

CITY MATE

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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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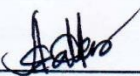
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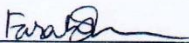
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
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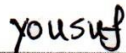
We hereby declare that, this project has been done by us under the supervision of **Ms. Syeda Tanjila Atik, Lecturer, Department of CSE** Daffodil International University. We also declare that neither this project nor any part of this project has been submitted elsewhere for award of any degree or diploma.

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ABSTRACT

This project is a “CITY MATE: A mobile Application for guideline people for a new city”. This is an Android-based application that will help the users to gather information about a city, nearby events, places, etc. Also, it will help to know about many places’ information, directions and ratings. The aim of this application is to reduce the troubles and problems with regard to finding city information around a few kilometers. Every user can access this system. The users can log into the application and if he/she doesn’t want to log in then they also can skip the registration part, without log in & registration user can take the all advantages from our mobile application. When a user installs the application in their mobile, he/she can see available information in the application. A user only gets assigned, then he/she can find information, live events, places, & direction. With this application, the users get the benefit. So, I think it will help to increase the flexibility of all the users. After the implementation of all features, the system is tested in different ways and it works successfully and perfectly.

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CHAPTER 1

INTRODUCTION

1.1 Introduction

City mate is the most trusted mobile application that connects people to easily find a lot of information about the city from anywhere through this mobile application. By using this mobile application, we can find information around 10km over the city sitting at home by using the internet. Also, we can get information about current weather, nearby events & place direction through Google map. This mobile application will so helpful for those people who are the first time in any city. Because previously we cannot get any information about any city and route without going to the city.

1.2 Motivation

For a newcomer person to know & find information about a city is too much difficult. Basically when people come to a new city face a lot of problems to find any information like places, nearby events & place direction around a few kilometers is too difficult. Our application will reduce these difficulties and time costs. In this circumstance, some following questions are raised in our minds.

- Is there any dedicated mobile application available for city guide?
- If there any mobile application is available, then is it work properly?
- Are there platform's design user friendly?

We are preparing a dedicated mobile application for people, from the thinking of the user's benefits. In Bangladesh, there have some platforms but they are not providing dedicated service for a city.

1.3 Objectives

Our mobile application provides a lot of information about the city around 10km to our user and this information will be helpful for making the trip easier. Our services in shorts: To develop a digital platform to get information about city around 10km.

- To make the guideline system of a city easier.
- To reduce hassle of the new comer in a city.

- To provide the information of current weather, nearby events & place direction regarding the mobile application.
- To generate the easiest and informative user interface.

1.4 Outcomes

This platform provides following outcomes

- Can access information around 10km of a city.
- Get the information of current weather.
- Get the information about places & rating.
- Easy to access.
- Saving time and money.
- Reduce the public harassment.
- Reliable and incorruptible.

CHAPTER 2

BACKGROUND

2.1 Background

We had to study a lot to make sure about the project, before starting the project. Because before starting we have to attain enough knowledge as well as data about the project. What we are going to implement, it is necessary or not? And what kind of challenges we are going to face? After knowing all this issue properly we set our mind to do this project. That's why we needed a proper background study. Here we are going to describe our background studies about how we prepared ourselves to do this project, the challenges we faced, about relative works, comparative studies, and the scope of problems as well as many other data we needed to do for making this project effectively successful.

2.2 Related Works

As our application is a city information service proving mobile application, that's why had detailed research on many other application of this type to gather information and data to start our application development. We had gone through some effective processes also to implement our app. We have focus some issues like, do this application can provide any effective solution for those people who are facing many problems to find a places or an event? Our application will provide nearby places or events in a city around 10km of the users. That's why studies about the related app have. And also checks is there any application already implemented? If there any application already implemented, what new and betterment we can do through our application? After doing all of this relative works we have decided to do the project. As people are moving and visiting or attending many places and events, they have to face many problem to find that places or events they want to join. Through our "City mate" mobile application we are going to fix all of these difficulties or problems are people facing in a city when they are moving places to places.

Before starting our project implementation, we studied many mobile application that are related to our project. The most similar one was City Guide application. This app also provide the direction and some other important information about user required places

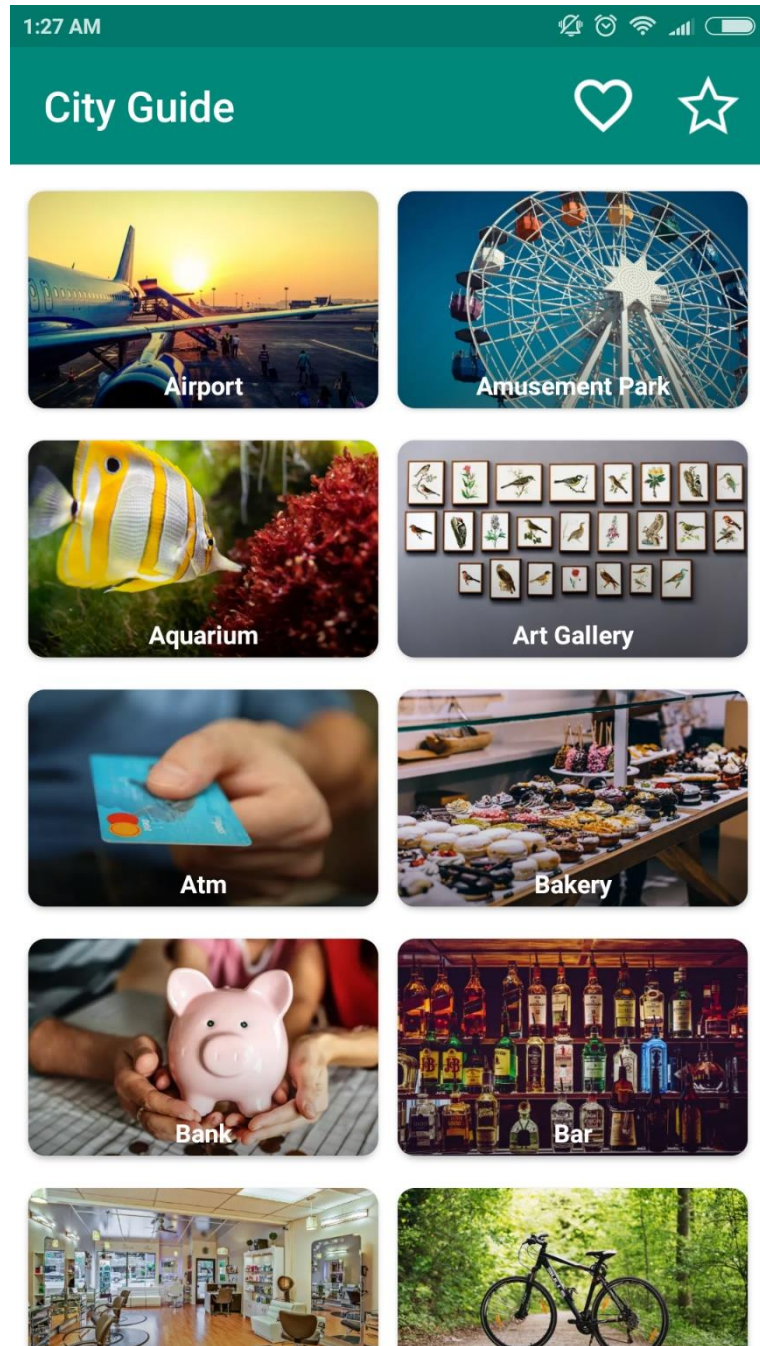


Figure 2.2.1 Home Page of city Guide

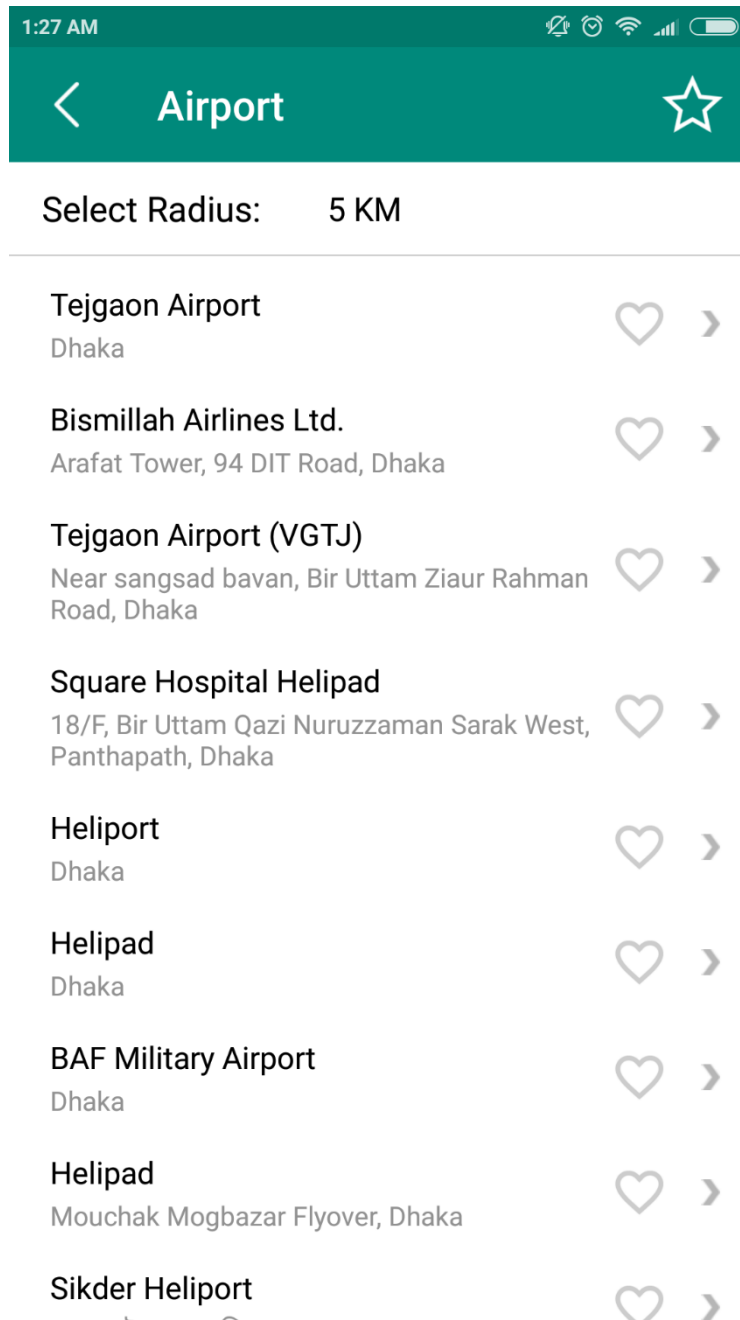


Figure 2.2.2 Nearby place list

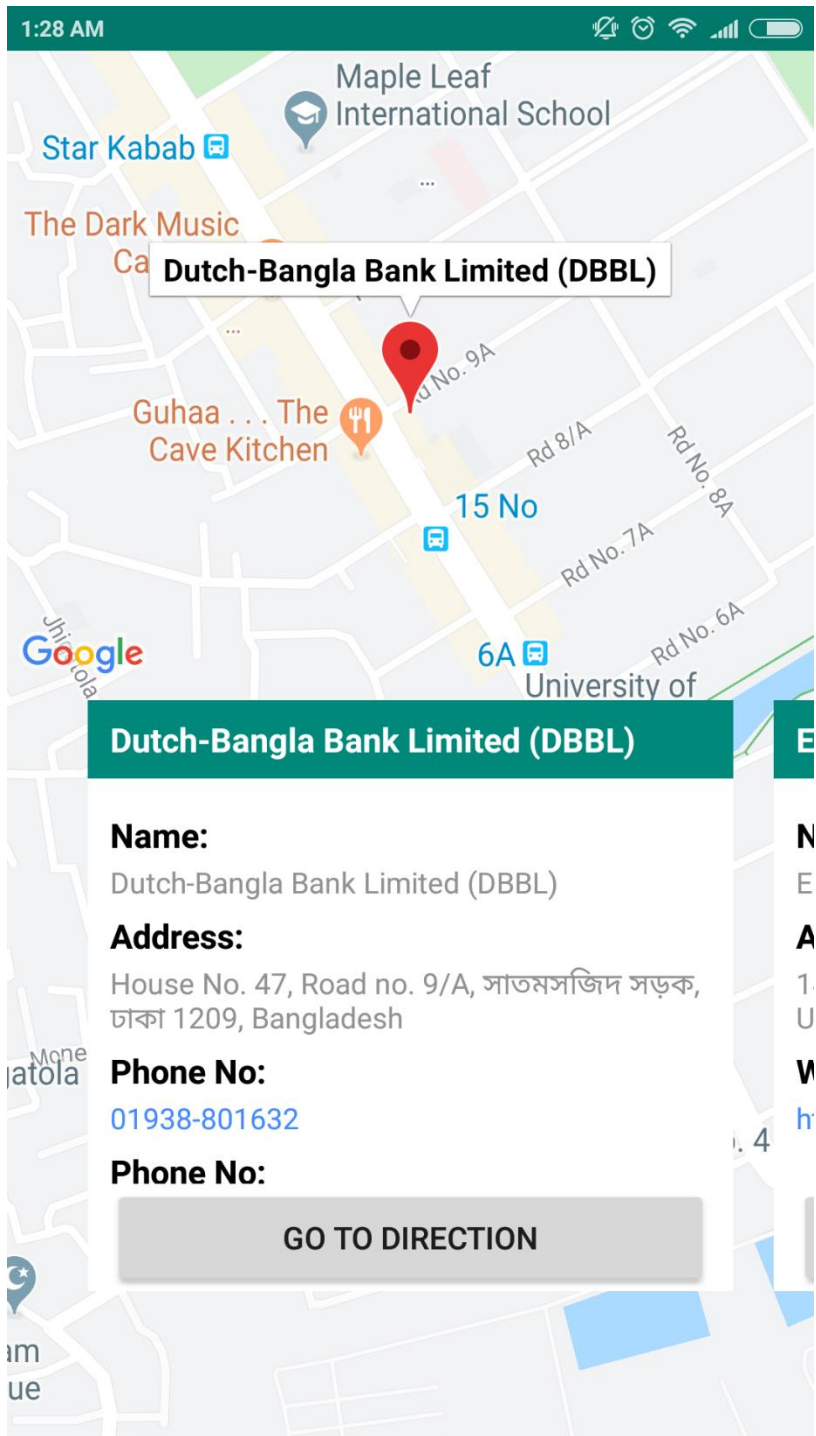


Figure 2.2.3 Direction of place

Though the City Guide application provide places and direction by using google place API and direction API it has some limitations. The major limitation we see in this application is, it cannot provide quality rank of a place. Suppose, a user is looking for a restaurant. This will provide the nearby restaurant list, but it cannot give information about which one is best.

But in our project, we will provide the nearby restaurant list along with 5km or 10km distance limit as well as we will show the rank of the restaurants by using star rating system. We will provide star ranking system like five star, four star etc.

Besides, in our project we will provide some more informative and important features also. Our unique features will be:

- Current Weather
- Nearby Events
- Search place/event

Users can see the current weather condition any time when they open the app. Nowadays people are very aware and eager about event. By using our nearby event feature user can see the nearby event list and get direction. User also can search places/events through our app. If they search a place they can see the nearby list and direction also.

2.3 Comparative Studies

Before we start our project, we had researched and gone through the many application to compare with our project idea. There is some application on the internet that is slightly related to project idea but they are not well implemented and not active or helpful for the people. Some application is providing a little portion of our thinking that we want to include in our project. But we are going to add many different features and our application will provide services altogether. According to our studies, we see that many people are facing different kinds of problems in a city to find a place or an event location. Through our application, we can fix all these problems and we can provide effective information about any places or event location nearby 10km of the users. Besides we adding some unique and different features in our project. And for this, we had to face many problems and restrictions to fetch these different features. We are going to provide comparatively better information proving and user-friendly mobile

applications. Because our application will contain a simple but attractive user interface. Our application will provide nearby 10km places and events information of a user based on API. Our application will also provide weather forecasting service and this function will be placed as a banner of the home page.

The features are going to use:

- Current weather
- Nearby events
- A search option
- Fire station
- Parking
- Doctor
- Dentist
- Drugstore
- Tourist attraction
- School
- University
- Car repair
- Electrician
- Shopping mall
- Gym center
- Mosque
- Church
- Museum
- Night club
- Restaurant
- Cafe
- ATM
- Bank
- Hospital
- Library

- Police station
- Bus station
- Train station
- Public toilet

2.4 Scope of the Problem

When we started our project we have faced many problems. As now feel all these features will help people in their need, but we faced many problems to implement these features. Because of the implementation of some of this feature takes time to implement. The main problem we have faced to implement the “Nearby events” feature. We couldn’t fetch the nearby event information in our project. Cause we could not understand the coding part of how to fetch the nearby events. Then we took helps through the internet and from our supervisor and teachers also. At first, we thought that we will implement our application on the basis of Dhaka city only. That might be a local application. But then we discuss what we can implement our project globally. Besides, we have faced many other problems in backend coding part and inserting data in firebase and retrieving data from the firebase to the application. Sometimes the coding part was succeeded and sometimes failure. Another problem we face when we work with the recycle view to card view to display data into our application. Finally, we have fixed all of these problems. Though some little bit we are facing now we will fixed it before our final submission.

2.5 Challenges

Our project will be a city service providing mobile applications. In this application user directly access all the contents. But we have to face many challenges. We face problems when we go to use direction API and google place API. We cannot provide the proper real data just because of some limitations. At first, we used free API for our development project, it doesn’t work. Besides we don’t use any database in our project, that why we have faced some problems also.

CHAPTER 3

REQUIREMENT SPECIFICATION

3.1 Business Process Modeling

We know that the purpose of business process modeling is to represent the system business processes or workflows of a company or any business. It is a graphical representation of the business process or flow of work of any company. Through the use of a business process model a system or application developers can easily understand how to represent all the features and workflow of the system and how will be related to all the features with each other? In that case, in generating a mobile application or software, a developer can get the easiest way to develop a mobile app or any software. In our application users can easily view all the features because we don't put any login or registration parts. Users can use our application free. Users will at first select their needed place or event and the software will provide nearby places or events to them. Then after selecting the nearby place or event, the software will provide direction and some other information. All these starts to end processes can be easily designed and developed by our team through the business process modeling that we generate below for our application.

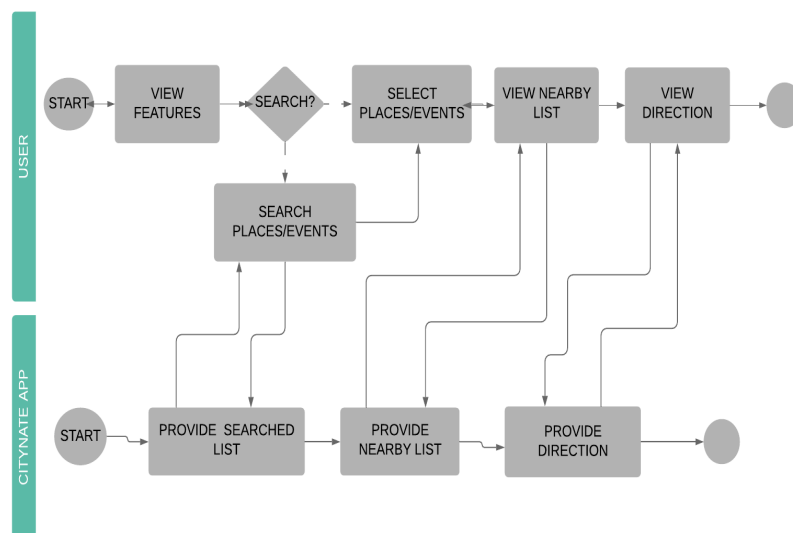


Figure 3.1.1: Business process modelling

3.2 Requirement collection & Analysis

Without requirements collection and analysis we can't start the project implementation. At first, we have to know the user requirements, needs, expectations from our application that we are going to develop. For project efficiency and consistency, we have to gather requirements and analyze them. Requirement analysis means analyzing, documentation, checking the validity and managing the requirements of any software or system. We have to follow a procedure to implement our project properly for the benefits of our application. If we don't maintain the requirement analyzing and proper procedure our application will be hampered. The successful implementation of the software or failure of the project depends on properly requirements collection and analysis of them before starting implementation. Because what are the user's requirements and what to do fulfill those requirements we can learn from requirement collection and analysis. We have to explore user requirements by analyzing the requirements. Requirement collection and analysis is very efficient and hard to do. By collecting and analyzing all the requirements that are needed for the application we get some important features for our application.

In our application that we planned to implement, we also have to go through a proper procedure by collecting requirements and analyze them in a proper way. As our application is a guide application the user requirements and expectations will be information and location-based. Some requirements regarding our project are given below:

- User friendly
- Fast browsing speed
- Generating features
- Google place API
- Direction API
- Google map
- Exploring user requirements
- Business process modeling
- Use case modeling
- Security
- Usability

- Maintainability
- Performance
- Logical data model

By analyzing all the above requirements we come to a decision for our planned project that what will be the user interface, how many features will be there, and what will be the implementation procedure. We can develop an efficient and consistent mobile application if we can properly maintain and collect and analyze the requirements.

3.3 Use Case Modeling and Description

Basically use case model is nothing but a graphical representation of an application or a system. It denotes the interaction of many users with the system or application. How the user will interact with the system or application, what are the user expectations and how the system will provide service or solution all of these we can understand through use case model? Use case model basically represents how related an actor with the system and what will be their relation type. There are two main parts in use case modeling. One is ‘use cases diagram’ that is the graphical representation of the relation between actor and the system. Another one is ‘use cases description’ that is the text-based description between a user and the application.

The use case description denotes how does uses casework, how a user works with the system and what will be a relation between them. All of these processes are described by textual form. It represents the step by step interactions.

- **System use case:**

In this system use case portion the whole system use case will be represented. In our project, users will be able to view all the features and search places or events and view the nearby places list and finally get the direction and some other information without login or registration. Our application will be easily accessible for users. The user visiting process will be, the user may view all the features at first then select his/her to require feature and then the system will provide nearby places or events list then the user will click to know the direction and some other information and finally system will provide the direction and other information.

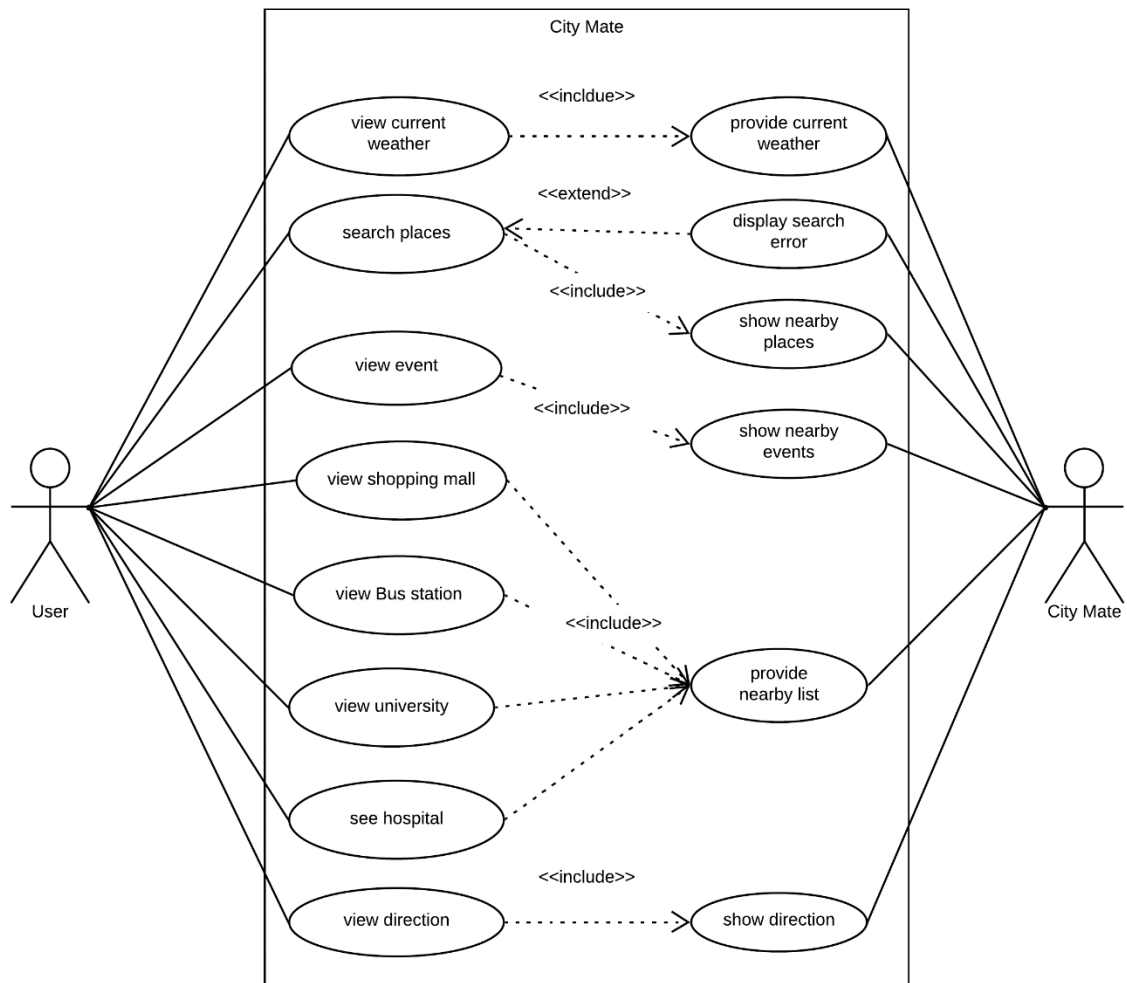


Figure 3.3.1: System use case diagram

- **Use case of view app:**

The users at first will view the home page that contains all the features with respect to our project. Users can see all the features and can use also because we don't use any login or registration system. So there will be no category of users like guest users or a registered users. Our application will open to all the user.

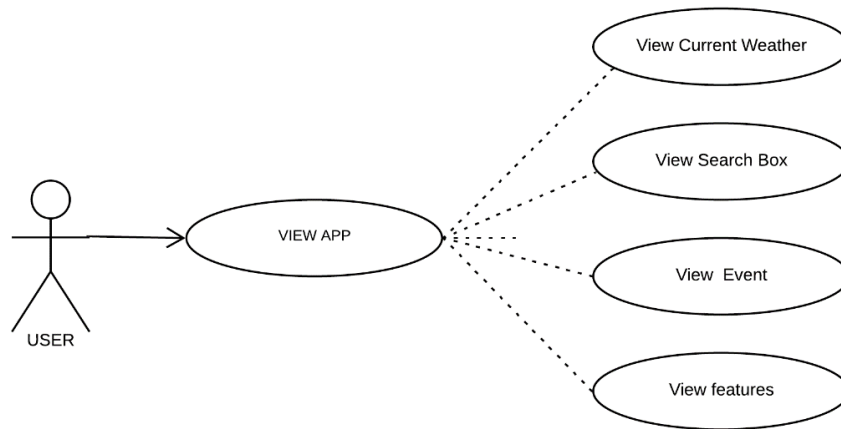


Figure 3.3.2: Use case of view app

Use case Details:

Table 3.3.1 Use case of view app

Use Case no	#01
Use Case name	View App
Precondition	Install the app and click to open
Actor	User
Primary path	View all the features
Exceptional path	See nearby place or event(by selecting one)

- **Use case of select feature:**

In this portion of use case, the user will select a particular feature that can be contained a place or an event. The system will provide a nearby list for the direction and information.

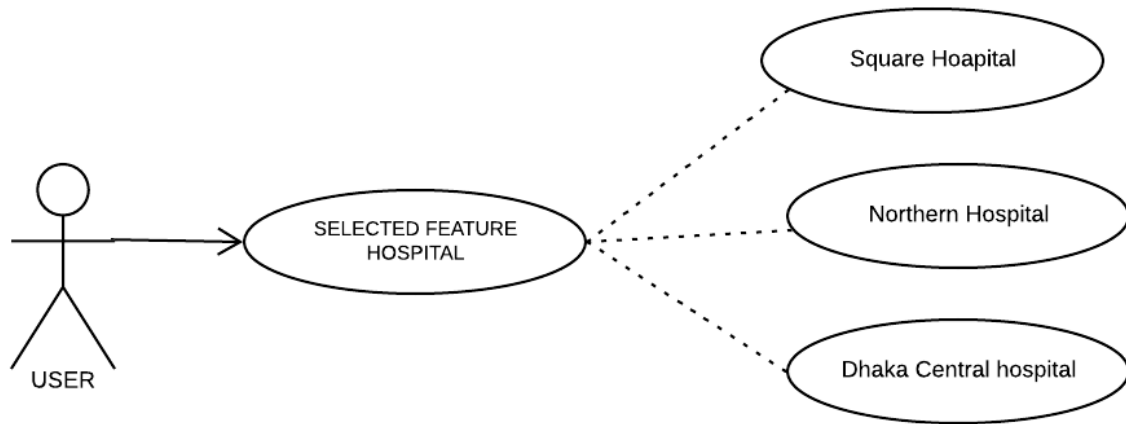


Figure 3.3.3: Use case of select feature

Use case Details:

Table 3.3.2 Use case of select feature

Use Case no	#02
Use Case name	Select feature
Precondition	Open the app and view feature
Actor	User
Primary path	See nearby places or events
Exceptional path	See the direction (by selecting one)

- **Use case of show direction:**

Providing the direction and some other information like website, contact no, off day will be maintained by the system in our project. In this case, the actor will be applied. When the system will provide nearby places or events list the user will select the particular one that he needs. Then by using google direction API, our application will provide the direction.

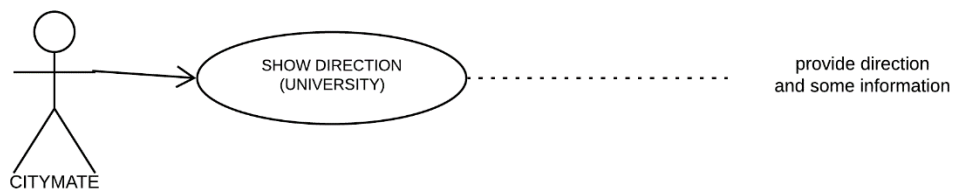


Figure 3.3.4: Use case of show direction

Use Case details:

Table3.3.3 Use case of show direction

Use Case no	#03
Use Case name	Show direction
Precondition	Open ,view and select nearby places or events
Actor	Application/Citymate

3.4 Logical Data Model

Logical data modeling or entity-relationship of a project denotes the relations among the entities, relationships, and attributes through a graphical representation. This graphical diagram representat the relation between user to user, the user to entities, the user to attributes entities to users. The logical data model or entity relationship diagram doesn't give any information about the structure that is to be implemented or will be needed to implementation of the project. Logical data model contains three parts like entity, attributes of entities, relations.

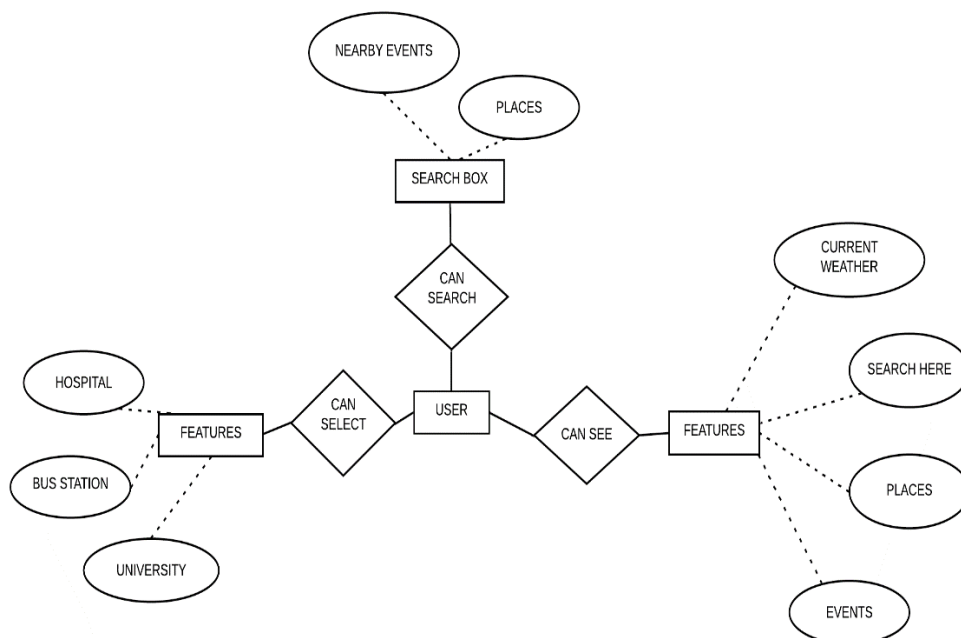


Figure 3.4.1: Logical Data Model

This figure 3.4.1 represent the relation among the user to entity, attribute. Through which we can easily understand what will be the relation among user entity and attribute. So that's why logical data model is important to develop a system.

3.5 Design Requirement

If we want to design a system properly and make it user-friendly we have to gather design requirements for the system or application. An application or system will be more attractive and efficient to the users if front-end and back-end designed properly. We need to design the requirements collection to satisfy the user criteria. There are some design requirements given below that will be needed for our application.

- **Front-end design(XML)**

We have to use the basics and different types of XML files in android to design the user interface and system layout. XML stands for Extensible Markup Language. XML is a markup language much more similar to HTML that we used to describe the data. Its tag is not predefined in XML that's why we must define our own tag to design the layout of our project. We have to use XML language in our application to make the layout heavy.

- **Front-end design(UX,UI and design)**

UI means User Interface. The user interface is the layout of an application that is graphically represented. The user interface consists of buttons, text, images, text fields, edit text, sliders, etc. This UI design is going to decide how the user interface looks like to the user. So to fulfill the user criteria we have design requirements in a proper way.

UX means user experience. How a user interacts with the application that will be designed by using UX. User experience is defined by how easy or difficult it is to interact with the user interface elements that the UI designers have created for the system or application.

- **Back-end design(Java)**

Java is a class-based, object-oriented general-purpose programming language. To design our project back-end we have to use java programming language.

- Back-end design(kotlin)
- Android studio platform
- Users need,Google map API, Direction API

CHAPTER 4

Design Specification

4.1 Front-end Design

This is the contents of the front-end of our project after completing the design. In our application, we design a simple home page that will be very much user-friendly. Because in our application there will be no login or registration section. As our application is city service provided the app the access of users is easier more than another app. User can easily use all the features to get information and direction.

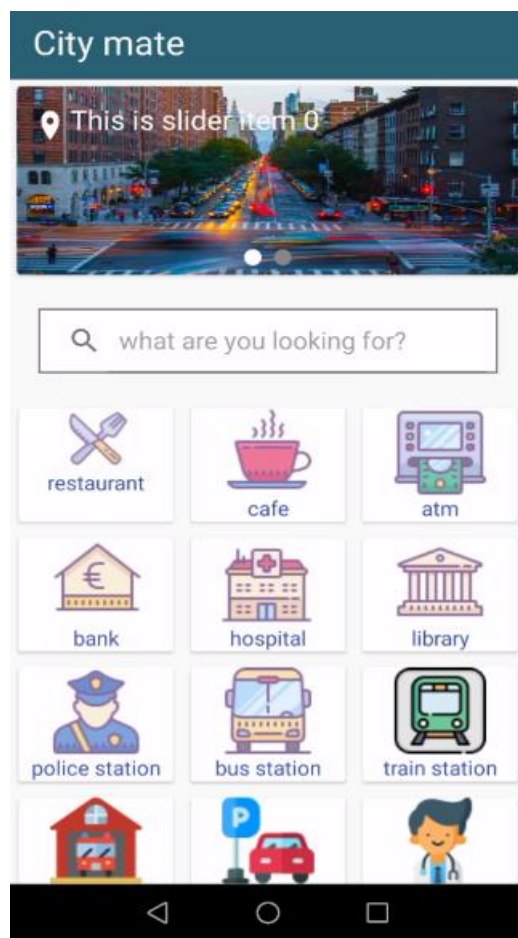


Figure 4.1.1: Home page

This figure 4.1.2 is home page with some other features.

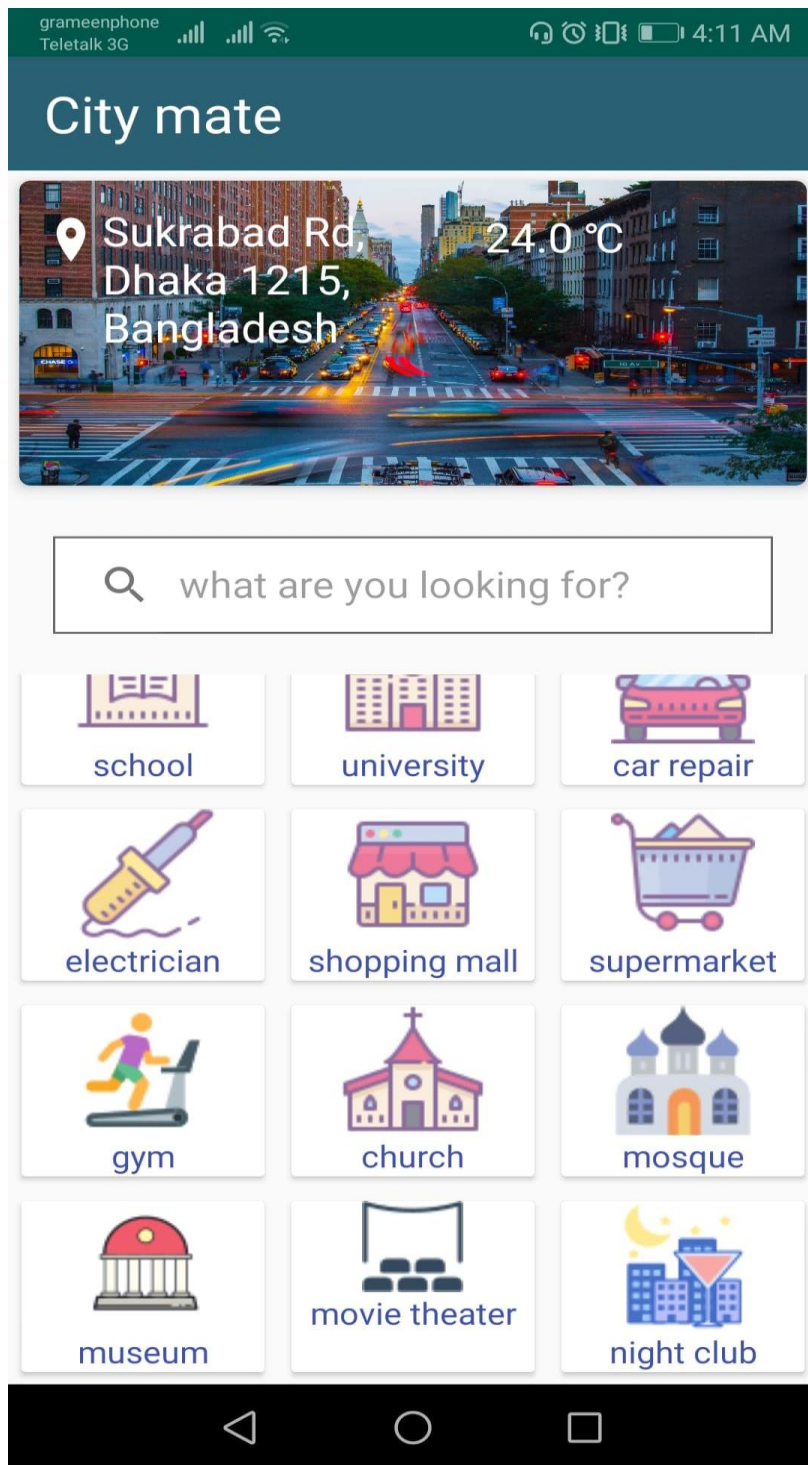


Figure 4.1.2: home page with remaining features

This figure 4.1.3 is with nearby place list:

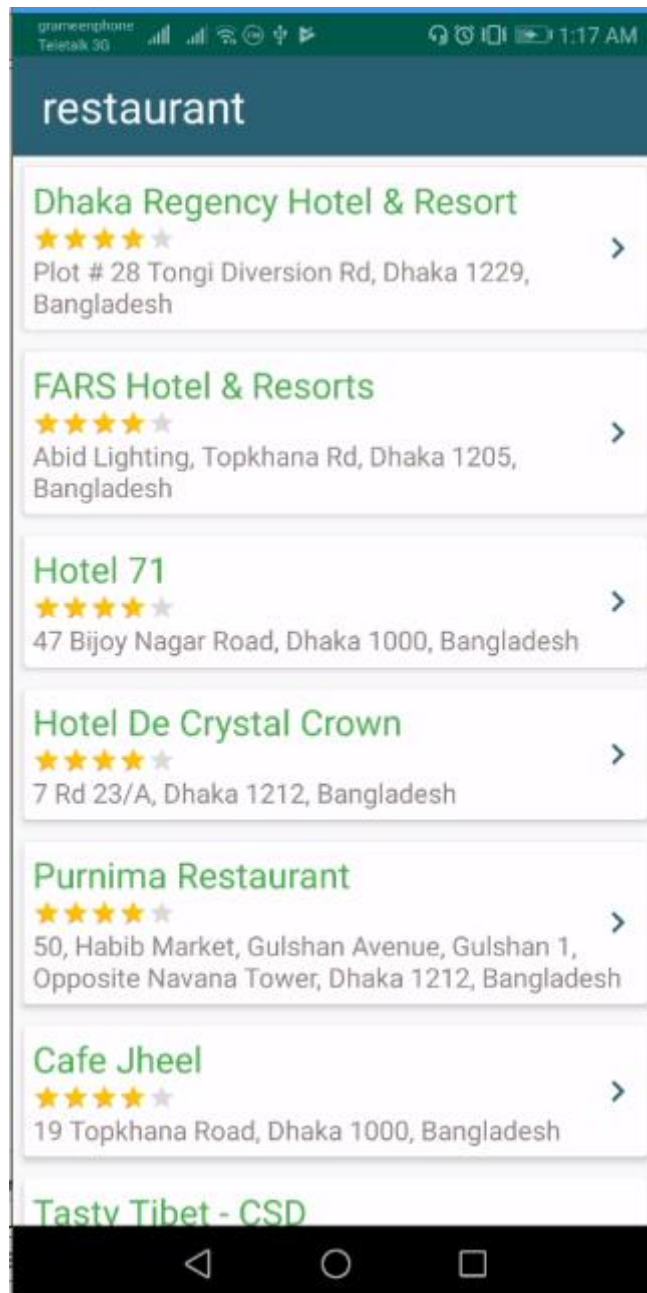


Figure 4.1.3: Nearby place list

This figure 4.1.4 is with Direction :

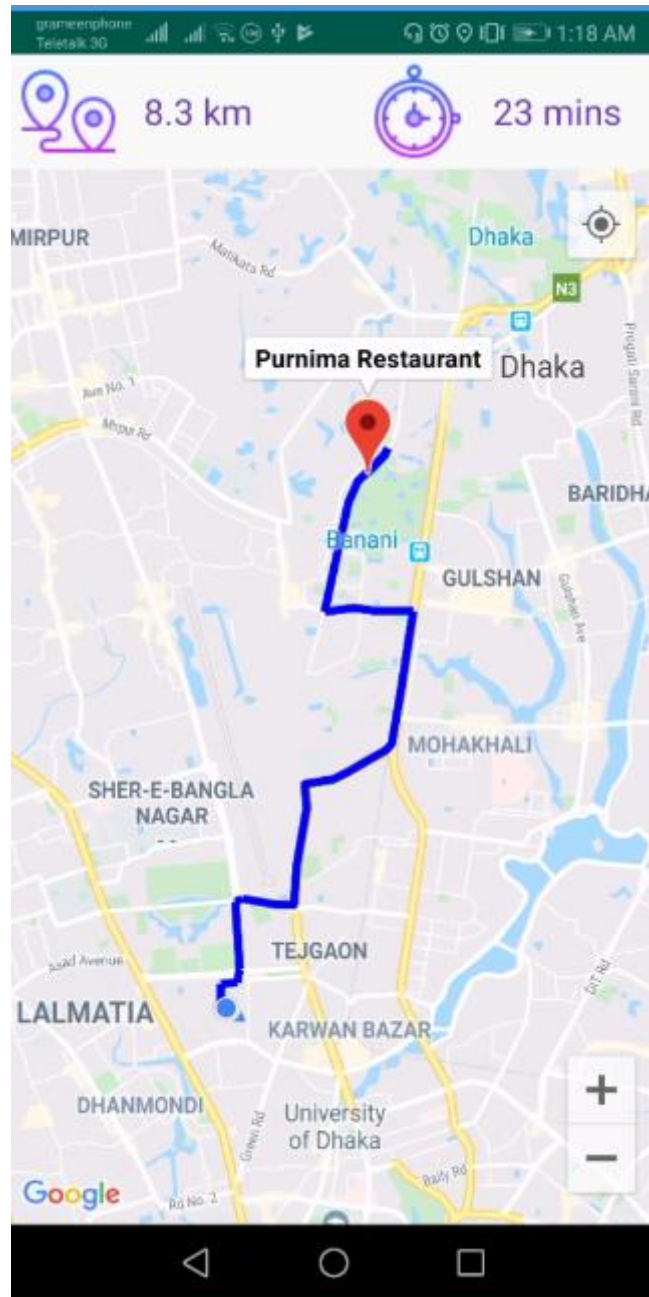


Figure 4.1.4 Direction

4.2 Back-end Design

Though we don't have any login or registration page in our project, there is no database related work in our project. So as our back-end design, we put the back-end code as picture here.

```
public HomeAdapter(List<String> itemList, List<ImageCollection> iconList, Context context) {...}

@NonNull
@Override
public ItemViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {...}

@Override
public void onBindViewHolder(@NonNull ItemViewHolder holder, final int position) {
    holder.itemName.setText(itemList.get(position));
    holder.itemIcon.setImageResource(iconList.get(position).getIcon());
    holder.eachLayout.setOnClickListener(new View.OnClickListener() {
        @Override
        public void onClick(View view) {
            listener.itemToPlaces(position);
        }
    });
}
```

Figure 4.2.1: Home adapter

This figure 4.2.2 below is for the Home Fragment:

```
@Override
public void onViewCreated(@NonNull View view, @Nullable Bundle savedInstanceState) {
    super.onViewCreated(view, savedInstanceState);
    geocoder = new Geocoder(context, Locale.getDefault());

    recyclerView = view.findViewById(R.id.homeRecyclerView);
    items = getResources().getStringArray(R.array.home_item_name);
    adapter = new HomeAdapter(Arrays.asList(items), imageCollection.getIconList(), context);
    GridLayoutManager glm = new GridLayoutManager(context, spanCount 3);
    recyclerView.setLayoutManager(glm);
    recyclerView.setAdapter(adapter);

    //slider
    SliderView sliderView = view.findViewById(R.id.banner);
    SliderAdapter adapter = new SliderAdapter(context);
    sliderView.setSliderAdapter(adapter);
    sliderView.setIndicatorAnimation(IndicatorAnimations.WORM); //set indicator animation
    sliderView.setSliderTransformAnimation(SliderAnimations.SIMPLETRANSFORMATION);
    sliderView.setAutoCycleDirection(SliderView.AUTO_CYCLE_DIRECTION_BACK_AND_FORTH);
    sliderView.setIndicatorSelectedColor(Color.WHITE);
    sliderView.setIndicatorUnselectedColor(Color.GRAY);
    sliderView.setScrollTimeInSec(4); //set scroll delay in seconds
}
```

Figure 4.2.2: home fragment

This figure 4.2.3 is for Map Activity:

```
public class MapsActivity extends FragmentActivity implements OnMapReadyCallback {
    private GoogleMap mMap;
    private double originLat, originLon, destinationLat, destinationLon;
    private String placeName;
    private TextView distanceTv, timeTv;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_maps);
        // Obtain the SupportMapFragment and get notified when the map is ready to be used.
        SupportMapFragment mapFragment = (SupportMapFragment) getSupportFragmentManager()
            .findFragmentById(R.id.map);
        mapFragment.getMapAsync(new OnMapReadyCallback() {
            @Override
            public void onMapReady(GoogleMap googleMap) {
                distanceTv = findViewById(R.id.distanceTV);
                timeTv = findViewById(R.id.timeTV);

                Intent receiveIntent = getIntent();
                originLat = receiveIntent.getDoubleExtra("olat", 0.0);
                originLon = receiveIntent.getDoubleExtra("olon", 0.0);
            }
        });
    }
}
```

Figure 4.2.3: Map Activity

This below's figure 4.2.4 is for place adapter :

```
public class PlaceAdapter extends RecyclerView.Adapter<PlaceAdapter.PlaceViewHolder> {
    Context context;
    private List<Result> placeList;
    private PlaceListToDirectionListener listener;
    private double lat, lon;
    private String placeName;

    public PlaceAdapter(Context context, List<Result> placeList) {...}

    @NonNull
    @Override
    public PlaceViewHolder onCreateViewHolder(@NonNull ViewGroup parent, int viewType) {...}

    @Override
    public void onBindViewHolder(@NonNull PlaceViewHolder holder, int position) {
        final Result result = placeList.get(position);
        lat = placeList.get(position).getGeometry().getLocation().getLat();
        lon = placeList.get(position).getGeometry().getLocation().getLng();
        placeName = placeList.get(position).getName();
        final String placeName = result.getName();
        double placeRating = placeList.get(position).getRating();
    }
}
```

Figure 4.2.4: place adapter

This figure 4.2.5 is for the placelist frame:

```
public PlacesListFragment() {}

@Override
public void onAttach(@NonNull Context context) {...}
@Override
public View onCreateView(LayoutInflater inflater, ViewGroup container,
                          Bundle savedInstanceState) {...}
@Override
public void onViewCreated(@NonNull final View view, @Nullable Bundle savedInstanceState) {
    super.onViewCreated(view, savedInstanceState);
    placesRecycler = view.findViewById(R.id.placeRecyclerView);
    progressBar = view.findViewById(R.id.progressBar);
    snackBarLayout = view.findViewById(R.id.snackBarView);
    errorTv = view.findViewById(R.id.errorTV);
    toolbarTitle = view.findViewById(R.id.itemTV);
    //Toolbar myToolbar = view.findViewById(R.id.toolbar);

    toolbarTitleList = Arrays.asList(getResources().getStringArray(R.array.home_item_name));
    itemList = Arrays.asList(getResources().getStringArray(R.array.home_item));
}
```

Figure 4.2.5: placelist frame

4.3 Interaction Design and UX

Interaction means how a user interact with the system or application. It also called user experience. In our project to design user interact we use the XML markup language. To create a proper user interface and interaction with the app of user we also can use UI, UX, and design tools

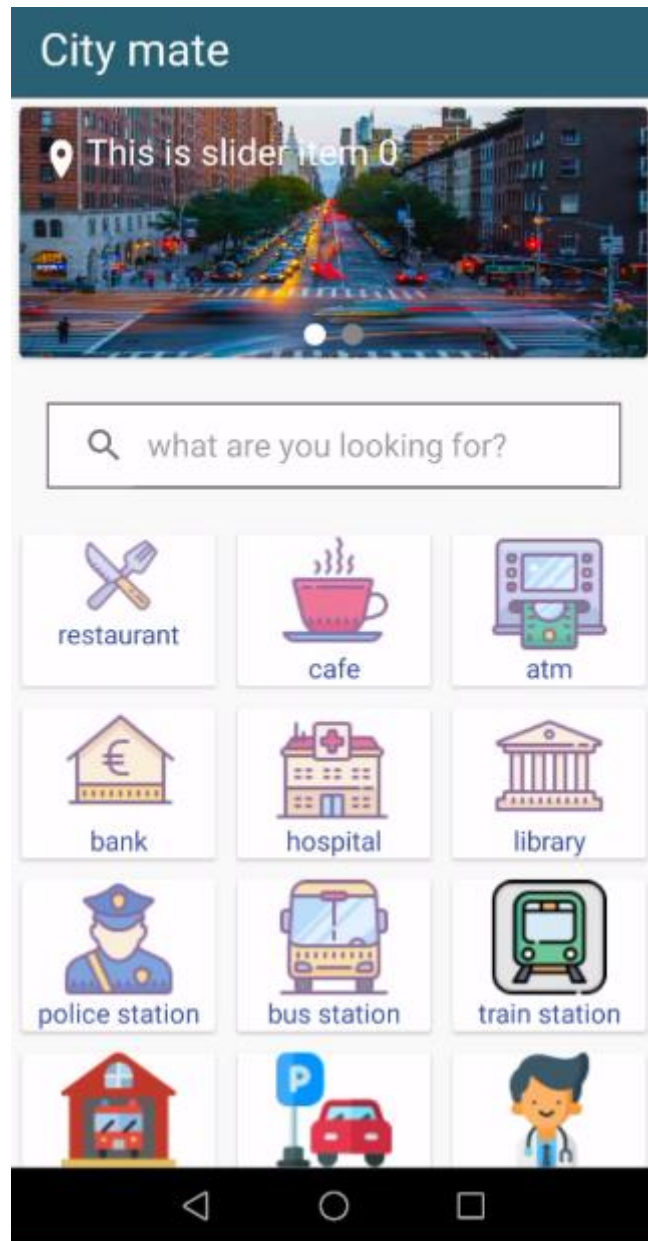


Figure 4.3.1: Interaction Design and UX

4.4 Impementaion Requirements

If people want to implement any system, generate an idea in real life there are some requirements before implementation. That's why we have to understand the implementation requirements that we needed. In our project what will require before implementation that is discussed below:

- Internet
- Android studio
- For front-end design(xml, ui,ux design)
- For back-end design(java, kotlin)
- Google API
- Direction API

CHAPTER 5

IMPLEMENTATION AND TESTING

5.1 Implementation of Database

For overseeing information, we utilized the Firebase database. We put away information in the JSON group. Firebase is a real-time database; it is likewise NoSQL. Here Data is put away as Jason and synchronized progressively to customers. It very well may be utilized in cross-stage applications like iOS, Android and all customers can share one Realtime Database case and naturally get refreshes with the most current information.

5.2 Implementation of Front-End Design

In android application Front-End-Design is Activity. In every movement, there is one XML record and there is likewise format to plan application. The configuration is the perspective on the front-end-structure.

The test configuration is given beneath:

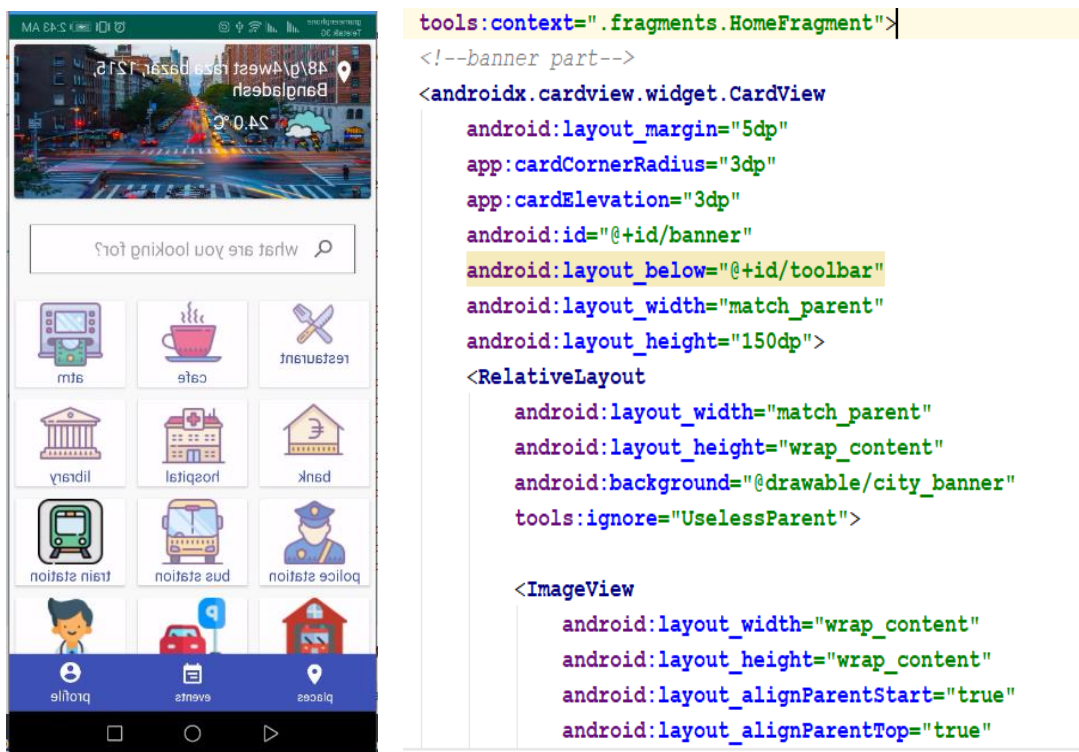


Figure 5.2.1: Screen shot of User interface & Code.

5.3 Implementation of Interactions

This task having various layers to actualize the application. All layer has a huge system and in this application. Cooperation is done to make the application dynamic and appealing to the client. It's extremely important to make an application intelligent. We incorporated some special highlights to connect with our framework. The structure of our application is easy to understand.

- View Layer: This is the interface for the user to show the screen.
- Database Layer: All the information have been put away here.
- Application Layer: Logic, API joining, library, and java is done here.
- Map Layer: To get the careful heading and discover the nearest events and places.

5.4 Testing Implementation

The motivation behind testing execution is the quality affirmation of item quality. It's to pick up recognition and certainty that item quality is meeting its objective. In this way, to meet the nature of an item, it needs to test the undertaking, over and over, utilizing distinctive testing strategies to distinguish issues and understand them. The principle objective of the undertaking is to meet the objective.

5.4.1 Test Plan Strategy

This procedure depicts the significance of the test plan and how the application is to be tried and furthermore gives a procedure to be pursued. Test information finds what is tried and anticipated result with genuine information. In most programming building ventures test plan ought to be delivered. Generally, this the framework executed considered as low quality. The client doesn't acknowledge this since it won't be palatable.

When necessities have been recognized test plan ought to be composed. To perceive how the application carries on when outrageous information is given or an over-burden circumstance happens it will be tried with test information.

5.4.2 Test Level

Here the testing levels are depicted

- Unit testing.
- Integration testing.
- System testing.
- Acceptance testing.

Unit Testing

In unit testing all the littlest pieces of the application are tried, every one of the units are exclusively tried to meet the objective. Here both positive and negative testing is performed. To ensure that the application performs appropriately, positive and negative testing associated with this testing.

Integration Testing

Integration Testing is where related projects are tried. Here two kinds of approaches included base up and top-down. This testing is performed to distinguish abandons in the interfaces and associations between coordinated segments. The database ought to be associated well with each structure connected. Ensuring no interference is intruding on database refreshes.

System Testing

In the System testing process, the functionalities for the whole application are guaranteed with the goal that the application can process and deal with an enormous number of information expertly. The test will be finished with some example client who will utilize the application under test in its genuine condition.

Acceptance Testing

The worthiness of an application is tried in the Acceptance testing level. The point of this test is to gauge the application's consistency with the necessities and think about whether it is prepared for conveyance.

5.5 Test Results and Reports

The test report shows testing results, which is a chance to evaluate the testing results. It represents the comparison with test results and objectives. In the development or implementation process of applying different types of error may occur such as code error, network failure error, etc. These types of errors are called bugs. By debugging and fixing code error bugs are removed.

In our project we faced many bugs. Some of them are given here:

- Error google map API”. When application cannot find the current location this type of error occurs. In that case, we fix the longitude and latitude to input in Maps and pin the location where we want and check. After fixing that it worked properly.
- “Stopped running”. This error occurs while database failed to connect at the time of fetching the data from the Firebase databases. Because of network failure this happens. To overcome this problem we needs to connect database and fix the error.
- Finally, the project responds correctly to all kinds of process, perform smoothly and the result is sufficiently usable

CHAPTER 6

DISCUSSION AND CONCLUSION

6.1 Conclusion

City mate is the most trusted mobile application that connects people to easily find information about the city from anywhere through this mobile application. A city mate will play an important role for newcomer people in a new city, and to get information reliable they need a strong system that they'll know about a city easier, quicker and safer. This project designed to meet the requirements of a city guide system. It has been developed in ANDROID, and the database has been built in FIREBASE. A city mate will help people to minimize time consume and overcome difficulties.

6.2 Goals

Our principal objective is to make a mobile application where people can without much of a stretch find some useful information about a city around a few kilometers. To construct a decent network and great connection among people and our mobile application is one of the significant objectives of our project. (City mate).

6.3 Limitations

- FIREBASE database storage 1GB.
- API call limitation.
- There is no online supported option for now.

Firebase is a google cloud storage service. Before billing they provide limited storage to access.

6.4 Future Scopes

The principle point of our project was to build up a versatile application for all class people and the tourists of our country other than overall which may encourage them in their traveling functions. We've attempted to attempt the undertaking at our most prominent level to fulfill every one of the users.

Their square measure some future facilities of our application is bellowed,

- In the future, we'll attempt to offer additional security to our mobile application so that it can't be hacked.
- In the future, we will provide services including our native language Bangla. So that any user can use our system smoothly.
- Making this mobile application more efficient and useful in the future.
- Updating UI to make the user more interactive with the application.
- The reliability of the application should be increased.
- We will add a review option in feature so that the user can provide their opinions.

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