

ANDROID APPLICATION PROVIDING DETAILED INFORMATION AND FEATURE REGARDING BEST OF EVERY SEGMENT IN GWALIOR CITY

*A project report submitted in partial fulfillment of the requirements for
B.Tech. Project*

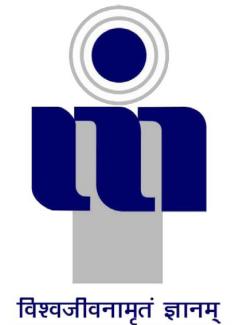
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CANDIDATES DECLARATION

We hereby certify that the work, which is being presented in the report, entitled **ANDROID APPLICATION PROVIDING DETAILED INFORMATION AND FEATURE REGARDING BEST OF EVERY SEGMENT IN GWALIOR CITY**, in partial fulfillment of the requirement for the award of the Degree of **Bachelor of Technology** and submitted to the institution is an authentic record of our own work carried out during the period *May 2017* to *September 2017* under the supervision of **Dr. Anurag Shrivastava**. We also cited the reference about the text(s)/figure(s)/table(s) from where they have been taken.

Date: _____ Signatures of the Candidates

This is to certify that the above statement made by the candidates is correct to the best of my knowledge.

Date: _____ Signatures of the Research Supervisors

ABSTRACT

Our main intention behind the project is to develop an application that will provide all of the information which is basically required by any visitor when he/she arrives in the city. Although such information is also available on internet but it is scattered on various websites and still the main part which we can call the core behind the culture and heritage of the city lives in certain food places, heritage sites, old worship sites and musical sites of the city, which is generally not available in proper manner on these on-line sources and due to present globalised culture restaurants are taking place over the old cultural and heritage sites of the city, the things that make the heritage of a city alive.

We identified such places in beginning of our work and collected also required information from such places and provided information in meaning format in our application to the users.

ACKNOWLEDGEMENTS

We pay our sincere thanks to **Dr. Anurag Shrivastava**, and are thankful to him for giving us the autonomy to experiment with new ideas and creative working styles. We would like to welcome this opportunity to express our profound gratitude to them not only for their academic guidance but also for their personal interest in our project and constant support coupled with confidence boosting and motivating sessions which proved very fruitful and were instrumental in infusing self-assurance and trust within us. The nurturing and blossoming of the present work is mainly due to their valuable guidance, suggestions, astute judgment, constructive criticism and an eye for perfection. Our mentor always answered myriad of our doubts with smiling graciousness and prodigious patience, never letting us feel that we are novices by always lending an ear to our views, appreciating and improving them and by giving us a free hand in our project. It's only because of their overwhelming interest and helpful attitude, the present work has attained the stage it has.

Finally, we are grateful to our Institution and colleagues whose constant encouragement served to renew our spirit, refocus our attention and energy and helped us in carrying out this work.

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(Mona Singh)

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ABBREVIATIONS

| | |
|-----|------------------------------------|
| UI | User Interface |
| SDK | Software Development Kit |
| API | Application Program Interface |
| APK | Application Program Package |
| IDE | Integrated Development Environment |
| GPS | Global Positioning System |

NOTATIONS

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CHAPTER 1

INTRODUCTION AND LITERATURE SURVEY

In Section 1.1, we introduce the brief idea of our application. And in section 1.2 where Literature Survey and Related work has been discussed, where we give different sources which helps in giving basic knowledge and understanding about our application. Also, motivation of our project is discussed in 1.3 and objectives in 1.4. And system architecture and graphical user interface in 1.5 and 1.6 respectively.

1.1 INTRODUCTION

Smartphone has become a living Organ of Humans if not exaggerating the fact! Our project work mainly aims to bring all the scattered information about and on the places of Gwalior city to a single platform in the form of an Android Application, actually more than that. Whenever any tourist arrives in the Gwalior city he/she searches for the food places of city on google places, though the search engine provides with good places but fails to address the locations running from old times, without any formal infrastructure barely get noticed and still those places are the best places to eat and live the culture of the city, what we call Zayka of the city. We aim to provide an application that will provide information about the place, along with Google map location, and detailed information about opening times, cuisine, cost and such aspects along with the contact of the place. In this way a tourist or any person in need don't have to scroll through google or other websites and all the required information will be available on a single application on one click. And this will make travelling and living in city a lot more easy and efficient for new travellers who do not have enough knowledge about the place and end up getting trapped in the agents and dealers schemes and return back taking a bad impression of the City while remaining unknown of the real culture and culinary styles of City.

1.2 LITERATURE REVIEW

During our whole Application development process we had to refer to some Documents but mainly our work was related to field and places in the city. During this process we also take some references from two of the Documents issued by Archaeology Archives and Museum,Bhopal,Madhya Pradesh Government as Monuments of Gwalior which were based on the Historical and Cultural Heritage of the city.We had to bring out the Rich Old Culture and Heritage of the city in our Application through the means of Information in every field be it Food Styles or Old Monuments,Music Styles,Places nearby the city,Events of the Gwalior,Old Worship temples,mosques,Gurudwaras and holy sites reflecting the old culture of the City - All those that make the city unique in its own way. The city Gwalior has witnessed a blend of different cultures and styles since its beginning. Earlier ruled by Tomars,Pratiharas then Mughals followed by Marathas and Scindias cum British Rule,the effect is evident on the Food styles,culture,Heritage sites,Worship places and Musical Gharana these all such aspects have been influenced by the rule of different Dynasties and Groups that have shaped the habits and style of this city The city has much more to offer to any traveller but that information needs to be bring front among people in a meaningful and attractive manner.For that purpose it was required to identify all such information from the certain old places and points and people associated with such information and to collect all such information from these places and people and to categorize accordingly and present it in a single platform for the users.For that we were required to go to these places and collect information and that was certain type of a field work. Our work was mainly categorised into some steps which were:

- (i) **Identifying such places and cultural heritage.**
- (ii) **Collecting all the data and images by surveying and visiting all these places.**
- (iii) **Arranging all the data collected through us in a meaningful manner and in a proper format.**
- (iv) **Developing and Designing the Application.**

1.2.1 Identifying such places and cultural heritage

The first step was to identify all such places of Rich old Cultural heritage and the places which we can call the true Zayka or style of any City.Often forgotten along the long way in present times of Restaurants and Mall culture,these places truely represent the culture of the place and needs to be bring on the front-side.

1.2.2 Collecting all the data and images by surveying and visiting all these places

Our next step was to collect information about all these best places and delicacies by visiting these places on our own. We visited each place according to our sort out best places and collected all the information as much as we can. Our data collected involved about -their history, cuisine (in case of food), time of opening and closing, contact, cost associated to the place or food, the unique speciality of that place or food, Google map location of that place and path and driving directions and also different images of that place.

1.2.3 Arranging all the data collected through us in a meaningful manner and in a proper format

The another step was to arrange the data collected in a meaningful manner according to the user requirements and needs. So we arranged the data collected in a step by step manner as providing images then basic details, Address-GPS location co-ordinates, Cost, Timing, Contact No and Images all arranged in a pattern in the Application.

1.2.4 Developing and Designing the Application

Developing the Android App using all the available information we collected through different sources and providing all the arrranged information along with images and GPS Coordinates of the place in the Application.

1.3 MOTIVATION

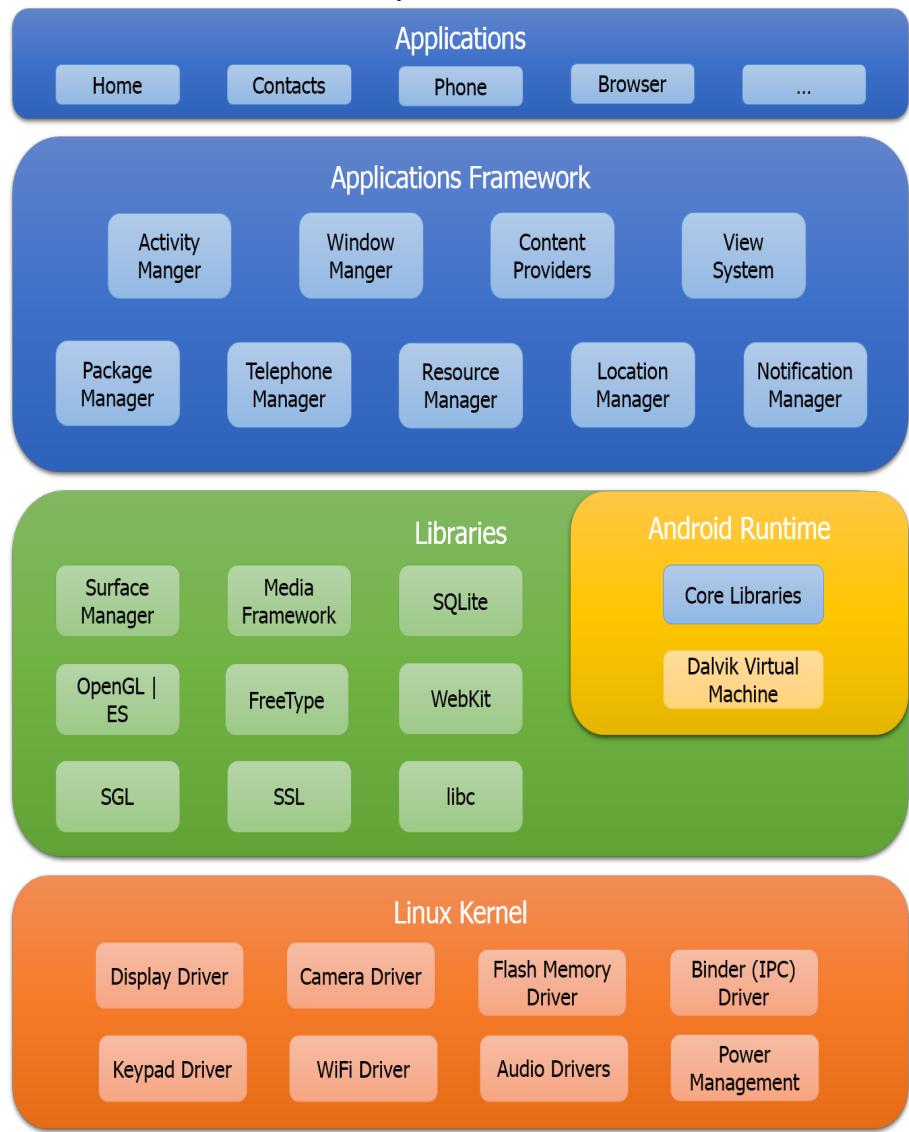
The main motivation behind developing this application is to provide the incoming tourists and travellers with the information of rich old culture and heritage of the city that truly reflects the city in its every form- be it food, clothing styles, musical gharana or historical monuments of any city. This information also serves the Indians visiting Gwalior and residents of city itself by making them aware of this heritage and cultural asset of the city which often gets neglected due to Globalisation and provide all these information on a single application serving very useful to tourists arriving in city.

1.4 OBJECTIVE

The main objective behind our Application is to provide users with all such information regarding such cultural and heritage sites and places and details about the place along with Google map location and path and Driving Directions along with contact Number of all the places and cost associated with place - all these information on single Application.

1.5 SYSTEM ARCHITECTURE

Android operating system is stack of software components which is roughly divided in five sections and four main layers as shown in the below architecture



- (i) **The Linux kernel 3.6 which provide useful drivers like audio drivers and display drivers.**

- (ii) **On top of it libraries which include libc, SQLite database which is a useful repository for storage and sharing of application data.**
- (iii) **A run time environment for applications based on a virtual machine, made for inefficient machines such as telephones. The aim is to translate Java in machine language understood by Android.**
- (iv) **You will find all the Android applications in the top layer. Examples of such applications are browser, contacts, games etc.**
- (v) **The Application Framework layer provides many higher-level services to applications in the form of Java classes.**

1.6 GRAPHICAL USER INTERFACE

In this Graphical user interface shows the various interfaces of the application with the user. User interface is also one of the vital part in any android application. A well designed User interface pleases the users. Various user interface screens of our application are shown below.

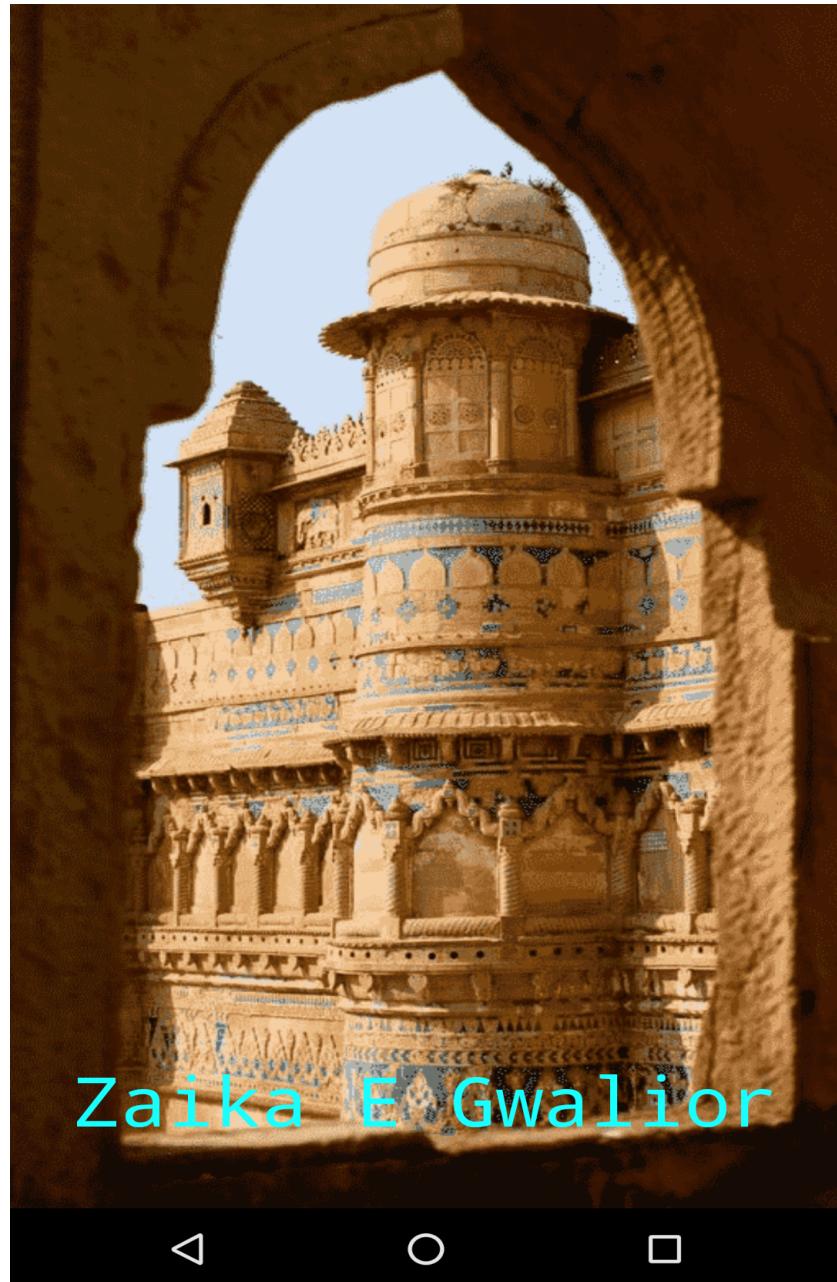


Figure 1.1: Screenshot 1: Welcome Splash Screen

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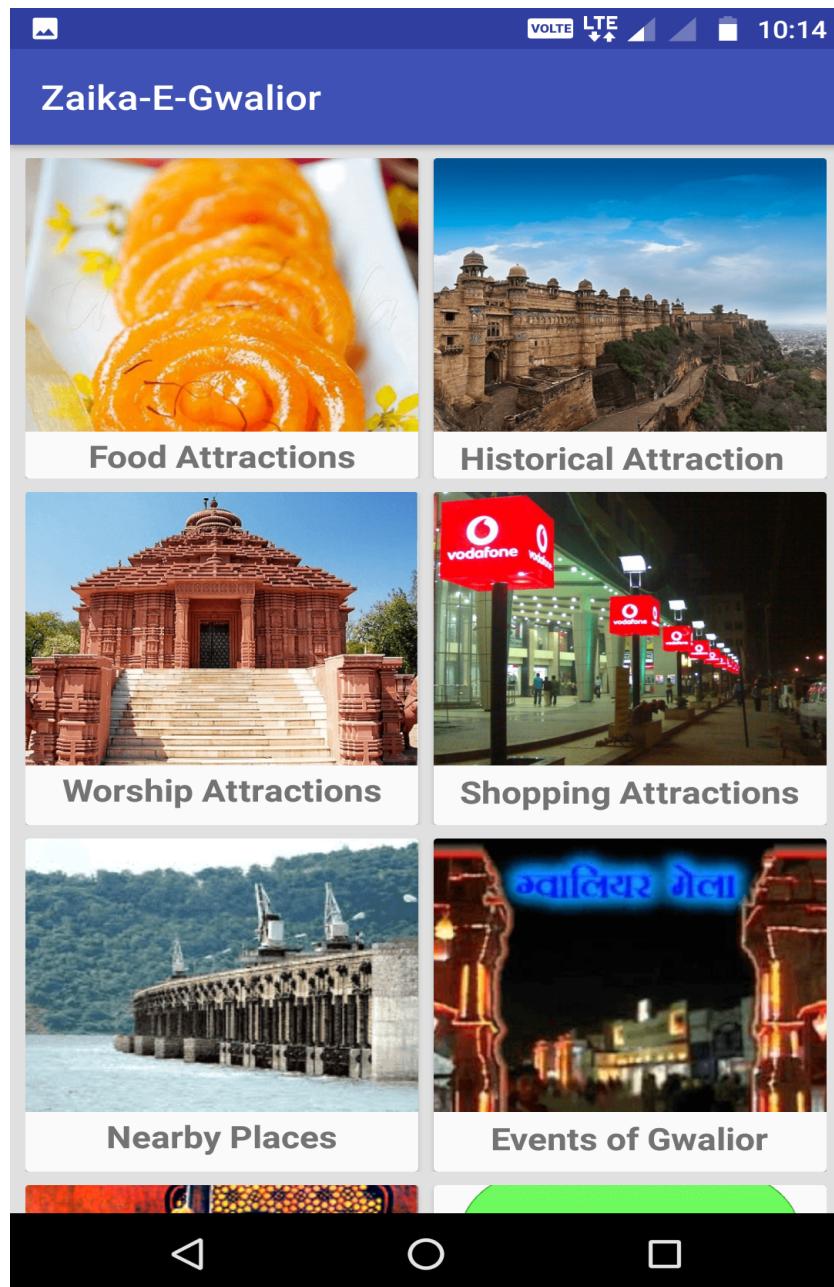


Figure 1.2: Screenshot 2: : Showing the various components of our application in a menu form-Food,Heritage,Worship places,Shopping attractions,Places Nearby,Events in the city,Musical Gharna/Style and Key Contacts of city.

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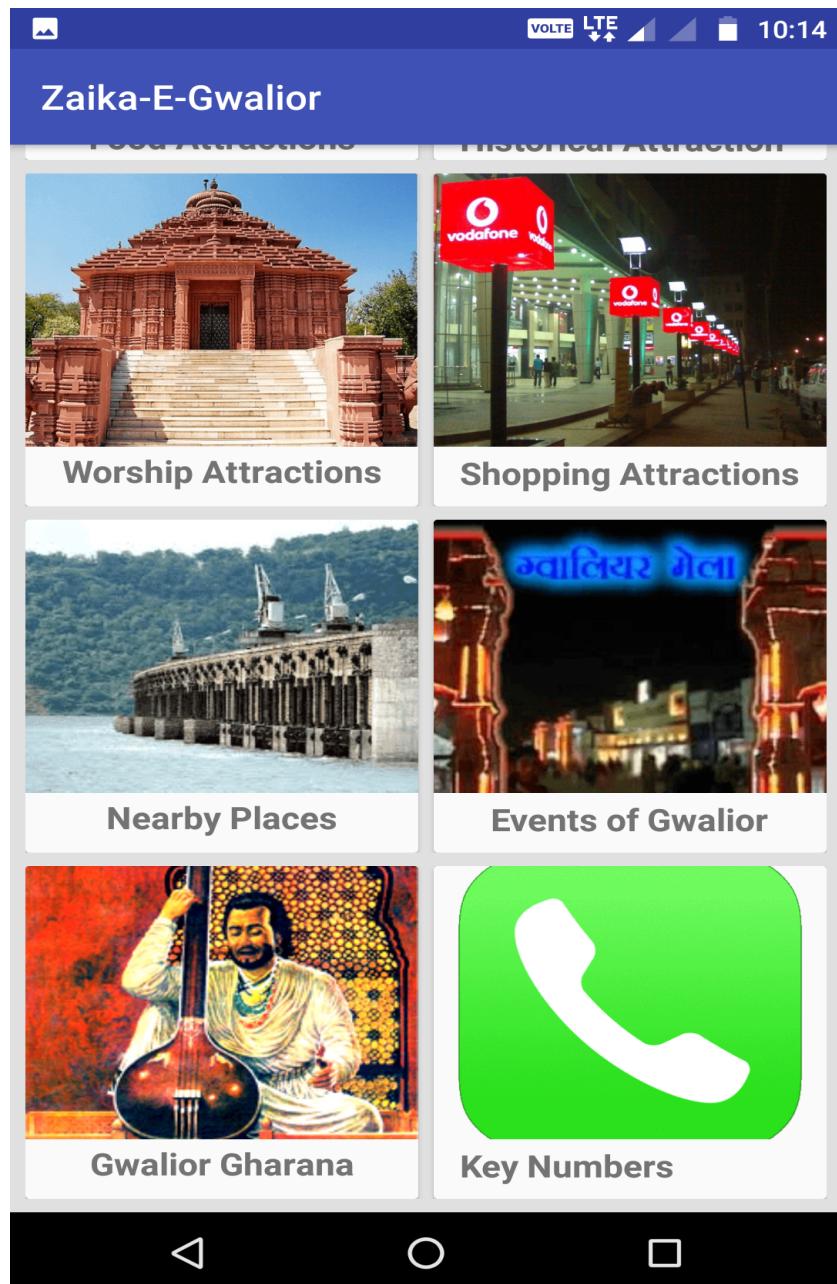


Figure 1.3: Screenshot 3: Main Menu User Interface

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Figure 1.4: Screenshot 4: Food Activity User Interface: Showing the food components in the Application categorized into the North Indian, South Indian, Continental, Central Indian, Sweets, Snacks, Beverages and Non Vegetarian.

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Figure 1.5: Screenshot 5: Food Activity User Interface: Below

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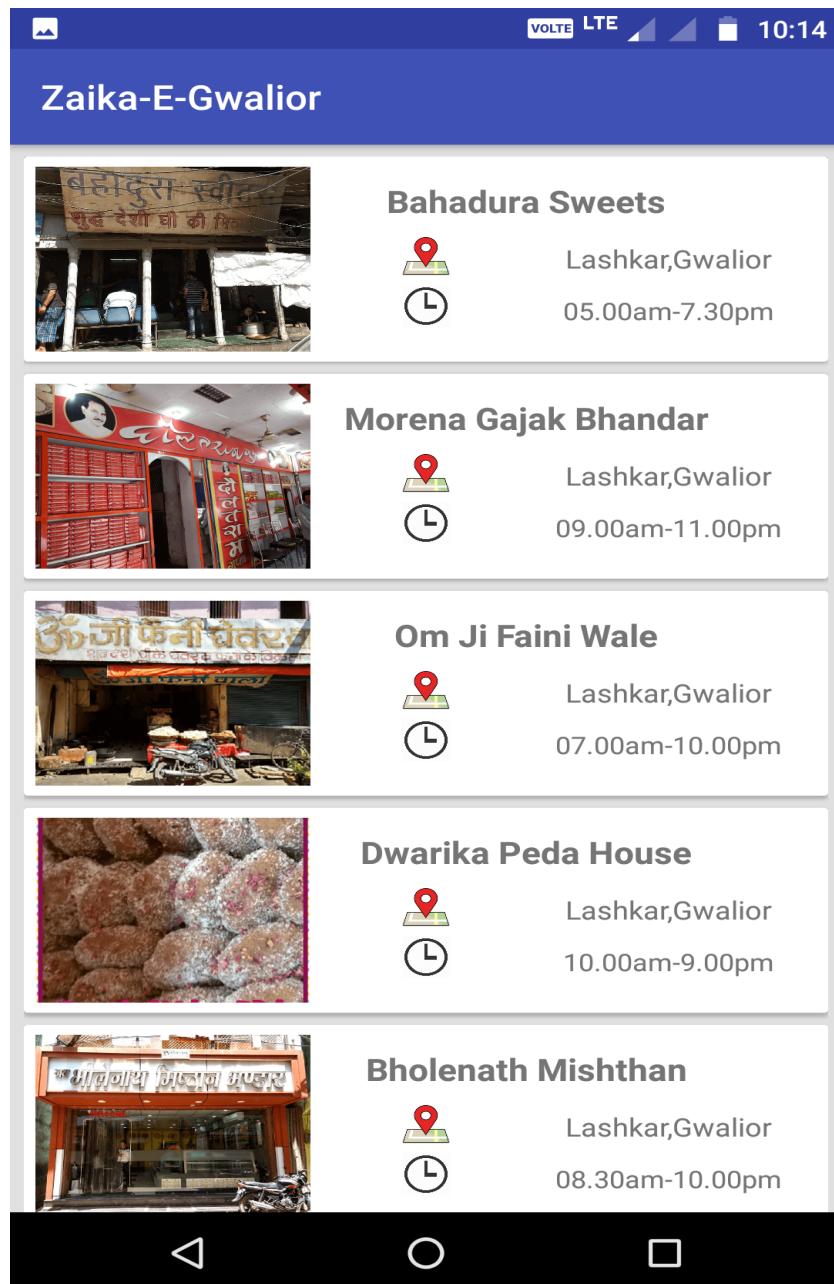


Figure 1.6: Screenshot 6: Sweets Places List User Interface

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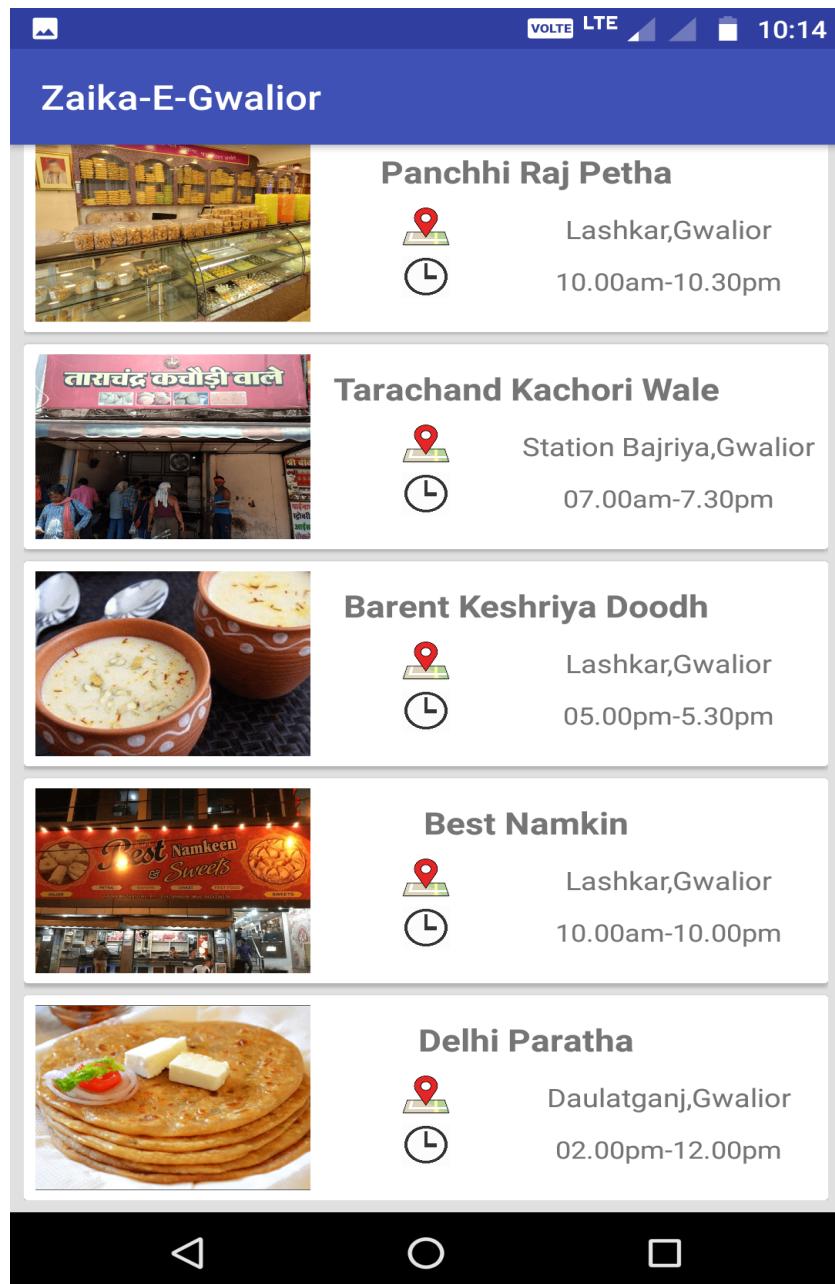


Figure 1.7: Screenshot 7: Food Places List User Interface

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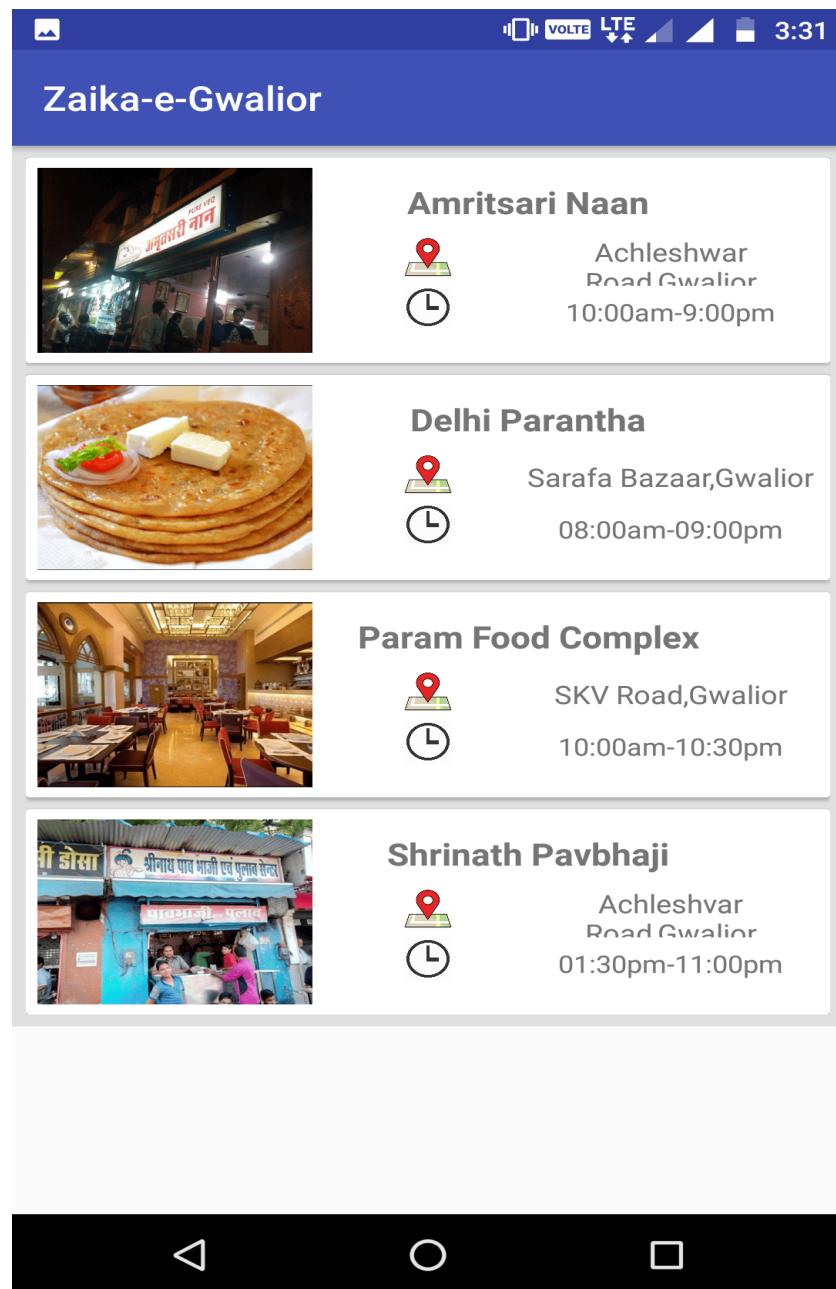


Figure 1.8: Screenshot 8: Specifically Categorized: North Indian Food Places List User Interface.

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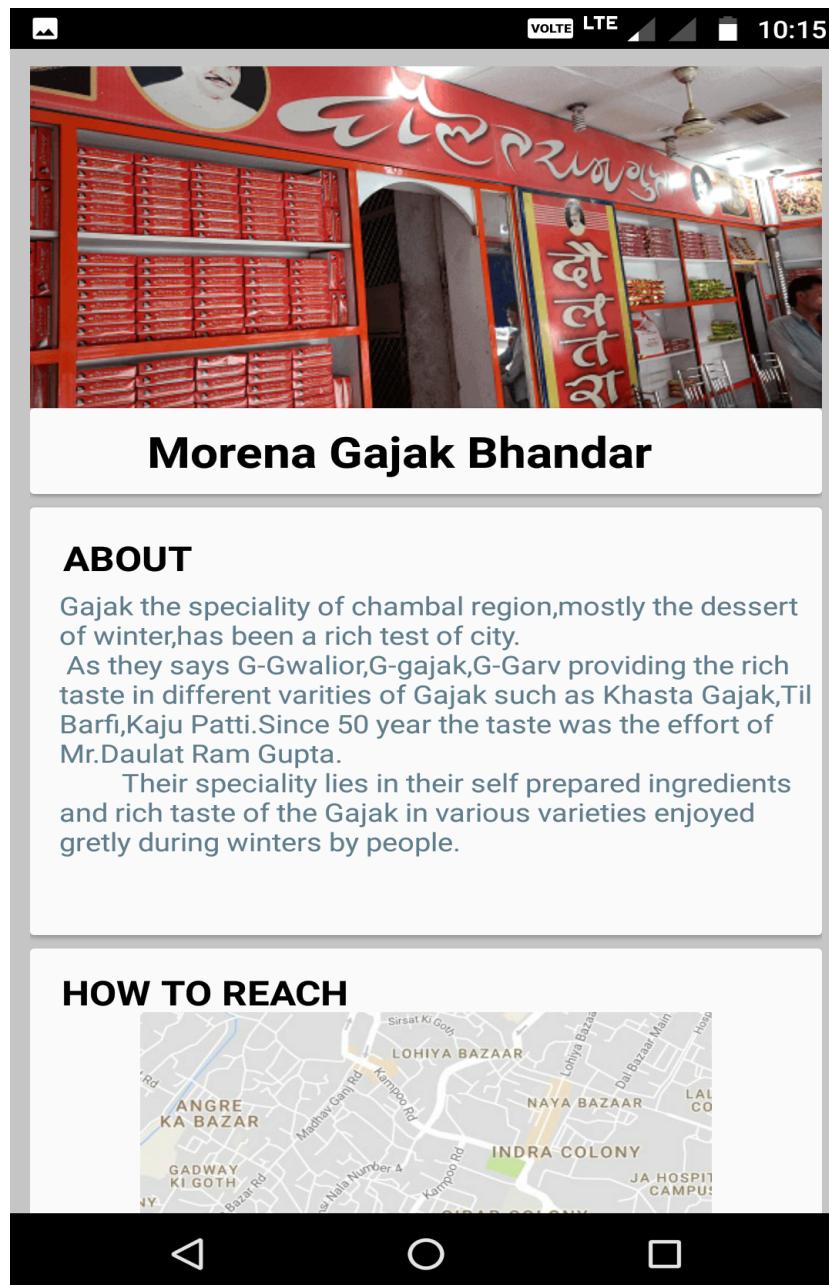


Figure 1.9: Screenshot 10: About Activity User Interface: About Activity User Interface of a Sweet Place including details such as Image,About the Place,Cuisine type,Cost associated,Google Map Location and Contact Number of the place.

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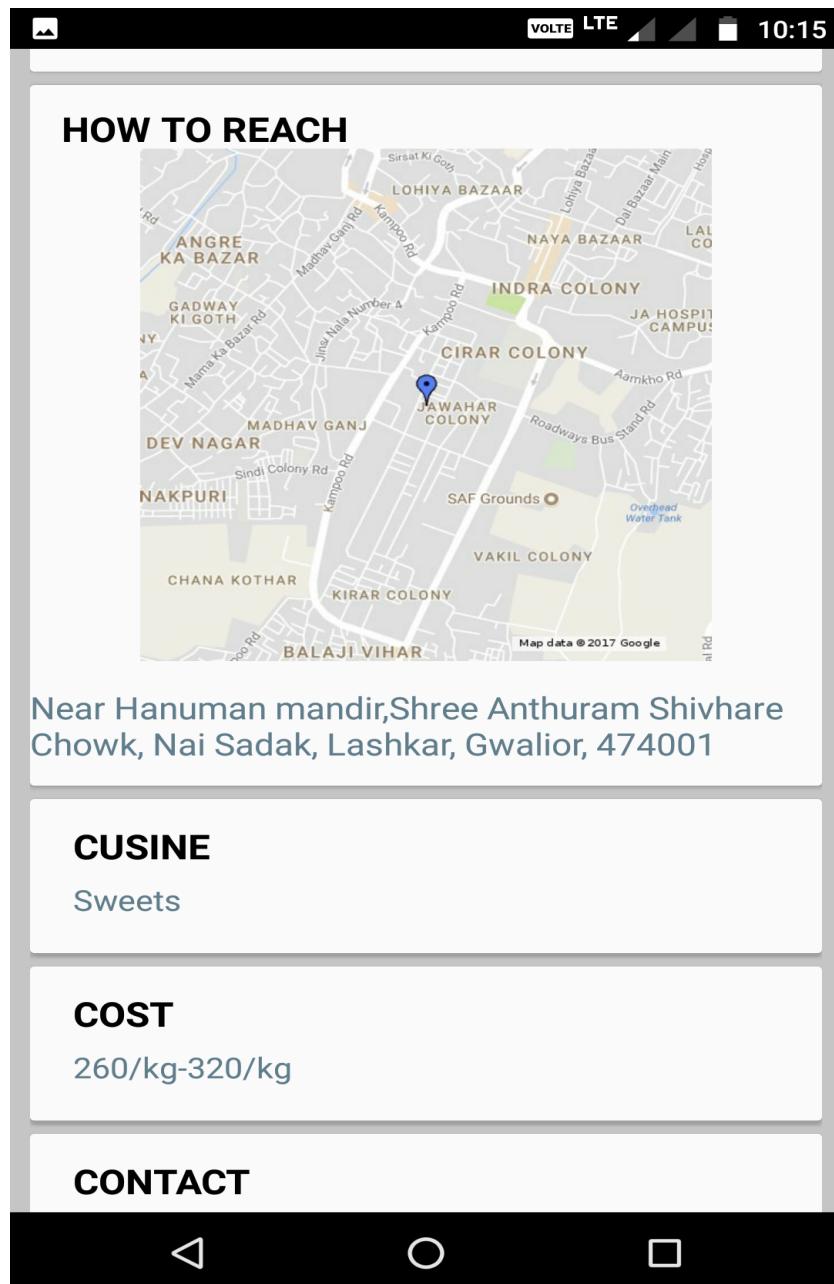


Figure 1.10: Screenshot 11: About Activity User Interface: Continued

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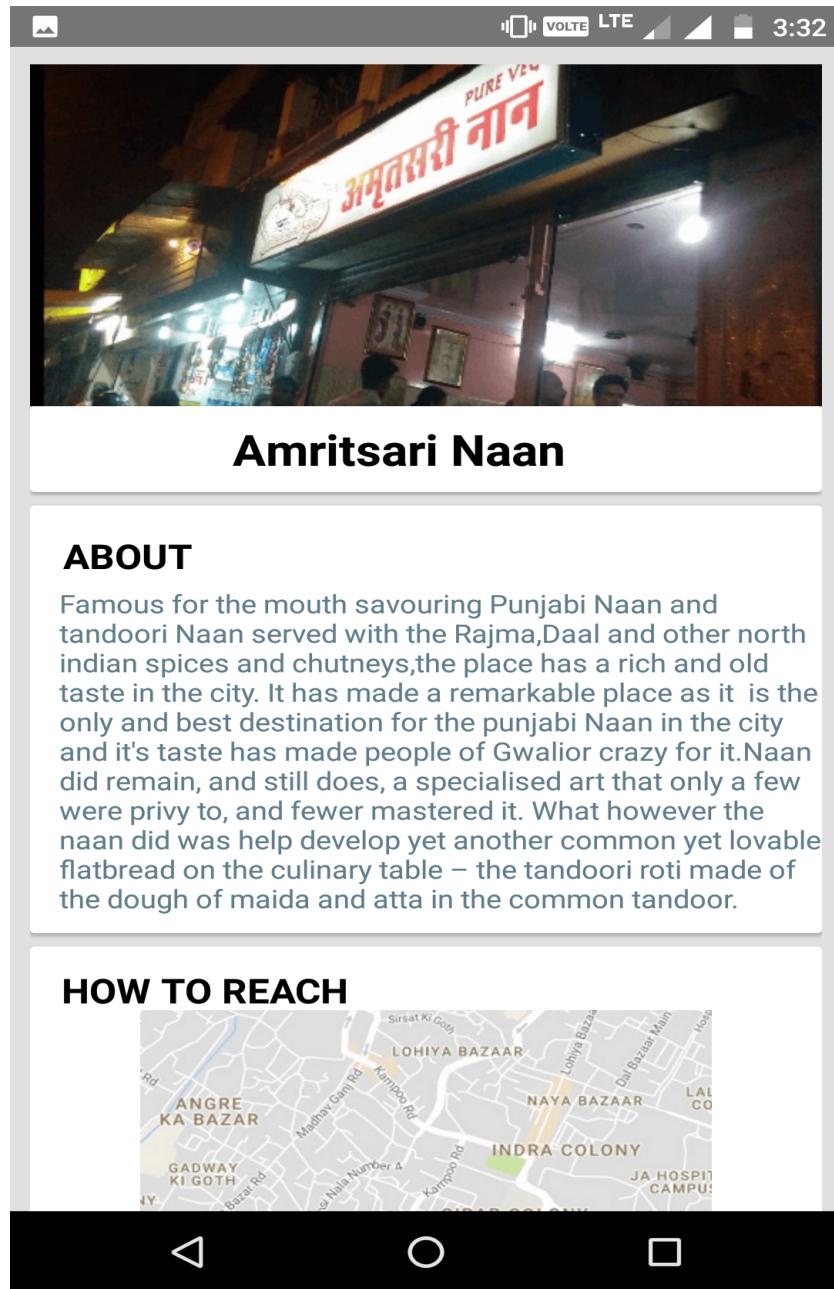


Figure 1.11: Screenshot 12: About Activity User Interface: North Indian Food Place including the same details.

?

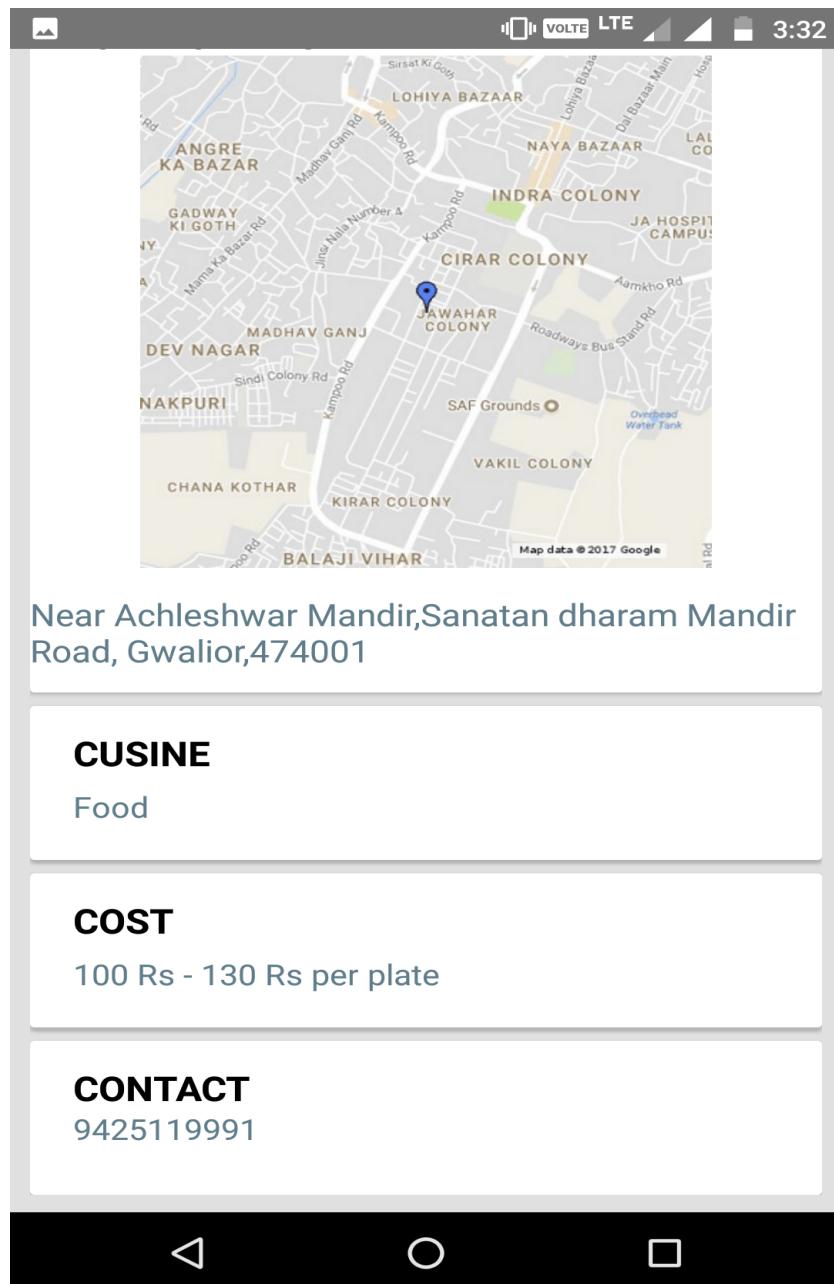


Figure 1.12: Screenshot 13: About Activity User Interface:North Indian Food Place
?

CHAPTER 2

DESIGN DETAILS AND IMPLEMENTATION

To design our Application we need some tools and technologies in order to work upon. Our design motive should be that application should be User Friendly and easy to operate for the User. Technologies and tools are very important in Project point of view. These technologies and tools make the Project easy for the developer and enables him built up extraordinary features for the application. In this chapter we are going to learn about the technologies and tools that are used for building up this application. Here we are going to use some tools or softwares like Android , some external dependencies, and some technologies like MySQLite Database, Database queries. We are also going to discuss briefly about API technologies like Microsoft Translator Text API. Also we will implement some basic coding techniques and various encryption decryption algorithms.

2.1 ANDROID

Android is an open-source operating system for smartphones and tablets. It was developed by Google . The first commercial version was Android 1.0 released on September 23, 2008. This operating system contains android applications which are developed on official IDE called Android Studio . Version 1.0 and 1.1 do not have any specific names, but since April 2009 Android Cupcake was named for version 1.5. Each version name will be in alphabetical order. The table shown in the next page shows the code names, version number, release date, API level. It's versions follow an alphabetical order starting from cupcake,donut,eclair,froyo,gingerbread,honeycomb,icecream sandwich,jellybean,kitkat,lollipop,marshmallow,nougat,oreo-the latest ver-

sion.

2.2 API LEVEL

API level is basically the Android version. Instead of using the Android version name (eg: 2.0, 2.3, 3.0, etc) an integer number is used. This number is increased with each version. Android 1.6 is API Level 4, Android 2.0 is API Level 5, Android 2.0.1 is API Level 6, and so on.

2.2.1 API

An API is a set of methods, tools that are used in building Applications and softwares. There are various kind of API's that are used in applications for ease and functionality of the Applications like Google map API, Camera API etc.

2.3 EXTERNAL DEPENDENCIES AND LIBRARIES

2.3.1 Need For External Dependencies and Libraries

Android application development range is unlimited, but Android Studio memory size is limited . So we cannot include all the dependencies and library that are available for android app development. This is the reason why we include external dependencies and libraries With the use of external dependencies like recycler-view , the functions or methods from that dependencies can be imported into android studio. By using dependencies android externally download libraries from internet or cache data available in android studio. If we are using external dependencies like recycler-view we should include recycler-view-v7 in dependencies folder in android studio and synchronize the project to compile. The below is the gradle file demonstrates the external dependencies usage. So,in project point of view we are using some external dependencies for our project.

2.3.2 List of available external dependencies and libraries

- (1) **Recyclerview-v7 :In this project we have Recyclerview-v7 because it is the best way to maintaining the view on the screen.It is flexible and advanced version of list view which is also used to maintain the view on screen.**

- (2) **Design :** Secondly it is the design library which provide many APIs to support component of material design and pattern of our application which cover many Android FrameWork for device Android2.1 or running latter.The Design Support library provides Is to support additional important material design components and patterns to your applications beyond those covered by the Android framework, to all devices running Android 2.1 or later.
- (3) **Palette-v7:** For selecting different colour for our toolbar which makes our app look very attractive we use this dependency.
- (4) **Cardview-v7:** Cardview is used to show information in form of card which has very attractive look accross the platform.It may in form of round corner or shadow. To use cardview in this form we use many attribute associated with it.

2.3.3 List of available external uses permission

on our android device when when the application is being installed then permission is granted by user in our Manifest file

2.3.3.1 List of permission

INTERNET : it give us information about internet that we are connected or not.

ACCESS COARSE LOCATION : this permission determine the user location with the help of wifi and mobile.but it gives us approximate result.

ACCESS FINE LOCATION : this permission determine the user location with the help of GPS,but it gives us precise location.

2.3.3.2 List of APIs

- (1) **Google Map API :**Google map API allow us to use Google maps in our android applications and services provided by the google maps can be used in applications to show location of any particular place. It requires to get an API key from the developers.google website and then to use that key in our code in google map activity.
- (2) **Palette API:** Palette Api in android useful in Dynamic coloring of toolbar and image. It has support library that can also be used in older version of android.For use we pass our image bitmap to this

API which generates color based on image in PAL. After that we fetch color that we want and set Collapsing Toolbar which turn in color in ToolBar when we scroll the screen up.

For use of Palette API we add Palette dependency in our build.gradle file- compile 'com.android.support:palette-v7:21.0.+'

2.4 TOOLS USED

2.4.1 Recyclerview

Recyclerview is very important tool to arrange viewgroup on our screen in form of list.it avoid from wastage of memory.for implementing.recyclerview in our app we add dependencies in our build.gradle file and deals with its three elements.

- (1) **RecyclerView.Adapter :** Recyclerview includes special kind of Adapter which is used to adapt the data.For this we override three methods of recyclerview:
 - (1) **public Myviewholder onCreateViewHolder(ViewGroup parent, int viewType)** return null; it creates views and stored in viewholder
 - (2) **public void onBindViewHolder(Myviewholder holder, int position)** it bind the data with our views.
 - (3) **public int getItemCount()** return albumList.size(); it returns the itemcount of data which will be shown in recyclerview.
- (4) **Layoutmanager :** Layoutmanager is a class which is responsible to position the items within the recyclerview. We implements the classes Recyclerview.LayoutManager which arrange the view in form of list,grid or staggered way.
- (5) **ItemAnimator :** It is used for animation on item of viewholder.For this we implements class RecyclerView.ItemAnimator.
This class defines the animations that take place on items as changes are made to the adapter. Subclasses of ItemAnimator can be used to implement custom animations for actions on ViewHolder items

2.5 IMPLEMENTATION/EXECUTION OF PROJECT

In this part we are going to briefly discuss about requirement analysis. Implementation will begin by creating the Main User Layout and Java Classes along with the necessary API's required for the project and we also need to create the Google map activities.

2.6 REQUIREMENT ANALYSIS

2.6.1 Requirement Specification

2.6.1.1 Software Requirement:

This Project was done in Android Studio, the official IDE (Integrated Development Environment) for Android Application Development based Intel-Iij idea. It was produced in API level17 (for users of Android 5.0+ and later). This makes more than 75 percentage of users to use the application if this is uploaded in the Google Play Store.

2.6.1.2 Hardware Requirement:

As this project is providing information to users, user should be sure that his/her device is working fine. Unfortunately some of the phone with Android versions less than marshmallow are not able to support the application, but that percentage is very less compared to the current user distribution in android.

2.6.2 Execution

- (1) **Gathering the data from different sources:** In the first stage, we collect data from different places from Gwalior for each segment related to Food places, Historical worship, shop, events conducted in Gwalior etc. we also include important key numbers for emergency case.
- (2) **Arrange the data into meaningful pattern** After collecting the data, we arranged the data in specify order. Order of the data:
 - Food
 - Historical
 - Worship
 - Shopping
 - Nearby place
 - Event in Gwalior
 - Gwalior Gharana
 - Key Numbers
- (3) **Use the data in our app according to requirement:** During the designing of app, we set the file according to the order of the data

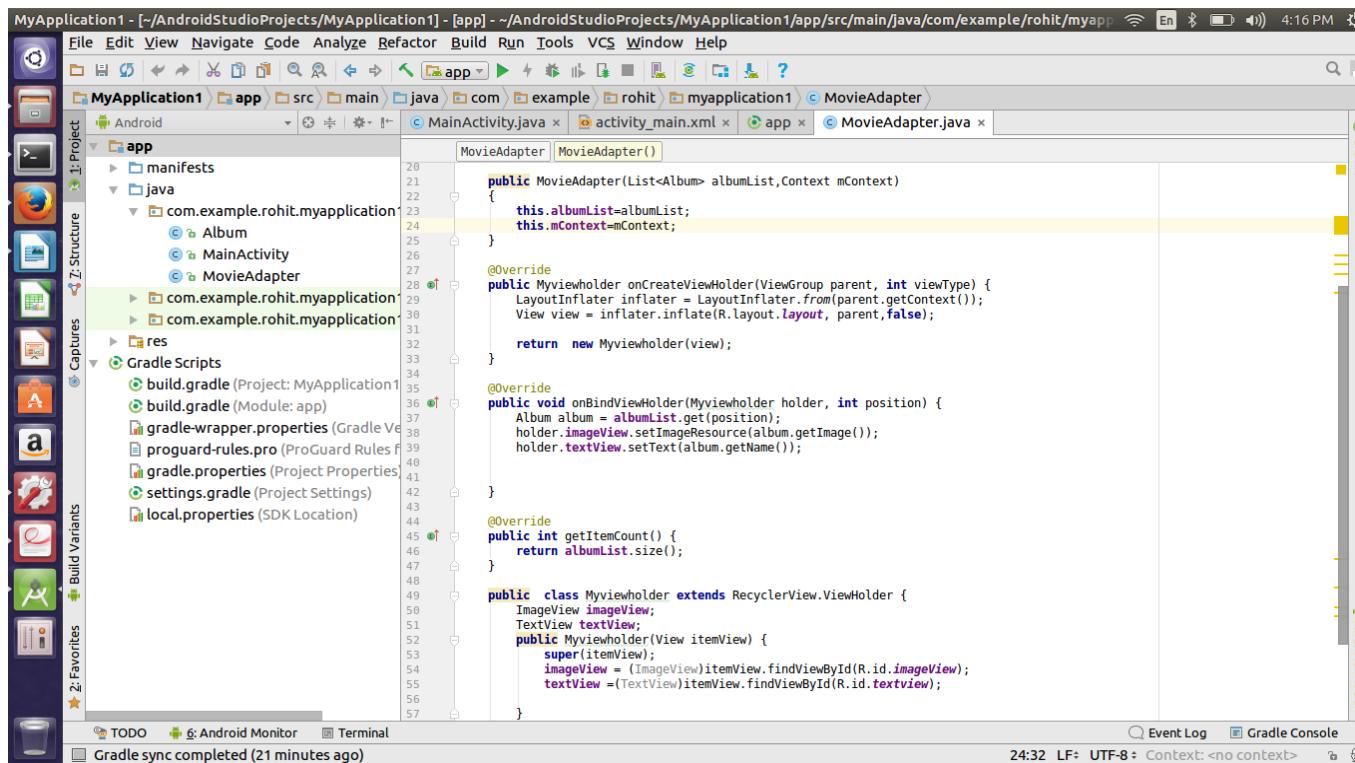
2.7 EXECUTION

2.7.1 Implementing the RecyclerView Adapter

In this portion we are going to implement the recyclerview in java code in which we bind the data with recycler view and implement it. For this we overwrite it's three main methods as we discussed above. The code is shown as in image.

2.7.2 Implementing the Main Activity Java Class

In this activity we make class in which we store the data and bind the data and set layoutmanager to show the view in form of list,grid,staggered form.



MyApplication1 - [/AndroidStudioProjects/MyApplication1] - [app] - ~/AndroidStudioProjects/MyApplication1/app/src/main/java/com/example/rohit/myapplication1/MovieAdapter.java

```

public class MovieAdapter extends RecyclerView.Adapter<Myviewholder> {
    private List<Album> albumList;
    Context mContext;

    public MovieAdapter(List<Album> albumList, Context mContext) {
        this.albumList = albumList;
        this.mContext = mContext;
    }

    @Override
    public Myviewholder onCreateViewHolder(ViewGroup parent, int viewType) {
        LayoutInflater inflater = LayoutInflater.from(parent.getContext());
        View view = inflater.inflate(R.layout.activity_main, parent, false);

        return new Myviewholder(view);
    }

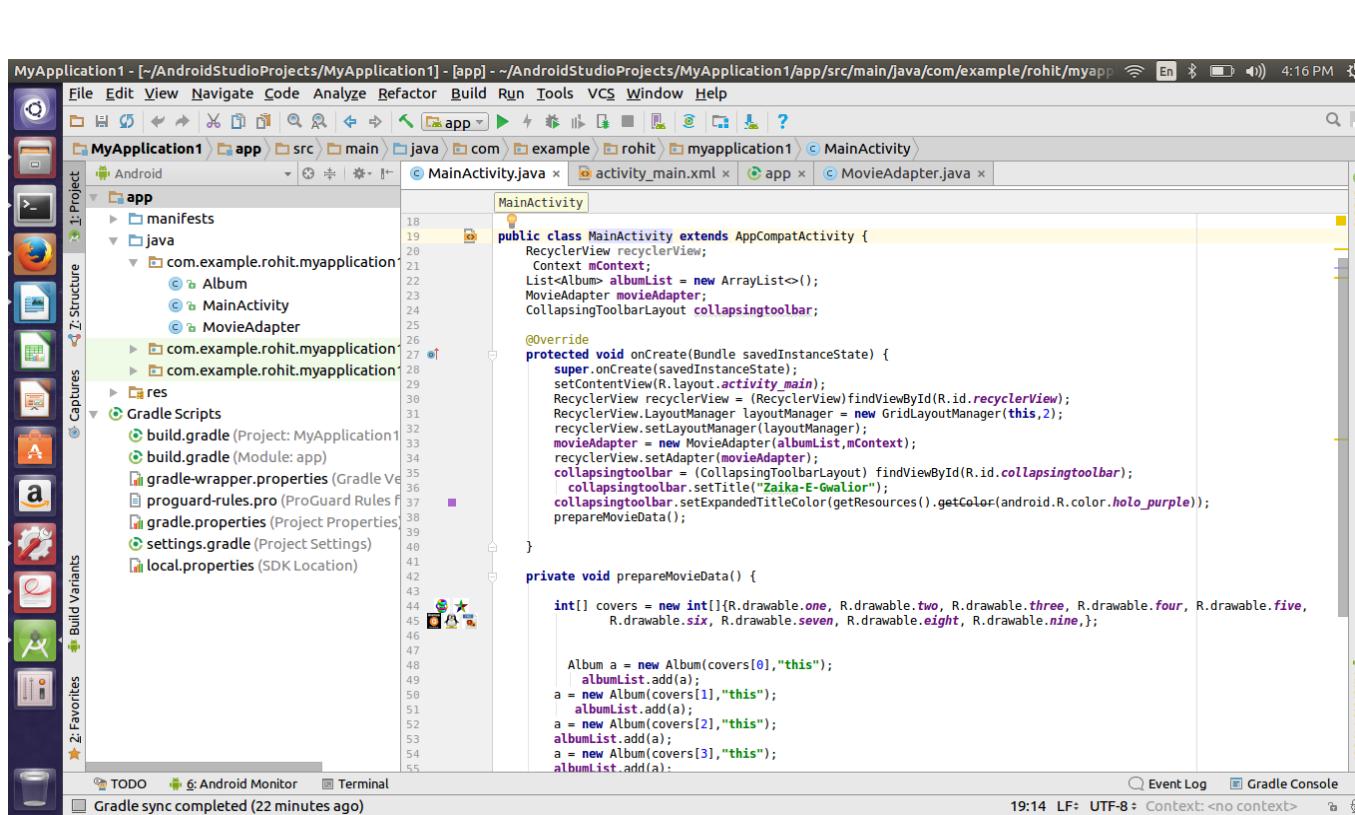
    @Override
    public void onBindViewHolder(Myviewholder holder, int position) {
        Album album = albumList.get(position);
        holder.imageView.setImageResource(album.getImage());
        holder.textView.setText(album.getName());
    }

    @Override
    public int getItemCount() {
        return albumList.size();
    }

    public class Myviewholder extends RecyclerView.ViewHolder {
        ImageView imageView;
        TextView textView;
        public Myviewholder(View itemView) {
            super(itemView);
            imageView = (ImageView)itemView.findViewById(R.id.imageView);
            textView = (TextView)itemView.findViewById(R.id.textView);
        }
    }
}

```

Figure 2.1: Screenshot 14: Recycle View Adapter Implementation as Java Class



MyApplication1 - [/AndroidStudioProjects/MyApplication1] - [app] - ~/AndroidStudioProjects/MyApplication1/app/src/main/java/com/example/rohit/myapplication1/MainActivity.java

```

public class MainActivity extends AppCompatActivity {
    RecyclerView recyclerView;
    Context mContext;
    List<Album> albumList = new ArrayList<>();
    MovieAdapter movieAdapter;
    CollapsingToolbarLayout collapsingToolbar;

    @Override
    protected void onCreate(Bundle savedInstanceState) {
        super.onCreate(savedInstanceState);
        setContentView(R.layout.activity_main);
        recyclerView = (RecyclerView)findViewById(R.id.recyclerView);
        recyclerView.setLayoutManager(new LinearLayoutManager(this));
        movieAdapter = new MovieAdapter(albumList, mContext);
        recyclerView.setAdapter(movieAdapter);
        collapsingToolbar = (CollapsingToolbarLayout)findViewById(R.id.collapsingToolbar);
        collapsingToolbar.setTitle("Zaika-E-Gwaliar");
        collapsingToolbar.setExpandedTitleColor(getResources().getColor(android.R.color.holo_purple));
        prepareMovieData();
    }

    private void prepareMovieData() {
        int[] covers = new int[]{R.drawable.one, R.drawable.two, R.drawable.three, R.drawable.four, R.drawable.five,
                               R.drawable.six, R.drawable.seven, R.drawable.eight, R.drawable.nine};

        Album a = new Album(covers[0], "this");
        albumList.add(a);
        a = new Album(covers[1], "this");
        albumList.add(a);
        a = new Album(covers[2], "this");
        albumList.add(a);
        a = new Album(covers[3], "this");
        albumList.add(a);
    }
}

```

Figure 2.2: Screenshot 15: Main Activity Java File Implementation

CHAPTER 3

RESULTS AND DISCUSSION

3.1 RESULTS

Final Result includes the successful implementation of the application. Without any errors or any Developmental Bugs or logical errors that may cause the app to crash or react in a wrong manner than expected. To show all of the data of our project in the application successfully in our a proper format is what required. We implemented and run the application and tested it on our smartphone for any errors and it performed in right manner.

3.2 DISCUSSION

CHAPTER 4

CONCLUSION

So finally we have built the application and the working of the application and backend processes . In this chapter we give up some conclusions on the application and how we can extent the application in future.

The application is done by using external libraries like design libraries in which can use collapsing toolbar layout in our android application. Additionally we used the recycler view to represent the data in form of view. We have also used Palette API and google map API to coloring the toolbar and direct the location in our android application.

In this application we have also a special feature, providing the Directions for the place from the current location in Driving,Train or pedestrian.

In this way all the information required by any incoming tourist or visitor from abroad or India will be available on a single platform for the Users to use and it will help them get a better idea and to understand the culture of the city in a perfect manner. When we talk about implementation of this part, it requires mainly the UI part because that is all what matters in the application.Also the Recyclerview is responsible behind the activities and data stored in the application.

REFERENCES