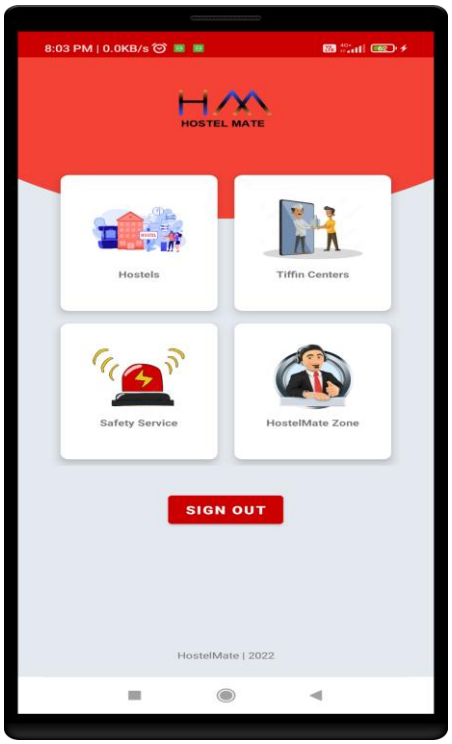


Fig.(4.4): Home Page

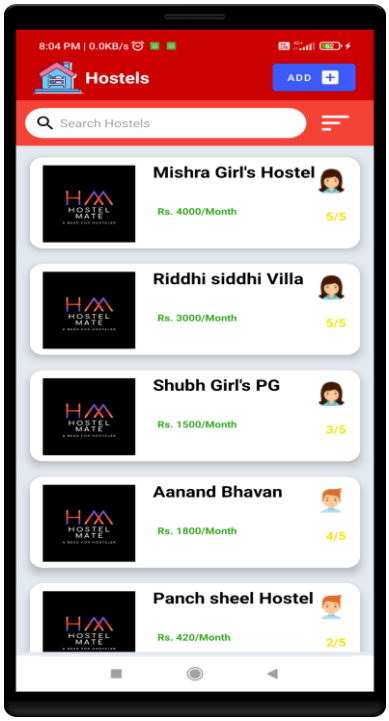


Fig.(4.5): Hostel UI

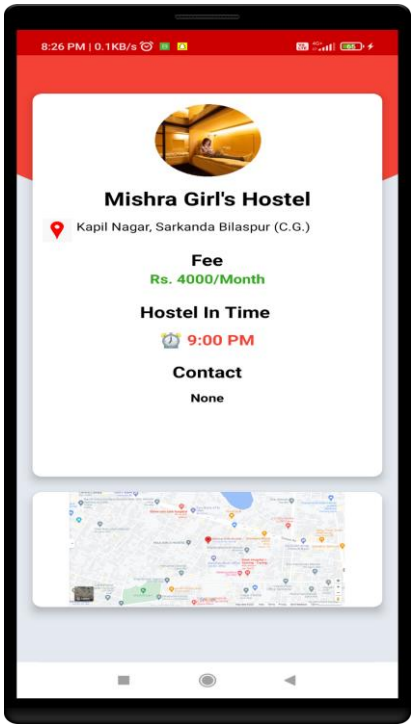
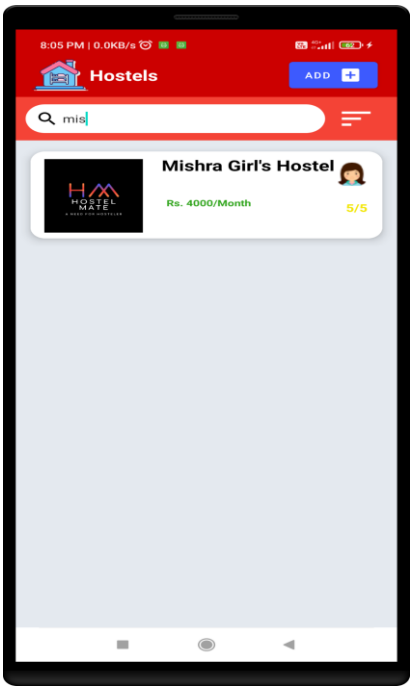


Fig. (4.6): Hostel details

Fig.(4.7): Add Hostel



Fitg.(4.8): Hostel Search Found

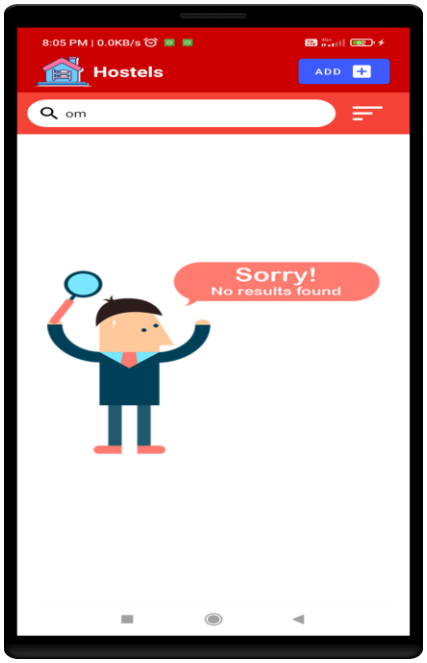


Fig.(4.9): Hostel Search Not Found

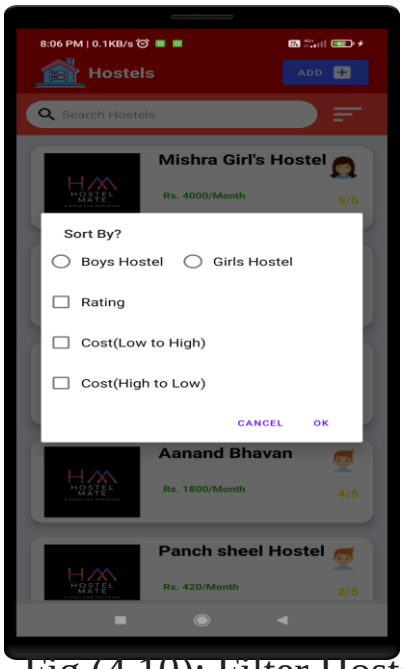


Fig.(4.10): Filter Hostel

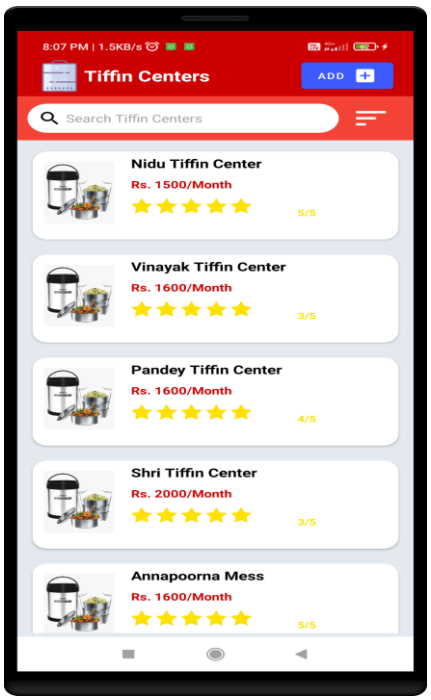


Fig.(4.11): Tiffin UI

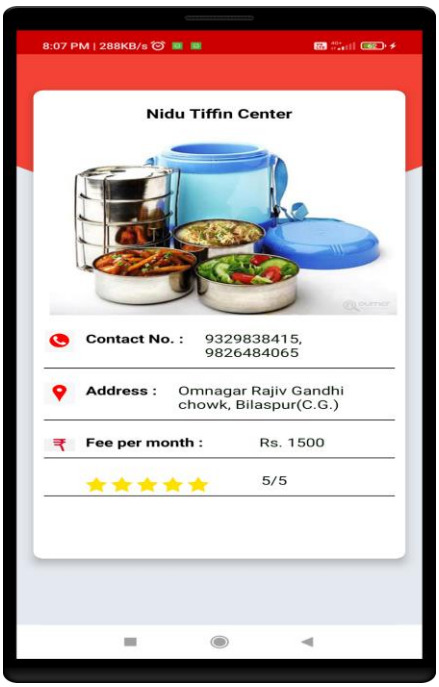


Fig.(4.12):Tiffin Details

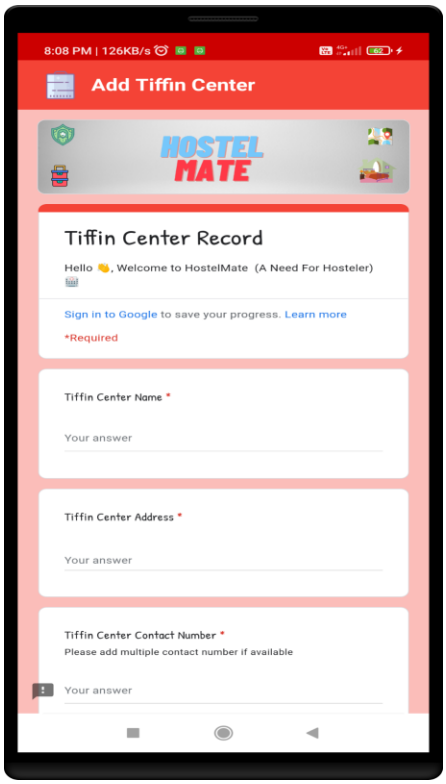


Fig.(4.13): Add Tiffin

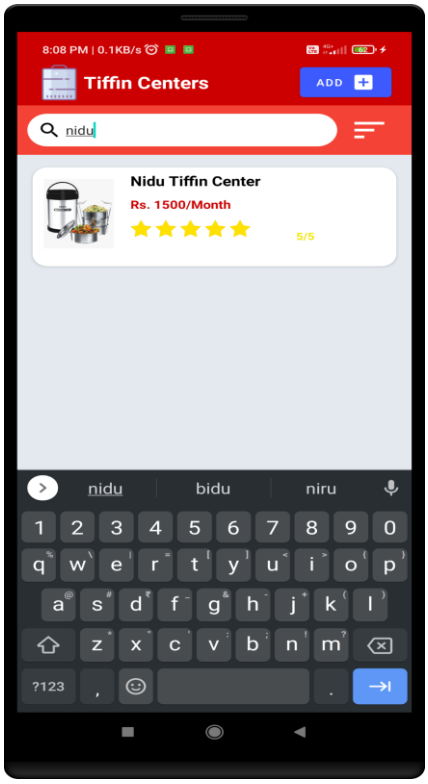


Fig.(4.14): Tiffin Search Found

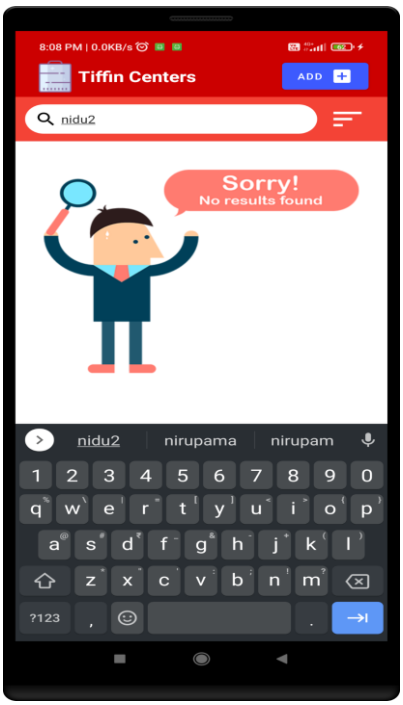


Fig.(4.15): Tiffin Search Not Found

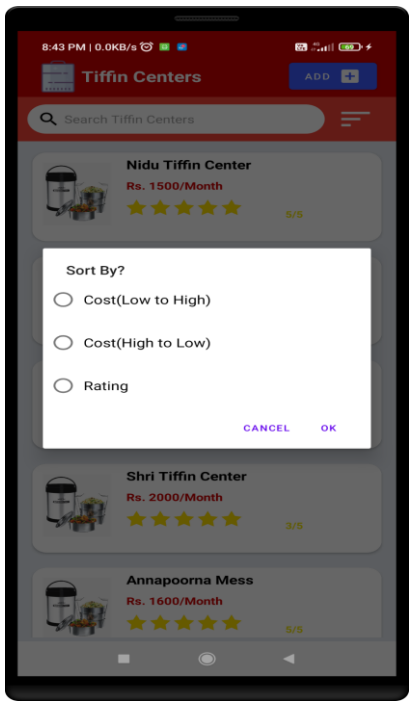


fig.(4.16): Tiffin Sort Filter

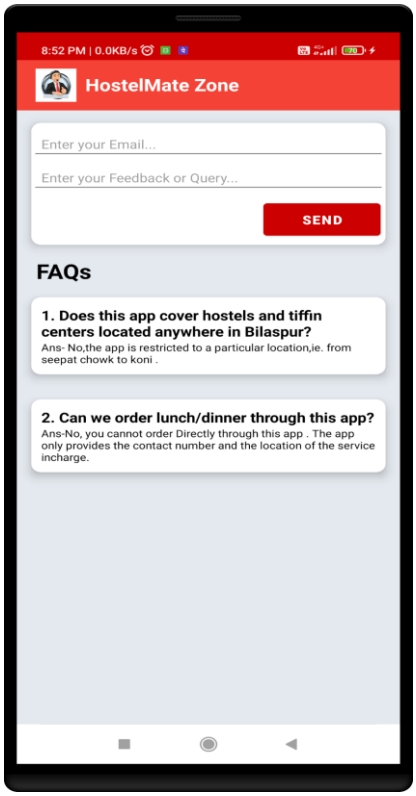


Fig.(4.17): HostelMate Zone UI

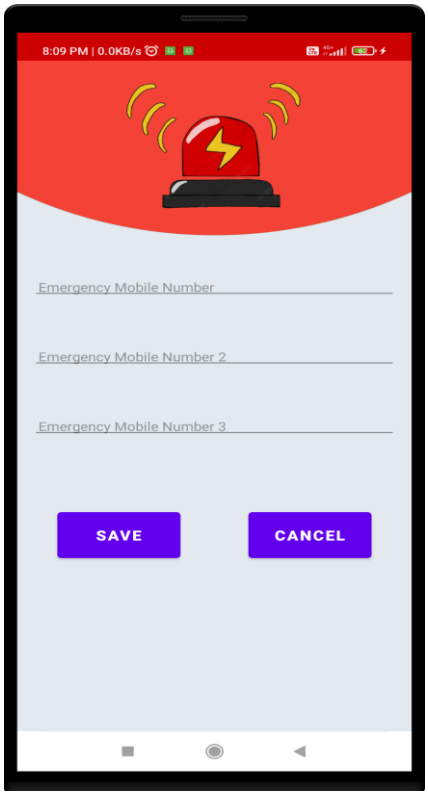


Fig.(4.18): Safety Service UI

Chapter V
Conclusion and Further work

Conclusion:

- The conclusion of the application is to make a person's work easier to find suitable food and hostel/PG.
- HOSTELMATE is an android based application that will manage the problem of tiffin and hostel/pg's faced by a person.
- The HostelMate application is developed by using Android studio :XML design, Kotlin logic.
- This system has better usability and is also adaptable by any operating system.
- This system is a user friendly system for admin to manage the whole activity.

The system is operated at a high level of efficiency and all users associated with the system will understand it's advantage. This application/system solves the problem. It was intended to solve the requirement specification. This informative application is a very effective tool which can be used to a great extent.

This is very helpful for every newcomer. This app helps to reduce their stress by minimising time and requiring updates.

Future Work:

- We will make a website for our application with the same interface.
- We will make the database in a centralised form thus the multi users can work on the system.
- Users cannot book any PG or tiffin through our application. We will add this kind of functionality and update our application.
- We can implement the payment and billing system in an online manner.

- We will also add a location linked to google map so that it will be easy to reach up to the location.
- We will make our application shareable.
- We will also deploy our application in the play store.

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1. **Android Developers**
2. **Internshala Training Notes**

OTHERS

1. **Project Presentation Link - https://bit.ly/34b8xv7**
2. **Source Code Link - https://bit.ly/3C8us2N**
3. **HostelMate App Link - https://bit.ly/3sFINAI**
4. **Screenshots / Video Link - https://bit.ly/35JfPGU**

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