Mini Project Report

On

TripWhiz

TripWhiz

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Submitted To:

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Declaration

We hereby declare that the work which is being presented in the Mini Project" TripWhiz"**,** in partial fulfillment of the requirements for Mini-Project viva voce, is an authentic record of our own work carried under the supervision of Mr. Vaibhav Diwan

Signature of Candidates:

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TripWhiz

Course: COMPUTER SCIENCE AND APPLICATION

Year: THIRD YEAR

Semester: VTH

Acknowledgement

It gives us a great sense of pleasure to present the report of the B. Tech Mini Project undertaken during B.Tech. Third Year.

This project in itself is an acknowledgement to the inspiration, drive and technical assistance contributed to it by many individuals. This project would never have seen the light of the day without the help and guidance that we have received. Our heartiest thanks to Dr. (Prof) Anand Singh Jalal, Head of Dept., Department of CEA for providing us with an encouraging platform to develop this project, which thus helped us in shaping our abilities towards a constructive goal. We owe special debt of gratitude to Mr. Divyansh Bhardwaj, Vaibhav Dewan Technical Trainer, for his constant support and guidance throughout the course of our work. His sincerity, thoroughness and perseverance have been a constant source of inspiration for us. He has showered us with all his extensively experienced ideas and insightful comments at virtually all stages of the project & has also taught us about the latest industry-oriented technologies.

We also do not like to miss the opportunity to acknowledge the contribution of all faculty members of the department for their kind guidance and cooperation during the development of our project. Last but not the least, we acknowledge our Teammate for their contribution in the completion of the project.

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Abstract

As a typical service industry, Travel & Tourism is one of the world's highest priority industries and employers It encompasses transportation, accommodation, catering, recreation and services for visitors both at home and from overseas. Information Communication and Technologies have radically changed the efficiency and effectiveness of tourism organizations, the way that businesses catering to tourists operate, as well as how consumers interact with organizations ([2]). One of the major paradigm-shifts is due to the emergence of the Internet. A survey of US Web users conducted in 2007 by Burst media ([3]) shows that: four out of five (79.0%) respondents would use the Internet to plan their upcoming personal travel.

Generally speaking, most travel websites provide information, destination or travel package recommendation, online flight/hotel/car reservation, and community forums for sharing travel tips. With the help of such travel websites, a new type of user is emerging: they become their own travel agents and build their travel packages Themselves.

Planning a trip and don't know where to start? Want to plan the perfect trip, but don't have time to research destinations, much less figure out all the details? Hoping to enjoy your vacation without worrying about deciding what to do and how to get around? Concerned about maximizing your vacation time? When it comes to planning and taking a vacation, travelers are relying on their smartphones more than ever. But of the resources provide Proper solution this problem of a planning trip at one place. Imagine checking one place for all your travel details and getting a heads up as things happen throughout your trip.

Our project is **TripWhiz** which is an Android mobile application. This is a solution for all the explorers out there want to go for a holiday but don't have time to plan a trip. So that's where this application will help you to plan a proper trip by just giving our app a budget and some preferences rest the application's algorithm will manage and give you a feasible trip. We have implemented it in Kotlin as it is the official language for Android and easy to adapt.

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TripWhiz

INTRODUCTION

ABOUT

Trip Whiz apps is not only not a source of inspiration but also extremely useful for Planning Trip, booking and managing luggage —even making restaurant reservations or Suggestion for best Places to visit We want to create this app to make it convenient the next time someone decides to plan a tour.

Taking the present conditions, we have websites like Trivago which helps you to choose a better stay condition. Similarly, we have other sites also that helps you in the tour. But it all seems like a distributed solution to a single problem. It makes the planning of a tour complicated as you have to search through several websites to get a tour that fits your budget, have all that you want, and in the end, make full use of your time and money.

Presently the available sources find it a bit difficult to gather all that information sitting in one place. So we prefer to make decisions on the site. But with this app, we want to put all those problems under one umbrella and to make it easy to plan a tour. It will design the whole root map of the tour considering the concept of minimum cost and maximum enjoyment.

It will choose hotels, popular sites to visit, local food restaurants to give the feel of the environment, and will try to accommodate all that thing which will give the user full site experience in just one go. It will take the worry of planning a tour and leave the user with just enjoyment.

WHAT WE HAVE BUILT

- Planning a trip and don’t know where to start? Want to plan the perfect trip, but don’t have time to research destinations, much less figure out all the details? Hoping to enjoy your vacation without worrying about deciding what to do and how to get around? Concerned about maximizing your vacation time? When it comes to planning and taking a vacation, travelers are relying on their smartphones more than ever.

- But of the resources provide Proper solution to this problem of a planning trip at one place. Imagine checking one place for all your travel details and getting a heads up as things happen throughout your trip. This project will do exactly that will take all our headache and pain while planning a trip in just a few Beautifully animated pops ups.

- First, we will ask for a budget of the customer then starting point and destiny, no. of members and duration of the trip, with this data we will check if the trip is feasible in the given budget, feasibility will be checked by summing up the lowest travel cost, lowest hotel cost, and food. After that, we will ask for transport preference, hotel preference, food preference, and types of places he wants to visit. According to the given data, we can suggest routes with the preferred transport, good hotels near to preferred places, and restaurants. If the preferences of the customer exceed the budget then we will suggest changing hotel and transport preferences.

WHAT WE WILL LEARN

- As android is the indisputable leader of the global smartphone market share. The Android Operating System (OS) is found on nearly 75% of all smartphones worldwide as of January 2020. We have learnt following technologies in context to implement our idea. The project uses Android Software Development Kit (SDK) and Android Studio.
- Programing Language Kotlin-)

We have learnt Kotlin which now is the Official language for android development so future of android will be Kotlin, we are using Kotlin for programing Logic part for the logic part In android Development we'll be using Programmers use

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- XML to describe data. The basics of the XML syntax will be helpful in your journey to full-fledged Android developer in doing tasks like designing user interface (UI) layouts and parsing data feeds from the internet. Much of what we'll need XML for can be done through Android Studio, but it's constructive to be grounded in the basics of the markup language.
- Knowledge of Git
- Vital Android SDK concepts including Fundamentals of Views, View Groups, and Layouts, User Input, Ways to get data from the web, Adapting App or activity.
- Knowledge of Database SQL/NOSQL Almost every Android app needs to store data in some form, whether that's the data of the app itself or user data. Correspondingly, your app should be integrated with a database so that you are able to manage the data
- Firebase Realtime Database
- JSON Parsing
- APIS- We are Also using Some APIs for making Our more efficient and Reliable to use APIs like Move, Rapid, Zomato, we have also Used Python Collecting Railways Data. All Backed by Our Recommendation Engine which we build using Kotlin for Final Output.

WHAT WE WILL NEED

Software: For this project we just need Android Studio for our app implementation, balsamiq For Wireframing Our Application Adobe photoshop for designing our logo and app's introductory page, Google firebase for Database, Git hub as our VCS (version control system).

Required Development Hardware:

We just need a laptop/pc/mac with i5 processor, 8GB of RAM 12GB recommended minimum 50GB of storage.

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Development Hardware that We have used is listed Below:

- I5 7th /9th GEN HQ KABI-LAKE / Coffee Lake Refresh family
- RAM – 8/12GB
- 1/2TB HARDRIVE + 128GB/256GB SSD

Devices On which Testing had been Done are listed Below: -

- Realme X2 PRO SDK Version 29
- VIVO Z1 SDK Version 27
- VIV0 Y53 SKD Version 23

Required Target Hardware:

(MIN) An Android Phone with Min 2GB RAM 8GB Storage and

Minimum SDK version 16 that is Jelly bean 4.1 or above.

Architecture Decision Record

An Architectural Decision (AD) is a software design choice that addresses a functional or non-functional requirement that is architecturally significant. An Architecturally Significant Requirement (ASR) is a requirement that has a measurable effect on a software system's architecture and quality. An Architectural Decision Record (ADR) captures a single AD, such as often done when writing personal notes or meeting minutes; the collection of ADRs created and maintained in a project constitute its decision log. All these are within the topic of Architectural Knowledge Management (AKM).

The architecture decision record (ADR) is a small document that describes just that. Each decision is held in a separate small ADR file with a description of an issue, the circumstances, the alternatives, the takeaways, and a final decision. It can be held in a separate document inside a code repository and go through a regular code review process. We'll be able to clearly see what the key challenges were and how our architecture evolved over time. Such an approach is great for knowledge sharing and transparency.

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We have Made ADR with all major 5 UMS to properly understand Each aspects of our project, and also to get basic idea about Our data will be flow or what are the entities which will be required or play Important part in this project before the coding phase.

WE have also used UML short for Unified Modeling Language, is a standardized modeling language consisting of an integrated set of diagrams, developed to help system and software developers for specifying, visualizing, constructing, and documenting the artifacts of software systems, as well as for business modeling and other non-software systems.

The primary goals in the design of the UML summarize by Page-Jones in Fundamental Object-Oriented Design in UML as follows:

1) Provide users with a ready-to-use, expressive visual modeling language so they can develop and exchange meaningful models.
2) Provide extensibility and specialization mechanisms to extend the core concepts.
3) Be independent of particular programming languages and development processes.
4) Provide a formal basis for understanding the modeling language.
5) Encourage the growth of the OO tools market.
6) Support higher-level development concepts such as collaborations, frameworks, patterns and components.

SOFTWARE DESIGN

The following UMLs We have made during initial phase of this project.

1) Use Case Diagram
2) Class Diagram
3) Activity Diagram
4) E-R Diagram
5) Data Flow Diagram

(i) CLASS DIAGRAM

A class diagram in the Unified Modeling Language (UML) is a type of static structure diagram that describes the structure of a system by showing the system's classes, their attributes, operations (or methods), and the relationships among objects.

Context

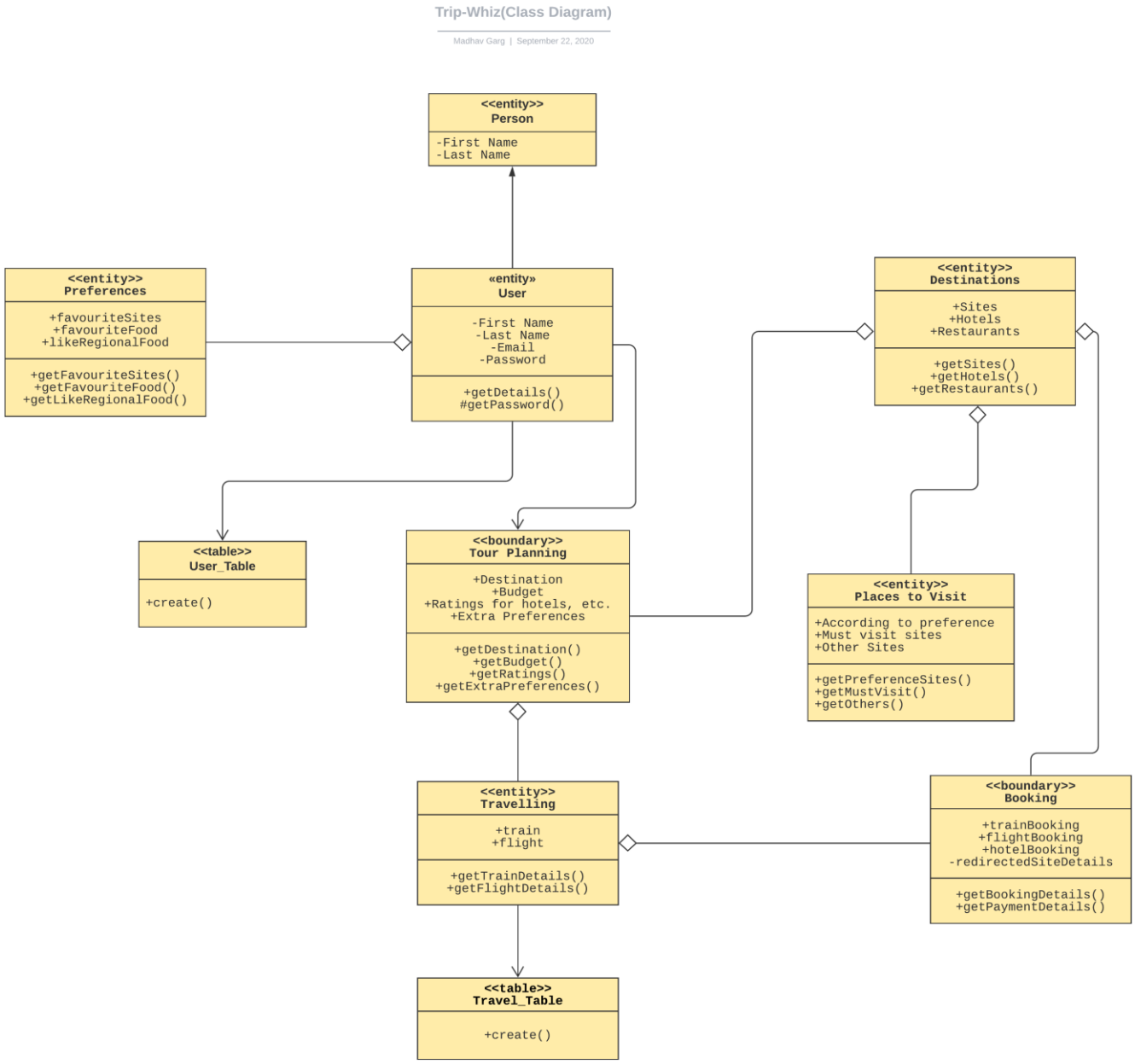
- Class Diagram is an illustration of relationship and dependencies among classes
- Class Diagram is a type of structure diagram that describes the structure of the system by showing system classes and relationship among objects

Decision

- Class diagrams encourage reusability, especially through the inheritance relationship, which in turn improves system quality and efficiency
- Multiplicities shown in class diagrams provide valuable information on database modeling

Consequences

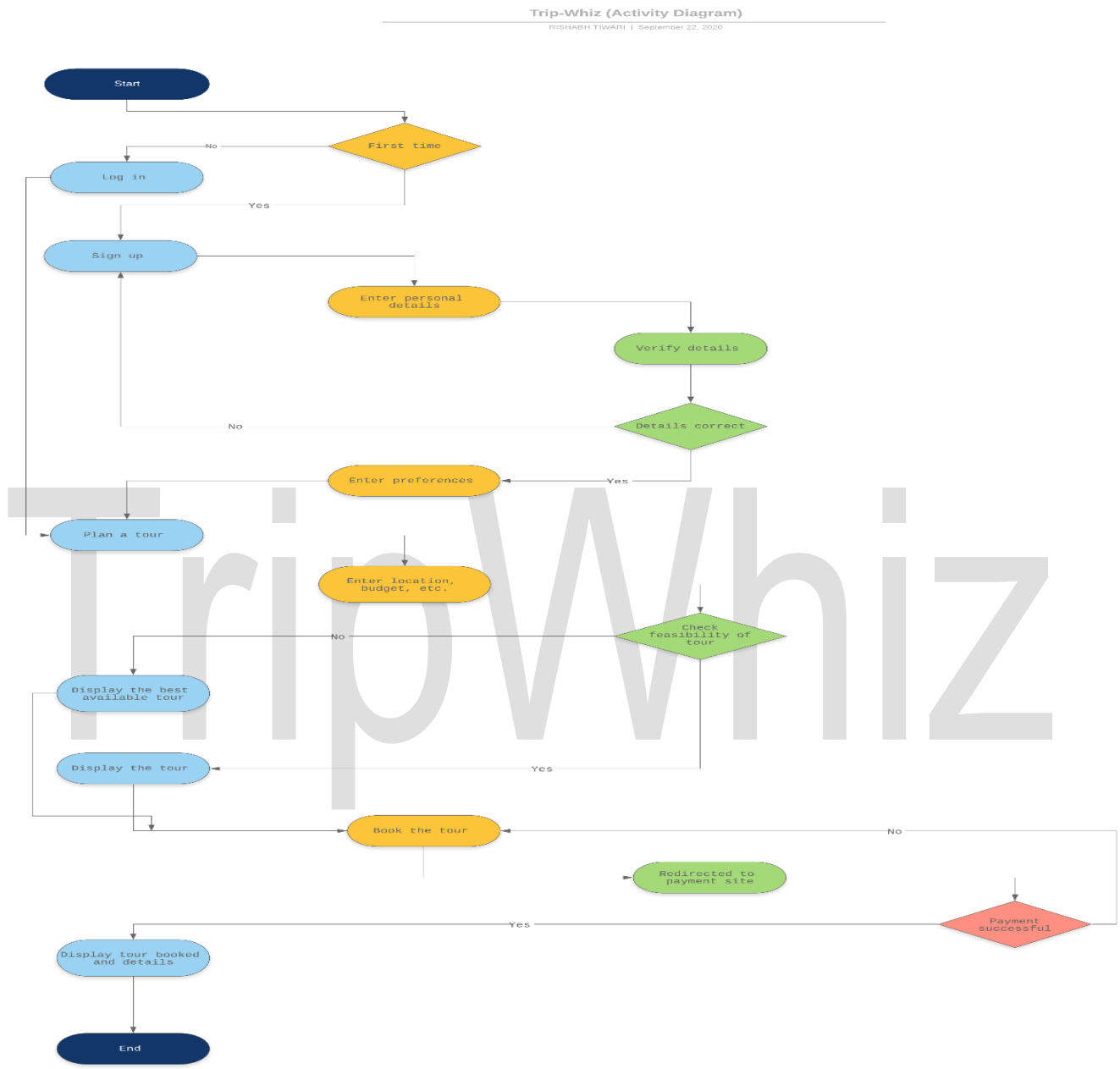
- Classes can be mapped to tables in a relational database for implementation by using the class's attributes as the fields in the table
- The operations or methods in a class directly relate to the messages shown on sequence diagrams



(ii) ACTIVITY DIAGRAM

Activity diagrams are graphical representations of workflows of stepwise activities and actions[1] with support for choice, iteration and concurrency. In the Unified Modeling Language, activity diagrams are intended to model both computational and organizational processes (i.e., workflows), as well as the data flows intersecting with the related activities. Although activity diagrams primarily show the overall flow of control, they can

also include elements showing the flow of data between activities through one or more data stores.



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Context:

- To elaborate on the process flow of the model between the user and the system.
- Describe the steps performed in a UML use case.

Decision:

- It shows the judgment points and alternate flows.
- Additional changes allow the diagram to better support continuous behaviors and continuous data flows.

Consequences:

- It makes building the model easier concerning the process flow of the model.
- It will help in building the class diagram as it is communicating with different classes of the model.
- it does not show the crucial information flow.

(iii) USE CASE DIAGRAM

- A use case diagram at its simplest is a representation of a user's interaction with the system that shows the relationship between the user and the different use cases in which the user is involved. A use case diagram can identify the different types of users of a system and the different use cases and will often be accompanied by other types of diagrams as well. The use cases are represented by either circles or ellipses.

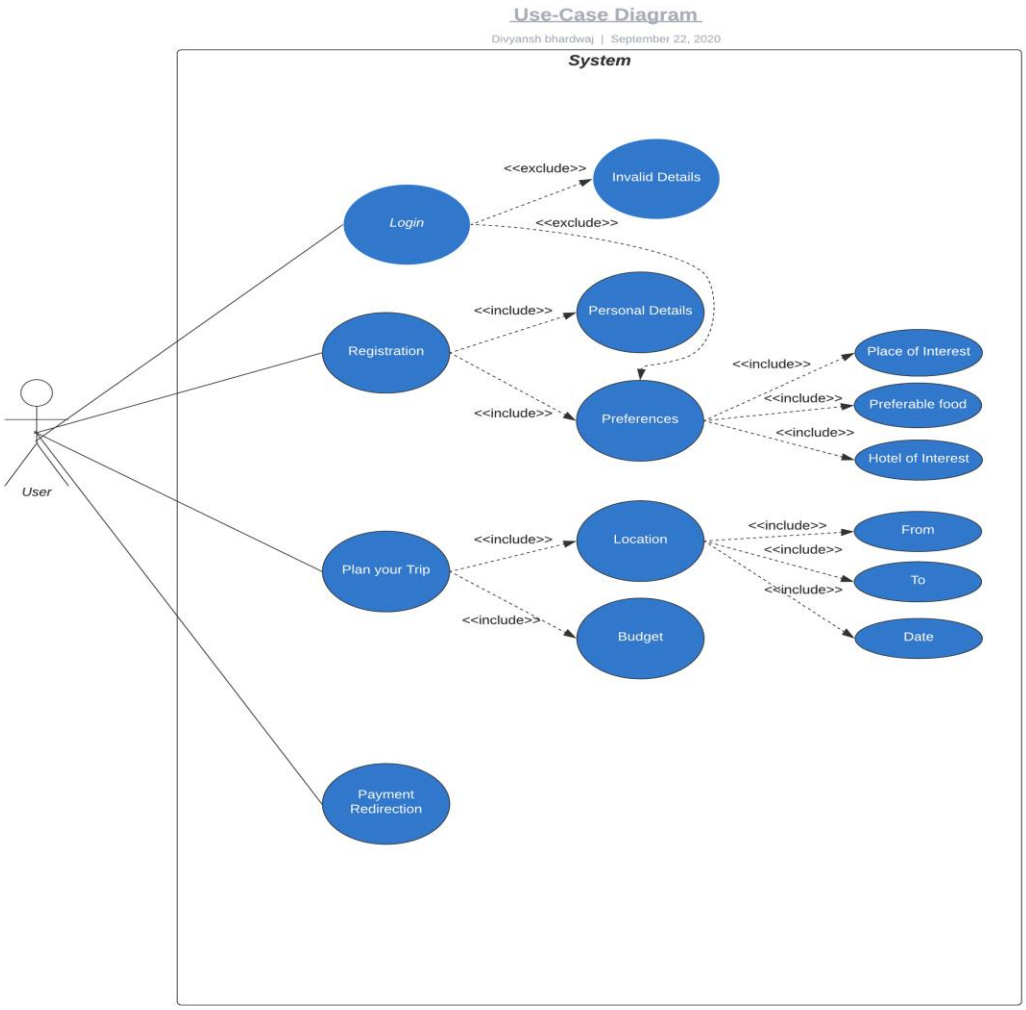
CONTEXT:

- Use Case Diagram gathers the requirements of a system and also used to get an outside view of a system.
- It Identifies the external and internal factors influencing the system and also shows the interaction among the requirements. Decision:

Consequences:

- Use Case can evolve at each iteration from a method of capturing requirements, to development guidelines to programmers, to a test case and finally into user documentation.
- Use cases have proved to be easily understandable by business users, and so have proven an excellent bridge between software developers and end users
- A Use Case diagram shows a single activity, but doesn’t show an entire process flow or any information flow.

- Use cases have proved to be easily understandable by business users, and so have proven an excellent bridge between software developers and end users



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ER DIAGRAM

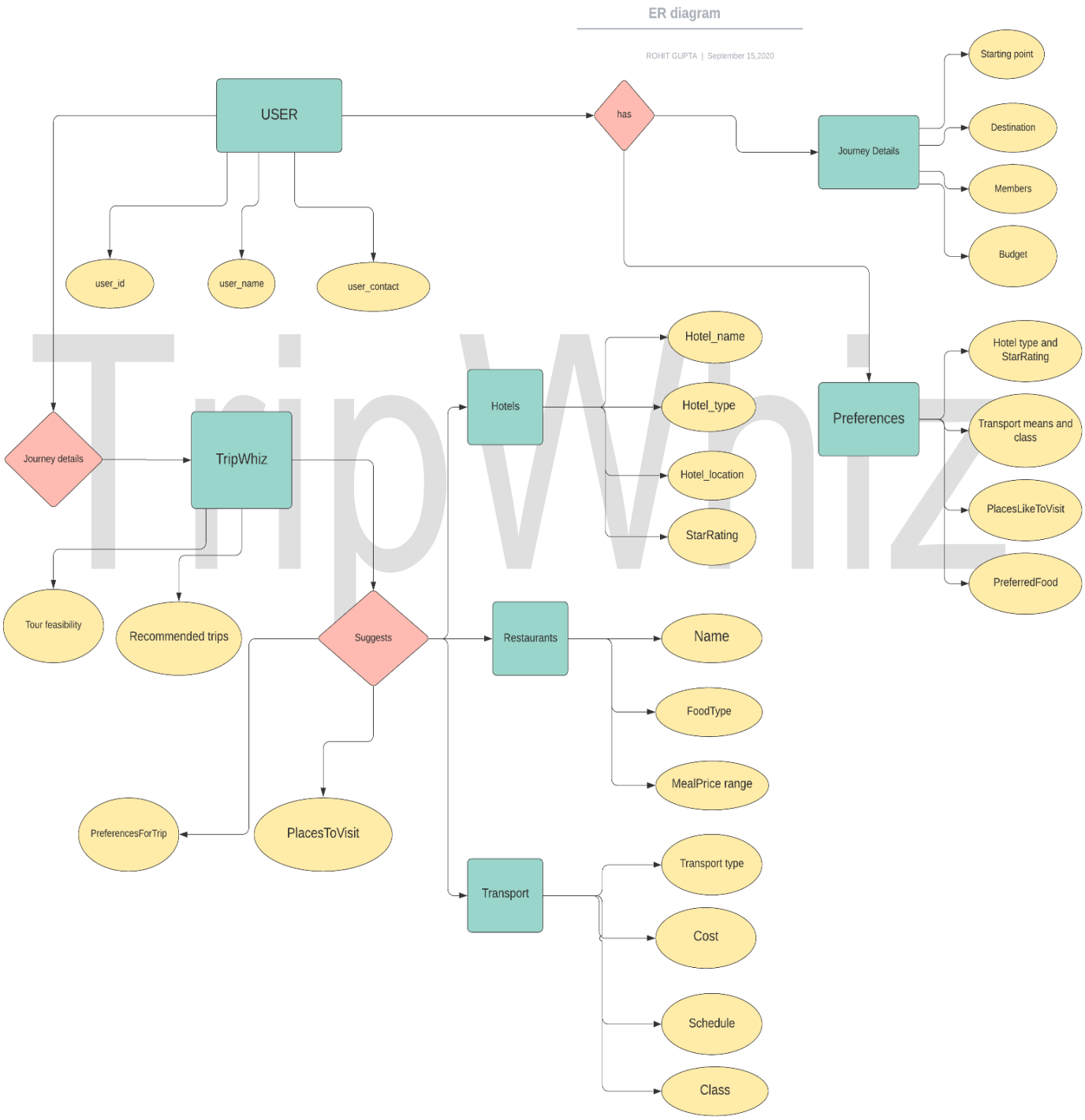
Context

- ER diagram shows the relationship of object sets, here our main objects are user and Application.
- This diagram shows which data items our objects are connected to.

Decision:

*We can create different modules with the help of ER diagram *Basic elements that are required to create the application can be created with the reference of ER diagram

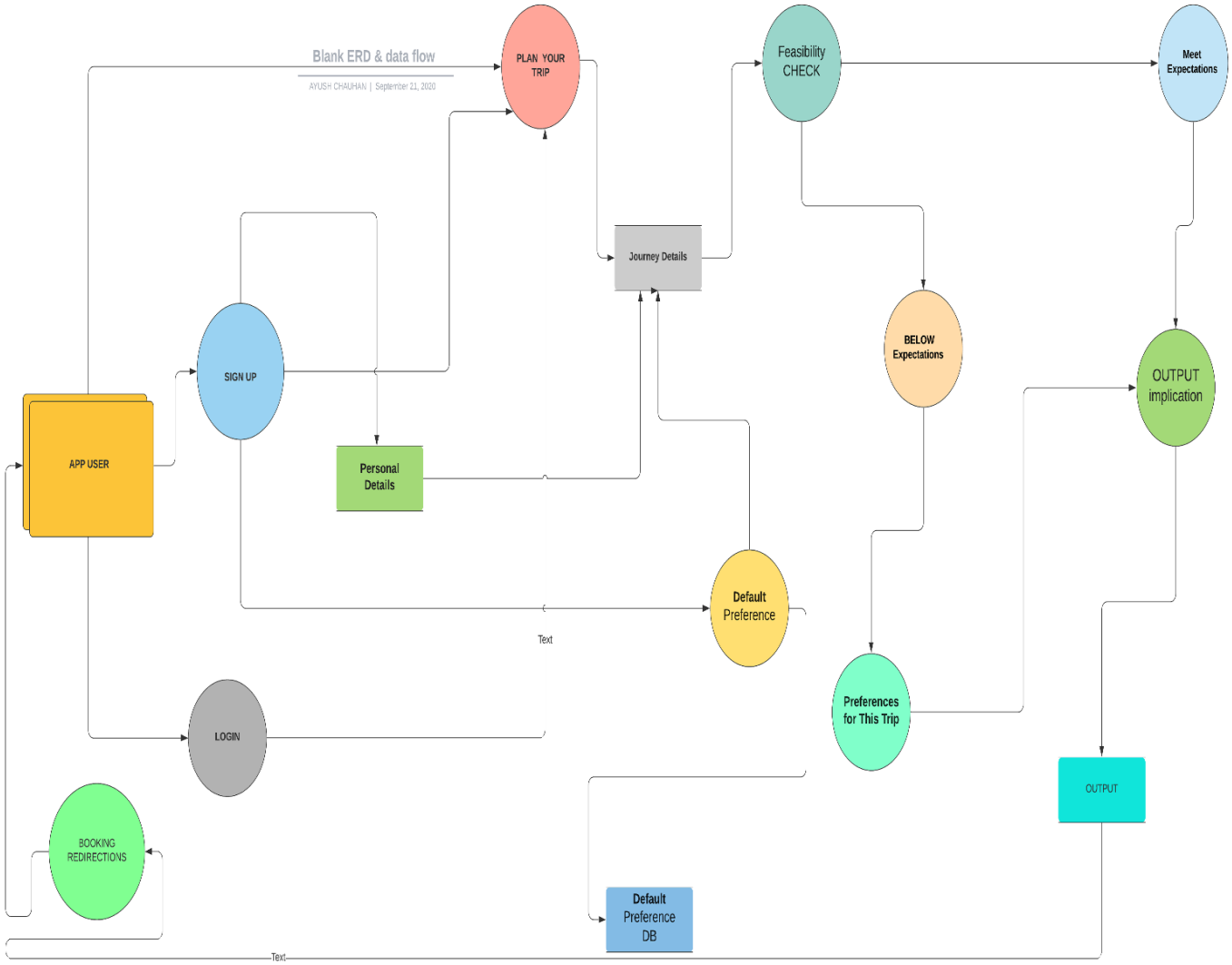
(iv) ENTITY RELATIONSHIP DIAGRAM



- An entity–relationship model (or ER model) describes interrelated things of interest in a specific domain of knowledge. A basic ER model is composed of entity types (which classify the things of interest) and specifies relationships that can exist between entities (instances of those entity types).

(v) DATA FLOW DIAGRAM

A data-flow diagram is a way of representing a flow of data through a process or a system (usually an information system). The DFD also



provides information about the outputs and inputs of each entity and the process itself. A data-flow diagram has no control flow, there are no decision rules and no loops. Specific operations based on the data can be represented by a flowchart.

WIREFRAME:

Wireframing is a crucial part of the product design process, Not dissimilar to an architectural blueprint, a wireframe is a two-dimensional skeletal outline of a webpage or app. Wireframes provide a clear overview of the page structure, layout, information architecture, user flow, functionality, and intended behaviors. As a wireframe usually represents the initial product concept, styling, color, and graphics are kept to a minimum. Wireframes can be drawn by hand or created digitally, depending on how much detail is required.

We started doing after completing ADR which gave us Idea what entity to be used in Wireframe, still we are Exploring the data so the wireframing process tends to take place during the exploratory phase of the product life cycle. During this phase, the designers are testing the scope of the product, collaborating on ideas, and identifying business requirements. A wireframe is usually the initial iteration of a webpage, used as a jumping-off point for the product's design. Armed with the valuable insights gathered from the user feedback, designers can build on the next, more detailed iteration of the product's design—such as the prototype or mockup.

The best part about wireframes? They're incredibly cheap and easy to create. In fact, if you have a pen and paper to hand, you can quickly sketch out a wireframe without spending a penny. The abundance of tools available means you can also build a digital wireframe within minutes (we'll talk more about that a little later on!).

Often, when a product seems too polished, the user is less likely to be honest about their first impressions. But by exposing the very core of the page layout, flaws and pain points can easily be identified and rectified. Without any

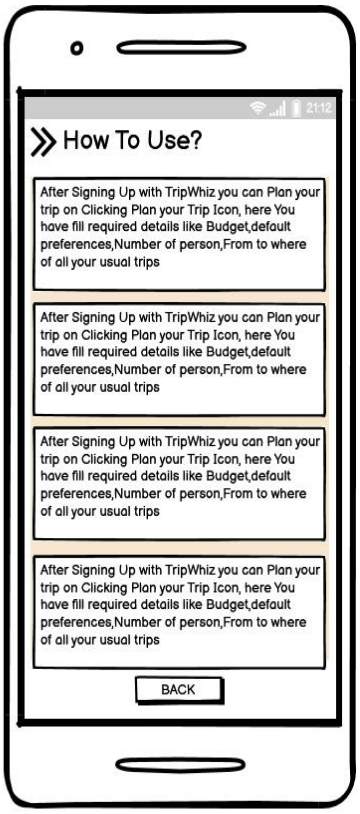
significant expenditure of time or money. The later it gets in the product design process, the harder it is to make changes!

Initial Wireframe Design for Some Activity:

Below are some of initial Mockups are shown of our Application

Trip To Santorini
TIPS FOR TOUR
ABOUT
Hit Happy Hour – Drinks get very expensive on Santorini.
Book ferries early – If you book the ferries around two months in advance, you can save up to 25% off the cost of your ticket. (Score!)
FOOD
Hotel
Places Must Visit

TRIP WHIZ
Aaja baby aaja tughe shair kardu!
search
Plan Your Trip
Settings
Edit PII
Prefrences
Default
Change
View
Pref for This Trip
Cancel
PreviousTour
FeedBack
BEST POPULAR PLANNED
Santorini Guide
Lucknow Guide


How To Use?
After Signing Up with TripWhiz you can Plan your trip on Clicking Plan your Trip Icon, here You have fill required details like Budget,default preferences,Number of person,From to where of all your usual trips
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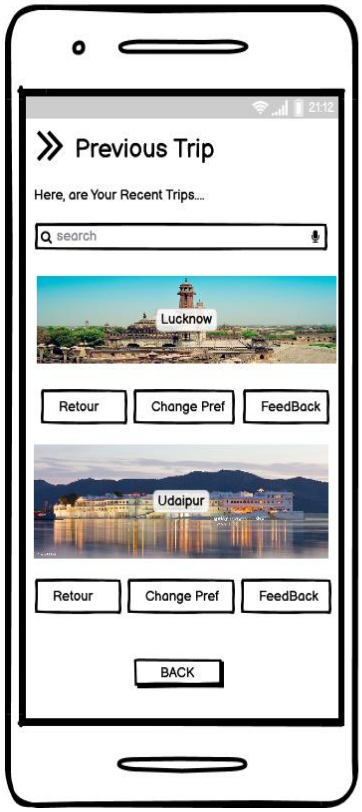
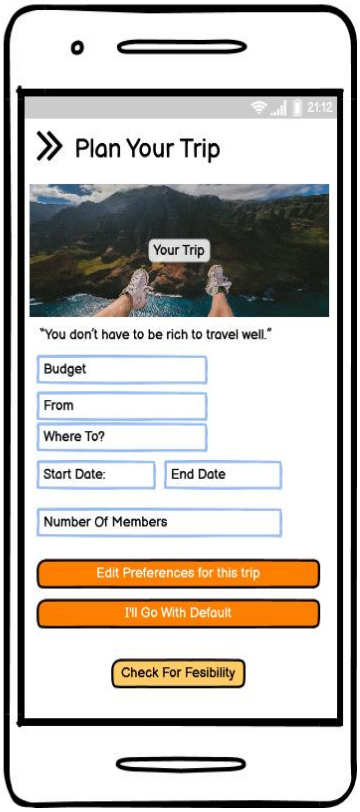
BACK


Previous Trip
Here, are Your Recent Trips....
search
Lucknow
Retour
Change Pref
FeedBack
Udaipur
Retour
Change Pref
FeedBack
BACK

FeedBack
Did You liked Our Recommendations?
YES
NOPE
What we could have done better ?
Transportation
HOTEL
Places To Visit
FOOD
Explain Your Problems?
Enter Your Problems
Button


Plan Your Trip
Your Trip
"You don't have to be rich to travel well."
Budget
From
Where To?
Start Date:
End Date
Number Of Members
Edit Preferences for this trip
I'll Go With Default
Check For Fesibility

PROBLEM DEFINITION

The computer has brought revolution in every sphere of human life, whether it is business, education field, Travel, governance, medical science, entertainment etc. The computer has reduced the human work load, businesses are going global and everything is available at the click of mouse. These are very busy times; people are working 24*7 and have little to no time to spare or waste.

Internet access and some travel smarts are all you need to get the best available deals on hotel bookings. So, give your trusted offline travel agent a break, and discover the multiple perks (and tremendous savings) that come with DIY online bookings. Here are five reasons why it makes more sense to make your hotel bookings online using Travel Agents - TripWhiz

Planning a trip and don't know where to start? Want to plan the perfect trip, but don't have time to research destinations, much less figure out all the details? Hoping to enjoy your vacation without worrying about deciding what to do and how to get around? Concerned about maximizing your vacation time? When it comes to planning and taking a vacation, travelers are relying on their smartphones more than ever.

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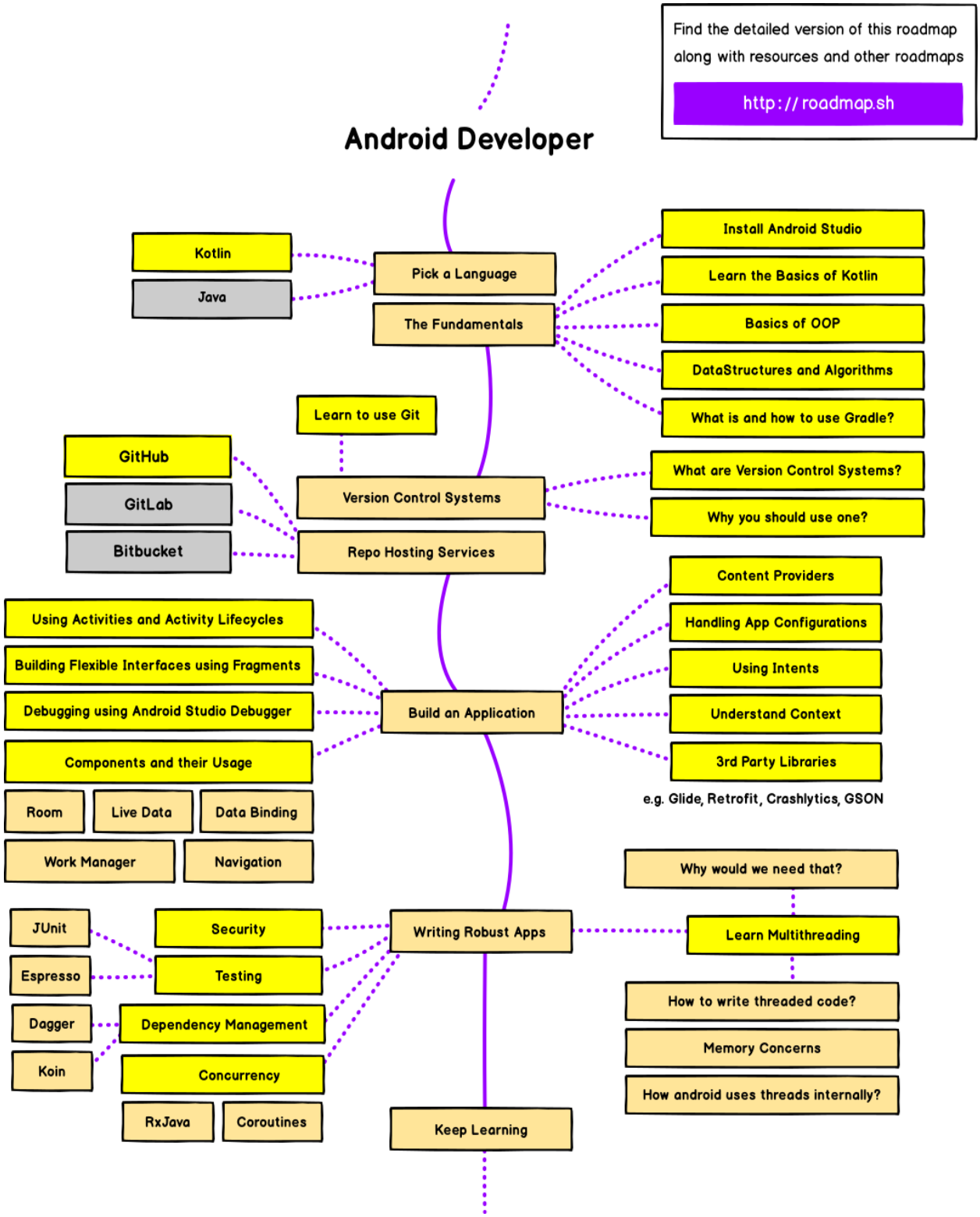
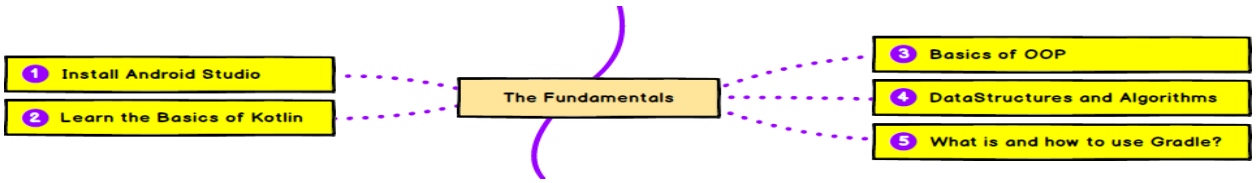
INTRODUCTION TO TECHNOLOGY & THEIR IMPLEMENTATION IN PROJECT

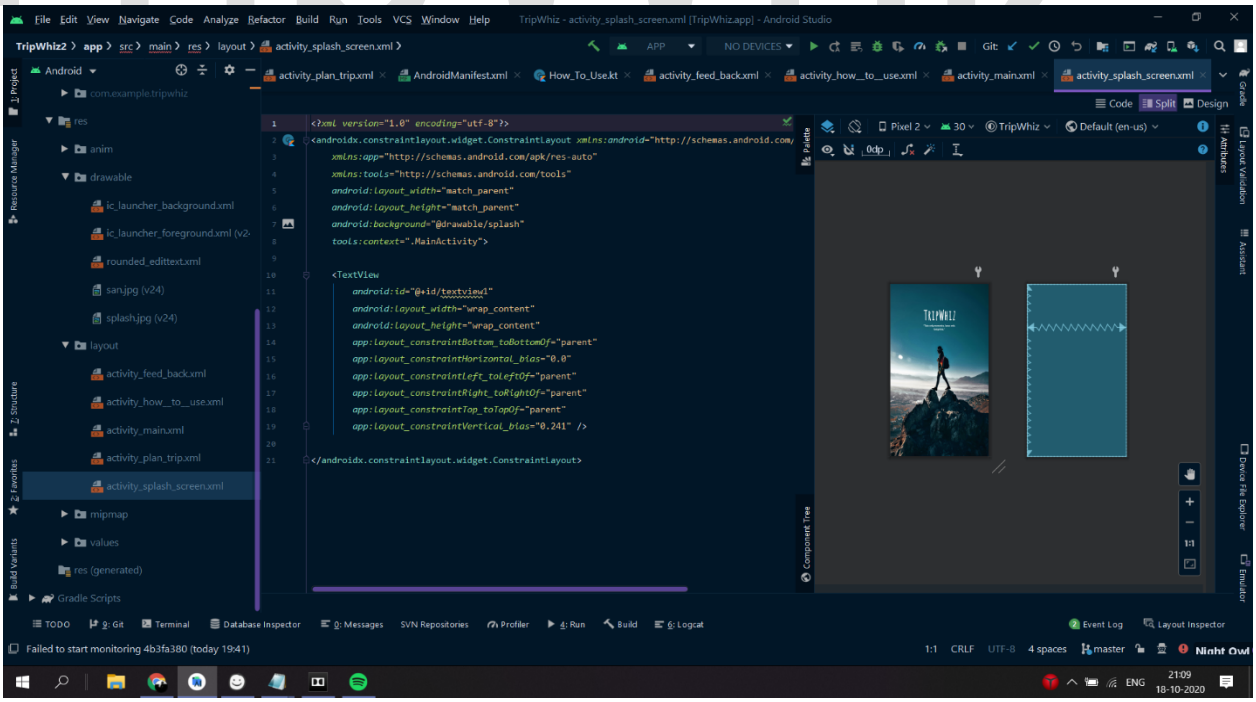


Android Development Environment for Frontend & Backend

- **Android Studio** provides the fastest tools for building apps on every type of Android device. Android Studio is the official Integrated Development Environment (IDE) for Android app development, based on IntelliJ IDEA . On top of IntelliJ's powerful code editor and developer tools, Android Studio offers even more features that enhance your productivity when building Android apps, such as:



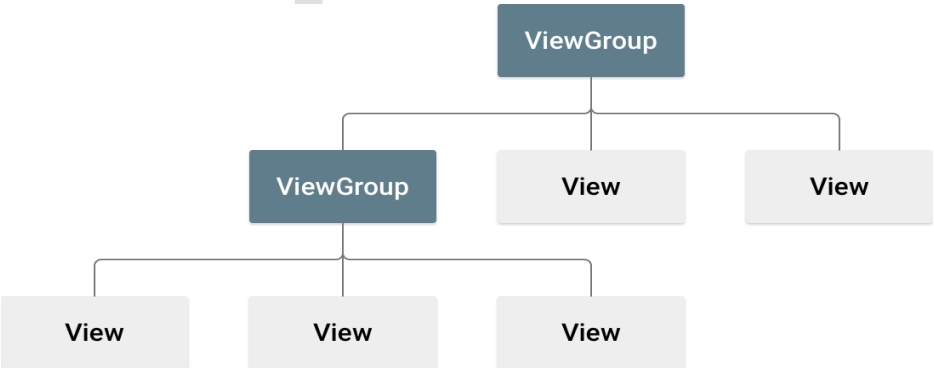
-
  - A flexible Gradle-based build system, A fast and feature-rich emulator
  - A unified environment where you can develop for all Android devices
  - Apply Changes to push code and resource changes to your running app without restarting your app
  - Code templates and GitHub integration to help you build common app features and import sample code. * Extensive testing tools and frameworks
  - Lint tools to catch performance, usability, version compatibility, and other problems
  - Built-in support for Google Cloud Platform, making it easy to integrate Google Cloud Messaging and App Engine



- **XML** stands for Extensible Markup Language, which gives us a clue to what it does. A markup language is slightly different from a programming language. Whereas a programming language (C#, C++, Java, Kotlin, Python, BASIC) will allow you to define behaviors, interactions, and conditions; a markup language is used more to describe data, and in this case, layouts. Programming languages create dynamic interactions, whereas markup languages generally handle things like static user interfaces.
- XML In Android there are several xml files used for several different purposes Which are important for creating Android Front-end Structure and Styling, some of the important Components are written below: -

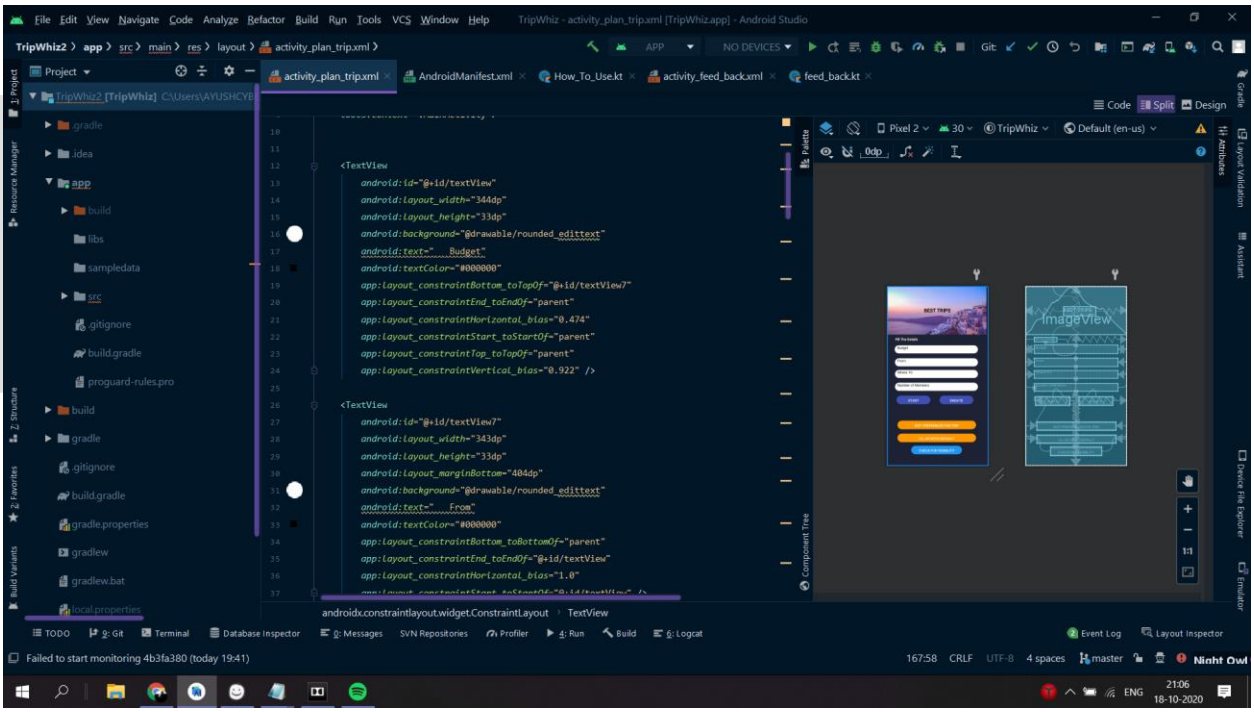
  1**.** **Layout XML** Files: Layout xml files are used to define the actual UI(User interface) of our application. It holds all the elements(views) or the tools that we want to use in our application. Like the Text View's, Button's, and other UI elements.

- **2. Manifest xml File (Mainfest.xml):** This xml is used to define all the components of our application. It includes the names of our application packages, our Activities, receivers, services and the permissions that our application needs. For Example – Suppose we need to use internet in our app then we need to define Internet permission in this file.



- **3. Strings xml File(strings.xml):** This xml file is used to replace the Hard-coded strings with a single string. We define all the strings in this xml file and then access them in our app (Activity or in Layout XML files) from this file. This file enhances the reusability of the code.
- **4. Styles xml File(styles.xml):** This xml is used to define different styles and looks for the UI(User Interface) of application. We define our custom themes and styles in this file.

- **5. Drawable xml Files:** These are those xml files that are used to provide various graphics to the elements or views of application. When we need to create a custom UI we use drawable xml files. Suppose if we need to define a gradient color in the background of Button or any custom shape for a view then we create a Drawable xml file and set it in the background of View.
- **6. Color xml File (colors.xml):** This file is used to define the color codes that we used in our app. We simply define the color's in this file and used them in our app from this file
- **7. Dimension xml File(dimens.xml):** This xml file is used to define the dimensions of the View's. Suppose we need a Button with 50dp (density pixel) height then we define the value 50dp in dimens.xml file and then use it in our app from this file.
- **Screenshot from Our project showing XML use**



Advantages of XML include the following:

- XML uses human, not computer, language. XML is readable and understandable, even by novices, and no more difficult to code than HTML.
- XML is completely compatible with Java™ and 100% portable. Any application that can process XML can use your information, regardless of platform.
- XML is extendable. Create your own tags, or use tags created by others, that use the natural language of your domain, that have the attributes you need, and that makes sense to you and your users.

Android provides the following standard layouts (view groups) that can be used in you Android application.

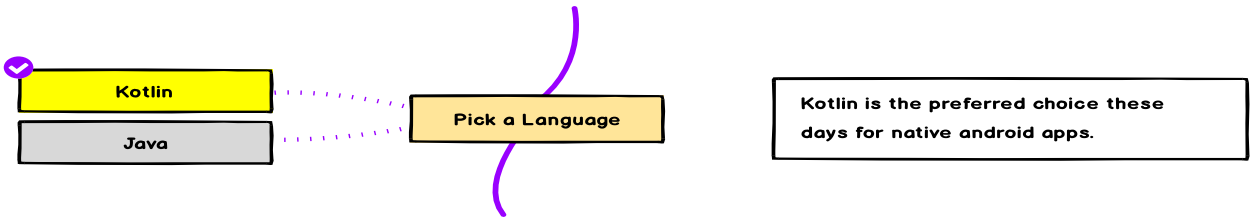
- Absolute Layout
- Constraint Layout
- Recycler View
- Frame Layout
- Linear Layout
- Relative Layout
- Table Layout
- Card View Layout

We had used Almost all These Types of View according to Our need in application. For showing Information, or creating user interface more easy, convenient and reliable to use.
All the Important Activities and there use in Application is Described Below :-

- BACKEND: **KOTLIN**

Kotlin is a cross-platform, statically typed, general-purpose programming language with type inference. Kotlin is designed to interoperate fully with Java, and the JVM version of Kotlin's standard library depends on the Java Class Library, but type inference allows its syntax to be more concise

Although, you can use both **Kotlin** and **Java** to develop native android apps, **Google announced in 2019** to make Kotlin the preferred way of developing android applications. If you were to start learning android development today, Kotlin is our language of choice.

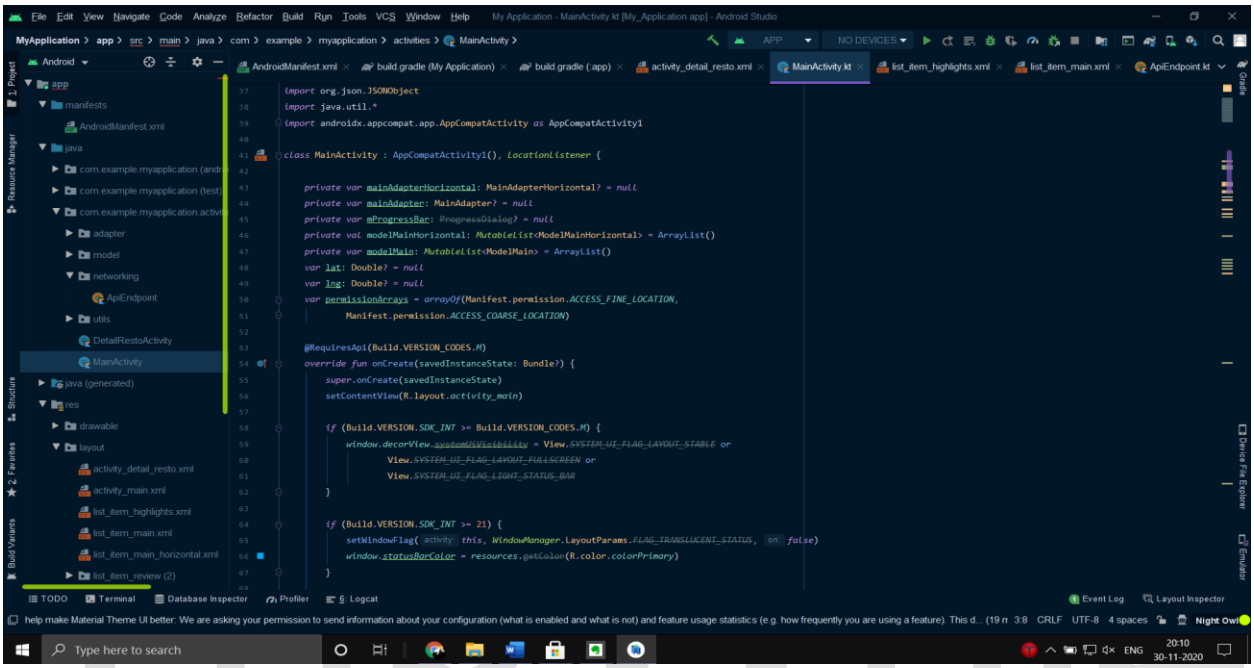


ADVANTAGES OF KOTLIN OVER JAVA

- It leverages precisely the language design expertise built up over these last 20 years since Java's been around.
- It's been packed with all the much-needed modern features that Java mobile developers have been longing for: *programming language features* that have already proven their efficiency with large-scale projects
- It's Completely Interoperable with Java
- It's (way) More Concise Than Java

- It Has Null in Its Type System
- Better Support for Functional Programming It's Easier to Maintain

Most of the logic in this project is Being written in Kotlin, XML provide basic structure and styling but Logic implementation is done in Kotlin for example we can define Structure, styling for a button in XML, but to make button work we have written code in KOTLIN to Make it work.

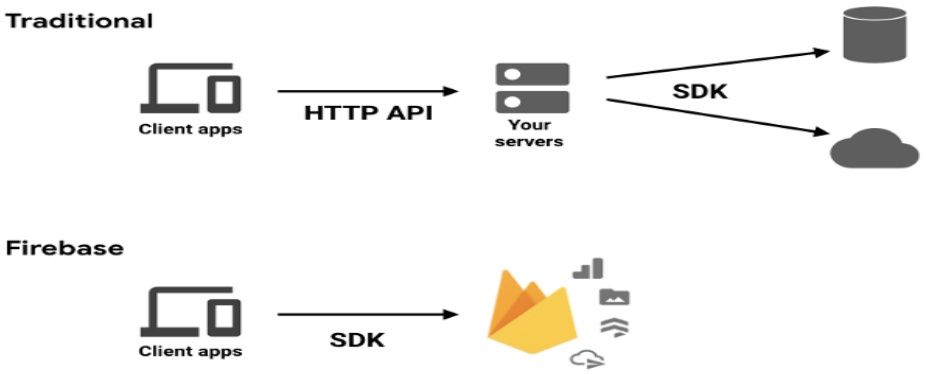


- # FIREBASE

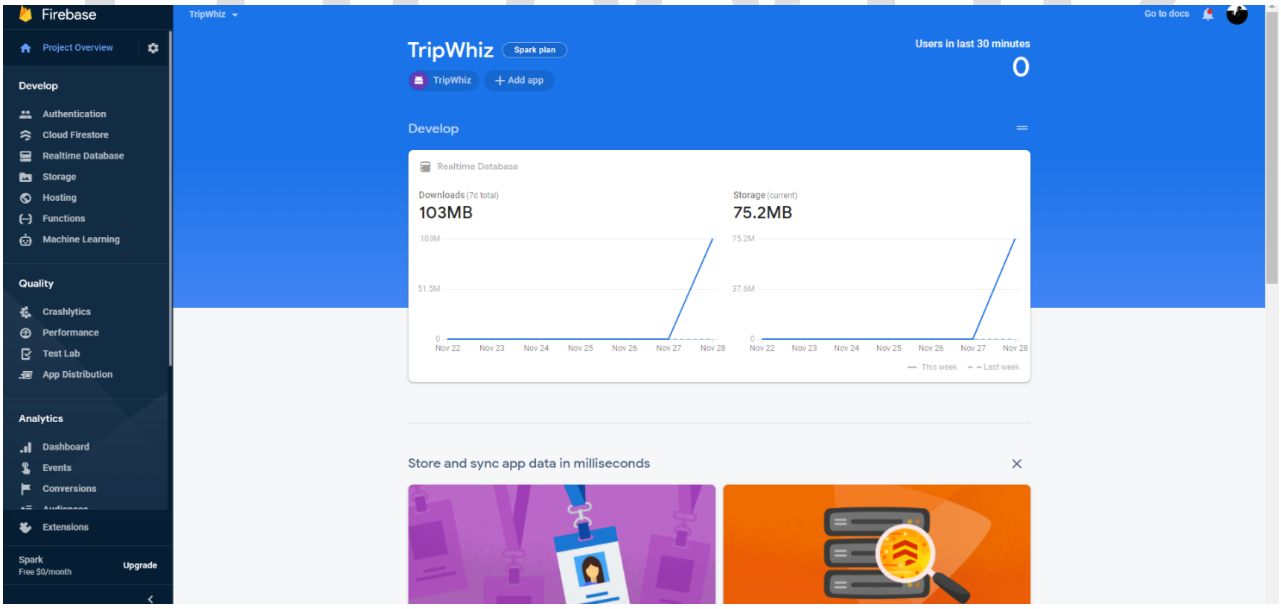
  In I/O 2016 google released new and upgraded tool called Firebase. As a mobile developer when you are building large scale applications you need back-end support as well as a special developer who can work with server level stuffs.

Firebase is a toolset to “build, improve, and grow your app”, and the tools it gives you cover a large portion of the services that developers would normally have to build themselves, but don’t really want to build, because they’d rather be focusing on the app experience itself. This includes things like analytics, authentication, databases, configuration, file storage, push messaging, and the list goes on. The services are hosted in the cloud, and scale with little to no effort on the part of the developer.

Firebase provides all those kinds of functionality which are needed from server side, in addition to Realtime Database, Storage and Hosting, it also provides Authentications,



Analytics, Notifications, Crash Reporting and much more



USE OF FIREBASE

we will take a detailed look at almost all features provided by Firebase.

- FIREBASE ANALYTICS:

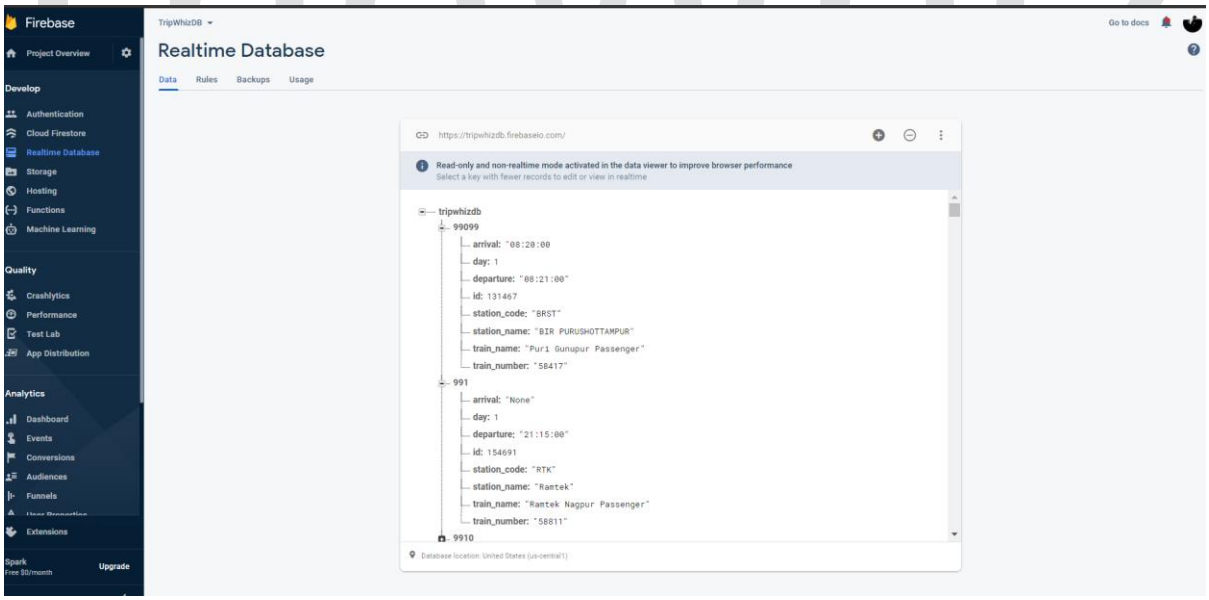
Firebase Analytics help you to analyses how your user is using the application. It is totally free and provides up to 500 distinct events.

Firebase Analytics help you to understand your app users need, what they want, how they are doing with the app, what are the things they are engaging most in the app.

- **REALTIME DATABASE:**

Firebase provides NoSQL Realtime cloud database. Firebase Realtime Database stores data in JSON format and is synchronized with all the connected clients. When you integrate Realtime Database Android, iOS or JavaScript SDK, one Realtime database instance will be shared with all the users. Every client will receive an update when there is any change in data.

The Realtime Database is a NoSQL database and as such has different optimizations and functionality compared to a relational database. The Realtime Database API is designed to only allow operations that can be executed quickly. This enables you to build a great Realtime experience that can serve millions of users without compromising on responsiveness. Because of this, it is important to think about how users need to access your data and then structure it accordingly.



- AUTHENTICATION
- Using Firebase Authentication user will be authenticated via multiple ways, it can be email, Facebook, Twitter, Google or GitHub.

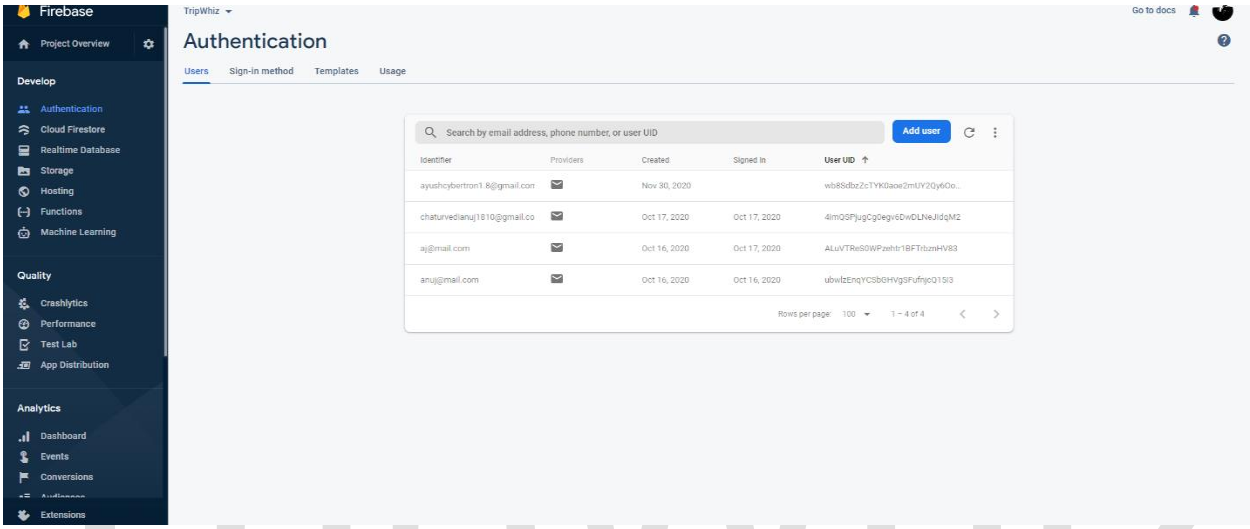
Firebase Authentication allows you to create new user and store user's credentials to Firebase Database.

With the Firebase Authentication support now you do not need to integrate that heavy server configuration or APIs to be deal with login and signup process.

Our Firebase Project Authentication System

Firebase Authentication integrates tightly with other Firebase services, and it leverages industry standards like OAuth 2.0 and OpenID Connect, so it can be easily integrated with your custom backend.

Project's Authentication



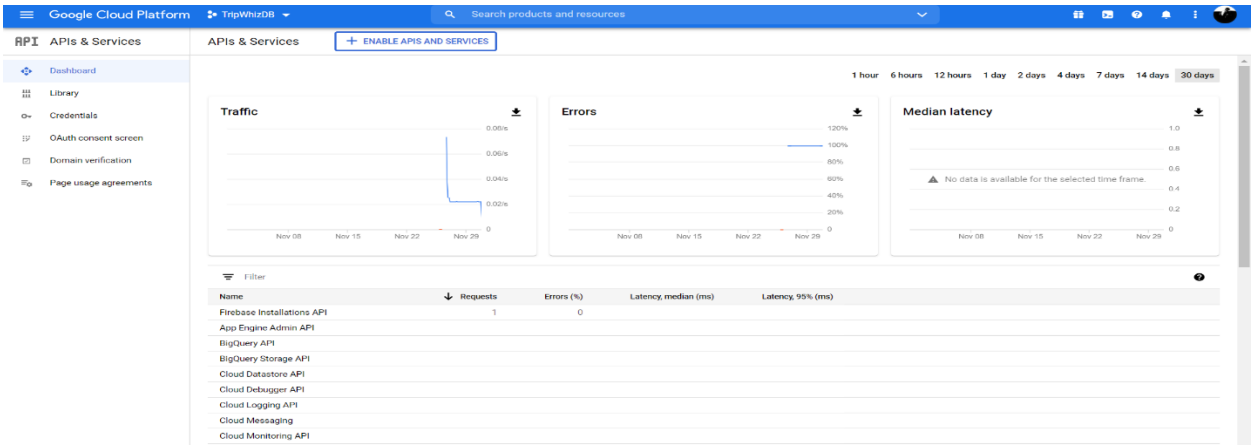
You can even send a confirmation email after registration and it also provide forgot password functionality in case of user forgets their credentials.

1. Connect your app to **Firebase**.
2. Add **Firebase Authentication** to your app.
3. Check current **auth** state.
4. Sign up new users.
5. Sign in existing users.
6. Access user information.

CRASH REPORT:

Crash Reporting is very important and helpful tool for any developer. With Firebase Crash Reporting you will get whole crash report in firebase developer console. Report consist of OS details with error detail and other factors.

You can also generate your custom Crash Report with Firebase. It will help you to rectify the actual error in your project.



CLOUD MESSAGING:

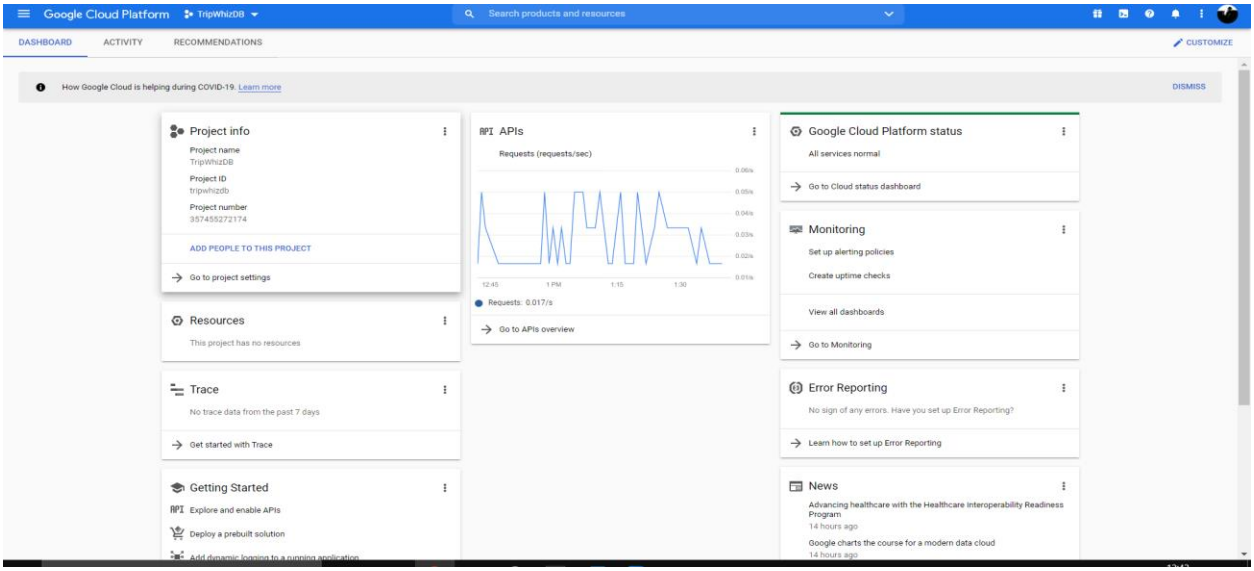
With Firebase Cloud Messaging (FCM) you will be able to engage with users in periodic time. Generate periodic notifications that reminds user about your application.

You can even use Cloud Messaging to let your user knows about promotional or seasonal offers available in your application. FCM allows you to transfer payload of up to 4KB to client application.

FCM also allows you to send acknowledgement or chat message back to your server over FCM's reliable and battery-efficient connection channel.

REMOTE CONFIG:

Remote config is the best feature from developer point of view, it allows you to perform some dynamic operation without updating the build. End user will get the



TripWhiz

Remote config is the best feature from developer point of view, it allows you to perform some dynamic operation without updating the build. End user will get the latest changes without updating application to new version.

You can use Remote Config to design your app based on user, version name, locality etc. criteria. Remote config can be used to show some promotional banners while your app runs or show some extra ordinary UI to some special users.

APP INDEXING:

App Indexing allows you to re-engage with your users. If google finds any searching term related to your app and if app is installed, user will directly be redirected to the app by clicking on the link.

App Indexing helps your user to search content in most easy way via google.

ADVANTAGE OF FIREBASE

TripWhiz

Database options

Firestore and Realtime are database options one can choose to build their product. They both are cloud-hosted, NoSQL databases that are flexible and scalable in terms of size. Realtime database provides developers with offline access and Realtime updates that enable them to work on responsive apps without internet connectivity.

Free for beginners

The platform doesn’t charge for most of its services and requires choosing a pricing plan only after reaching a certain amount of database memory. It’s great for beginners who want to validate if the platform is good enough for their product and don’t want to pay for all the services upfront. For those who want to estimate the total price they need to pay for the customized plan, there is a price calculator that ease the process.

Community

Firebase has well-prepared technical documentation that eases the work with offered services and makes them more accessible for users. You can find all the necessary information about integrations, availability and supported technologies.

What's more, there are about 1,5M apps around the world based on Firebase. It means that the community around the product and the number of resources will only benefit developers trying to find an answer to any problem.

Ease of integration

Finally, the ease of integration and quick setup. The pre-made APIs that the platform offers enable you to add new functionalities within just a few clicks. Firebase requires little to no technical knowledge to start working on your product. The simple UI makes it possible to implement functionalities like authentication to your app without major problems. Working with Firebase there is no need for complex configurations, so nearly anyone can set up the app – web or mobile.

Summing up the pros and cons of Firebase, it's a good choice if you plan to build a new product from scratch or rewrite an existing one. The platform helps in storing and improving the dynamic content. Also, accelerates the development process, enabling getting faster results – so it's a perfect one for building an MVP!

TripWhiz

JSON PARSING

JSON stands for JavaScript Object Notation. It is structured, light weight, human readable and easy to parse. It's a best alternative to XML when our android app needs to interchange data from server. XML parsing is very complex as compare to JSON parsing.

JSON is shorter, quicker and easier way to interchange data from server. JSON is great success and most of the API available support JSON format.

Android Provide us four different classes to manipulate JSON data. These classes are JSONObject, JSONArray, JSONStringer and JSONTokenizer.

For parsing a JSON object, we will create an object of class JSONObject and specify a string containing JSON data to it. Its syntax is −

```
String in;
JSONObject reader = new JSONObject(in);
```

The last step is to parse the JSON. A JSON file consist of different object with different key/value pair etc. So JSONObject has a separate function for parsing each of the component of JSON file. Its syntax is given below –

```
JSONObject sys = reader.getJSONObject("sys");
```

```
country = sys.getString("TrainName");

JSONObject main = reader.getJSONObject("main");
temperature = main.getString("temp");
```

The method **getJSONObject** returns the JSON object. The method **getString** returns the string value of the specified key.

There are also various Other Method of JSON parsing For example Using Android Volley, Retrofit or oKhttp we have also used Retrofit and Volley in the project depending upon its uses for Example we have Used Primitive way of JSON parsing Descried just above for parsing Travel data, Used Retrofit and volley for Zomato API and also For MOVE we have applied some Uses of Retrofit.

JSON parsing has various methods which make easier for us to get our required data for example methods like **getBoolean (String name),**

PYTHON SCRAPPER FOR COLLECTING DATA

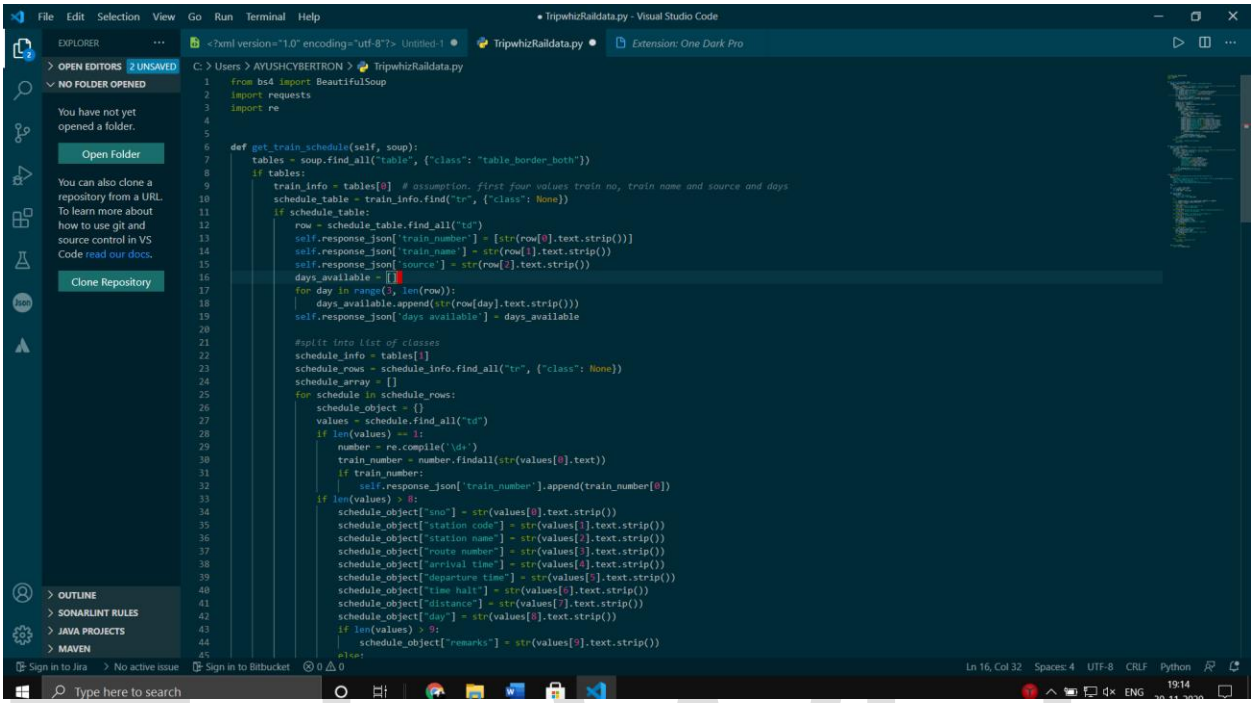
TripWhiz

The incredible amount of data on the Internet is a rich resource for any field of research or personal interest. The Python libraries requests and Beautiful Soup are powerful tools for the job. If you like to learn with hands-on examples and you have a basic understanding of Python and HTML, then this tutorial is for you.
Use requests and **Beautiful Soup** for scraping and parsing data from the Web Walk through a web scraping pipeline from start to finish

Build a script that fetches job offers from the Web and displays relevant information in your console This is a powerful project because you'll be able to apply the same process and the same tools to any static website out there on the World Wide Web. You can download the source code for the project and all examples in this tutorial by clicking on the link below:

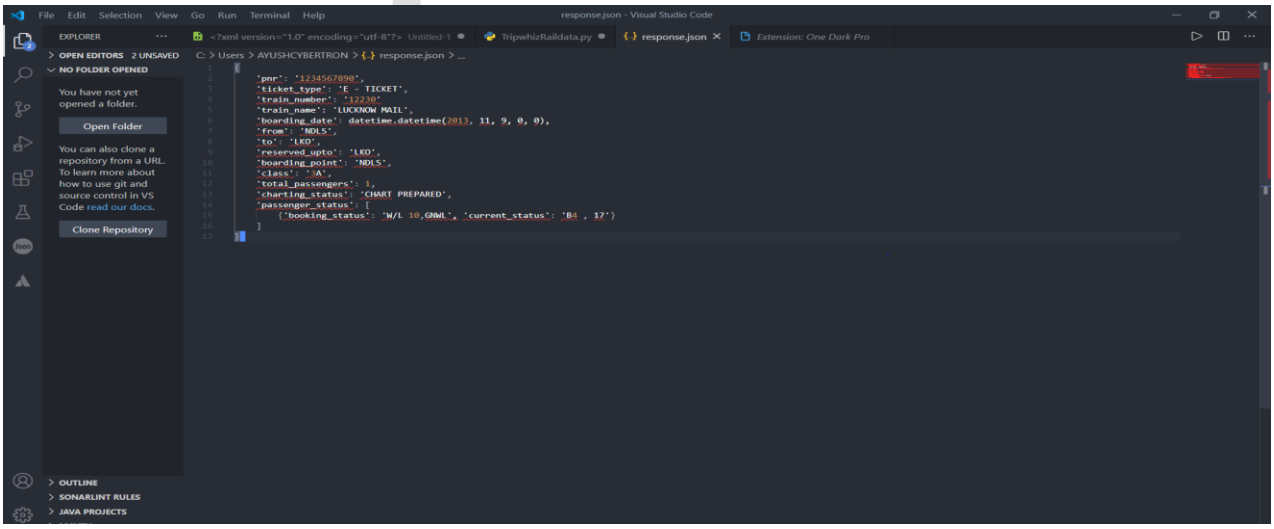
Though we know that it's not a legal to apply for commercial purpose but we have uses this for Educational Purpose for collecting data of Indian Railways, Indian Airways schedule and prices for use as data set for Our because we cannot afford to buy APIs (Paid) we have also used some of Publicly available data and have applied **Data Wriggling data science's** Concepts to Process the Data and convert into Data which is useful to us for this project.

Screenshot Showing Python Code Snippet Showing Extracting Indian Railway data



- Step 1 — Creating a Basic Scraper
- Step 2 — Extracting Data from a Page
- Step 3 — Crawling Multiple Pages
- Step 4 --- Processing Data

JSON RESPONSE



By using this we have Collected all the required information/dataset to build Our Application by using JSON parsing Techniques and Some Library Like GSON in android We can Utilizes these information likes Station Information for Train system, we have

All Train's Schedule Their Prices, Seat Availability is dummy hear Because Currently we cannot detect Availability of Seats, So we'll be assume that There must be available seats in the train/Plan, Everything is same for Airways Also. By passing All these Values In our Logic/Recommendation Engine we'll get be able to predict best Travel solution for User as we already had taken users Travel Preferences during Registration, By Considering Everything Especially Budget we'll be able to Predict his Travel Solution and will reflect it to the output section/Activity of the Our Android Application.

Application programming interface: APIs

An API is defined as a specification of possible interactions with a software component. What does that mean, exactly? Well, imagine that a car was a software component. Its API would include information about *what* it can do—accelerate, brake, turn on the radio, etc. It would also include information about *how* you could make it do those things. For instance, to accelerate, you put your foot on the gas pedal and push.

The API doesn't have to explain what happens inside the engine when you put your foot on the accelerator. That's why, if you learned to drive a car with an internal combustion engine, you can get behind the wheel of an electric car without having to learn a whole new set of skills. The *what* and *how* information come together in the API *definition*, which is abstract and separate from the car itself.

Public APIs and API integration

APIs are a longstanding concept in computer programming, and they have been part of developers' toolsets for years. Traditionally, APIs were used to connect code components running on the same machine. With the rise of ubiquitous networking, more and more *public APIs,* sometimes called *open APIs,* have become available. Public APIs are outward facing and accessible over the Internet, allowing you to write code that interacts with other vendors' code online; this process is known as *API integration.*

These kinds of code mashups allow users to mix and match functionality from different vendors on their own systems. For instance, if you use the marketing automation software Marketo, you can sync your data there with Salesforce CRM functionality.

"Open" or "public" should not be interpreted as meaning "free of charge" in this context. You still need to be a Marketo and Salesforce customer for this to work. But

the availability of these APIs makes integration a much simpler process than it otherwise would be.

“So, we have Also made of Some of Publicly free Available APIs Like Zomato, Google Cloud API, Move, RapidAPI to do Perform Various Functionality in Our Apps Like:

All the APIs that we have Used had Good amount of Understandable Documentation for implementation in Project some of them have only in Java but after some research and using our skills in KOTLIN we have Implemented everything in KOTLIN programing Language. I will provide documentation Link to All the APIs at down Section in Reference.

ZOMATO API USE:

Zomato APIs give us access to the freshest and most exhaustive information for over 1.5 million restaurants across 10,000 cities globally. With the Zomato APIs, you can:

- Search for restaurants by name, cuisine, or location
- Display detailed information including ratings, location and cuisine
- Use the Zomato Foodie Index to show great areas to dine in a city

By using this API we’ll get most Importantly Categories according have made our food preferences Activity, Simply by Passing those preferences of user to Our Logic / Apps Recommendation Engine We’ll get Our Food Output and We’ll simply Return it out Output Activity.

MOVE API USE:

MOVE SDK for Android lets you easily add Maps and web services to your own Android application. The SDK for Android supports API 14+. You can have a look at the map and features you will get in your own app by using the MOVE SDK for Android. Using this we implemented following Features in Our Application.

- We Got **Nearby** which allow use to get user location with His permission Of course So That get to know about Place ‘Destination’ and according to his preferences we can find Things**.**

- We also Got **DISTANCE** API of MOVE which lets know the distance of places from Our recommendation Using Our Algorithms and Distance API we can recommend him/her best Hotel / Restaurant near the places that he has to visit.
- Place Details API itself is self-explanatory we use this API to get Places Information.
- **DEMONSTRATION OF A SMALL PART OF MOVE API BACKEND IMLEMENTATION**
- Here are some of result that we got using MOVE APIs later we will process it to display data only of our and users Use.

- Using this API, we also got distance matrix of each The popular Location to Visit so will sort them according to the Places that users wants to visit we already Know his places to interest o visit For above Example is Of our App Activity Showing All the PUBS & CLUB as user have Interest in PUBS so above shown data is A meta data which have Just shown it wont be in final version of App because These Metadata we will pass to Our recommendation Engine and Logic System Which will then Reflect the most appropriate output to o/p screen.
- Their Also Have API for map widget.
- They have Database for All the Places and Their Rating Information etc.
- Hotel API of this MOVE API will be going to give us Hotel data which we will later

Send it to Our Apps Recommendation Engine after Processing According to user's preferences will return the Output which will be most suited for Our User's Need.

RECOMMENDATION ENGINE

In a Travel Recommender System (TRS), travellers' needs and constraints, through recommendation algorithms, are mapped into appropriate product selections based on the knowledge collected by the intelligent recommender.
A recommendation engine is a system that suggests products, services, information to users based on analysis of data. Notwithstanding, the recommendation can derive from a variety of factors such as the *history of the user* and the *behavior of similar users but only modification we have done in this despite recommending the Results based on precarious data it also seeks to provide the Best Result depending on preferences values of Our Application Users*.

A recommendation engine, also known as a recommender system, is software that analyzes available data to make suggestions for something that a website user might be interested in, such as, places to visit a book, a video or a job, among other possibilities.

The TripWhiz Recommendation Engine is a special-purpose program that performs task of Generating Best Trip Possible for user by applying a variable Filtering sorting algorithm. A Search engine is one type of recommendation engine, responding to search queries with pages of results that are (at least theoretically) the search engine's best suggestions for websites that satisfy the user's query, based on the search term plus other data, such as location and trending topics So we have Implemented .

Our Recommendation Engine is more sort Engine that Generates Best Possible Trip for you According To your Preferences choices and Budget all Including it does depend upon various Factor but Most Important is POI (Preferences) And Your Budget for That particular Trip as I have described earlier.

Tourism recommendation systems play a vital role in providing useful travel information to tourists. However, existing systems rarely aim at recommending tangible itineraries for tourists within a specific POI due to their lack of onsite travel behavioral data and related route mining algorithms.

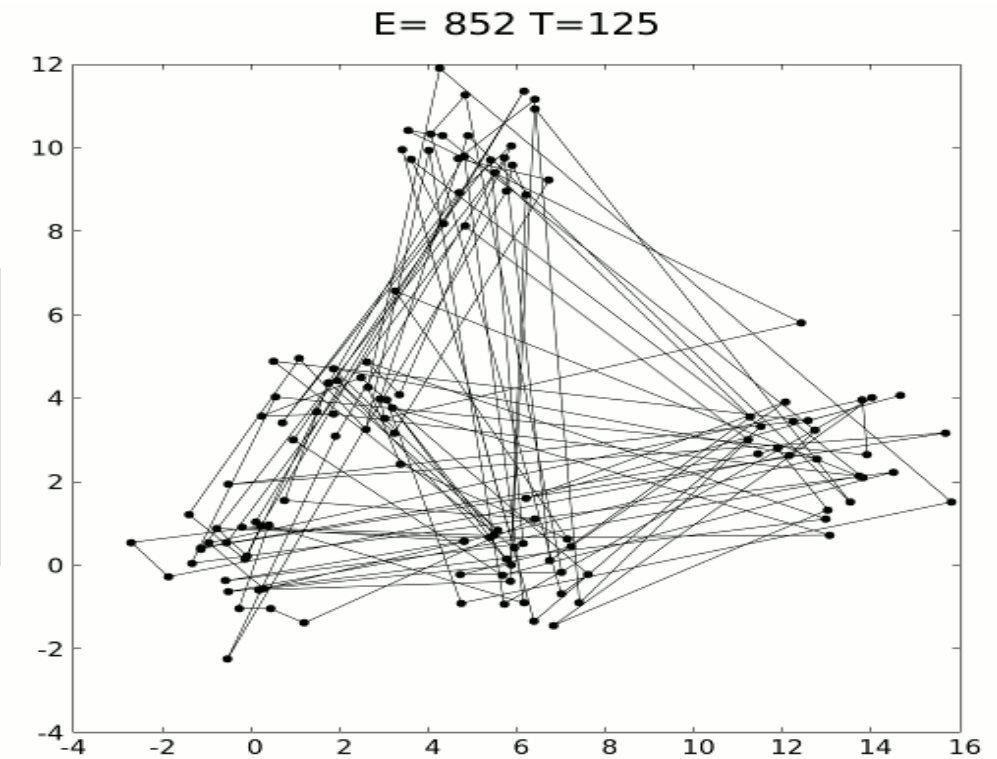
This is very Initial Phase of Our Recommendation system which we'll later surely to

Going to work on to make it more reliable effective and Seamless for Users.

TripWhiz

Currently we not Recommending Completely based on the past Experiences as currently we don't Have Enough Knowledge in **NLP** which is a heart of Recommendation Engine for generating Stuffs based on past Experiences

- Trip planning is done based on the entry data that describe the trip: :)
- As We have described In Above section That we'll Take Preferences details for all the users during the Time of Registration of to the Application Which is one of heart Component or Key for Our Recommendation

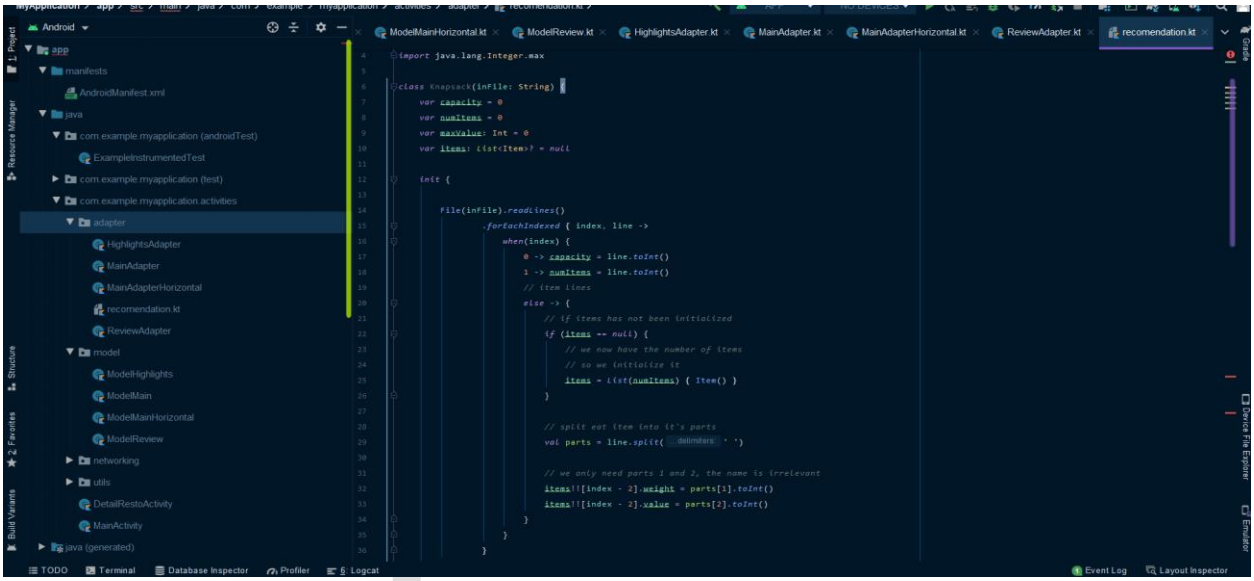


- **Simulated Annealing Algorithm**
- After Some Research on Internet we got to know about some of the Algorithms Which have Modified according to Our use in This Project, above shown is one of them.
- We have Also used Knapsack Algorithm With Memoization Technique to Optimize our time.
- Given two integer arrays to represent weights and profits of 'N' items, we need to find a subset of these items which will give us maximum profit such that their

cumulative weight is not more than a given number ‘C’. Each item can only be selected once, which means either we put an item in the knapsack or skip it.

- It is the basic 0-1 Knapsack Problem but we have Converted into something of our use Because in our case The Problem is same but with different Constraint but we have coded solution for that to get required Result.
- For maximum Satisfaction Under Budget and Minimum Cost.

Code Snippet showing some part of implementation



There also a lot work done to make recommendation system work flawlessly which haven’t discussed hear.

TRIPWHIZ ANDROID APPLICATION ACTIVITY:

*Sweater Girl’s Hand is not included in App 😊”

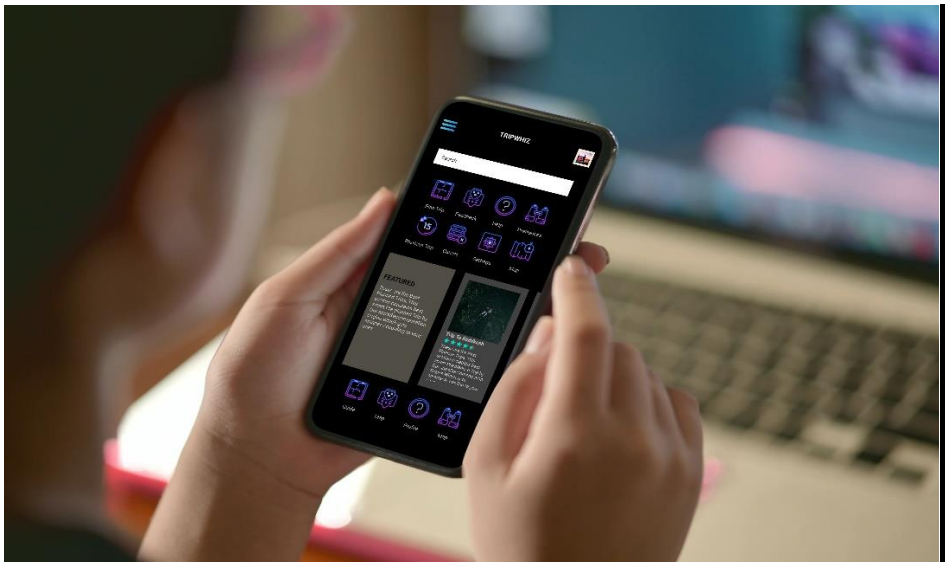
1-SPLASH SCREEN

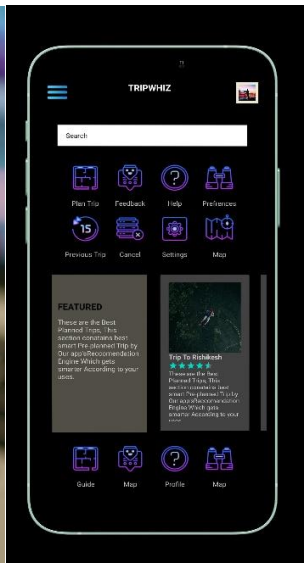
This is Basic Android Splash Screen which is the first screen visible to the user when the application’s launched. Splash screen is one of the most vital screens in the application since it’s the user’s first experience with the application.

The use of this screen is used to display some animations (TripWhiz Logo) and illustrations while some data for the next screens are fetched. It just to make UI more interacting and Appealing to Use.

Note: ALL SCREEN/ACTIVITY SHOWN IN REPORT IS COMPLETELY DEVLOPED BY TRIPWHIZ TEAM

2- DASHABORD SCREEN





TripWhiz Dashboard activity is exactly like Any others Dashboard Which contains all the features And Control of the App. Exactly like and Space Ships control Center where you can Monitor activity and perform certain action.

Dashboard Features including =

1-Plan Your Trip (On clicking You can to Plan Your Trip Activity and Plan Your Trip)

2-Feedback (Here, User Can Give his/her feedback how we can improve Our Recommendations)

3- Help (It is a basic Help section you can learn How to Use this and Clear your doubt this App)

4- Preferences (Preferences Activity is the Activity where you can go and change Your current preferences to your suite for Future Trips)

5-Previous Trip

6- Cancel Trip (Here, you can access to next already planned trip and can cancel it)

7- Settings (Settings is the basic Android App setting)

8- Profile (it is the profile Section you can control Your basic Profiles setting like photo Password etc.)

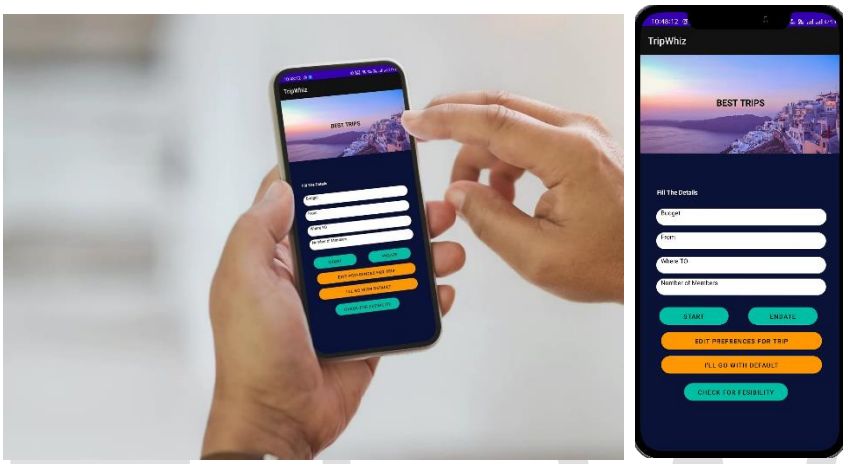
9- Guide- (Guide is basic details Page where you can Access the basic information of Particular Places e.g. Rishikesh, Lucknow)

TripWhiz

10*Dashboard all have card view some of already planned based trip based On past Uses and some are Editor Choice.

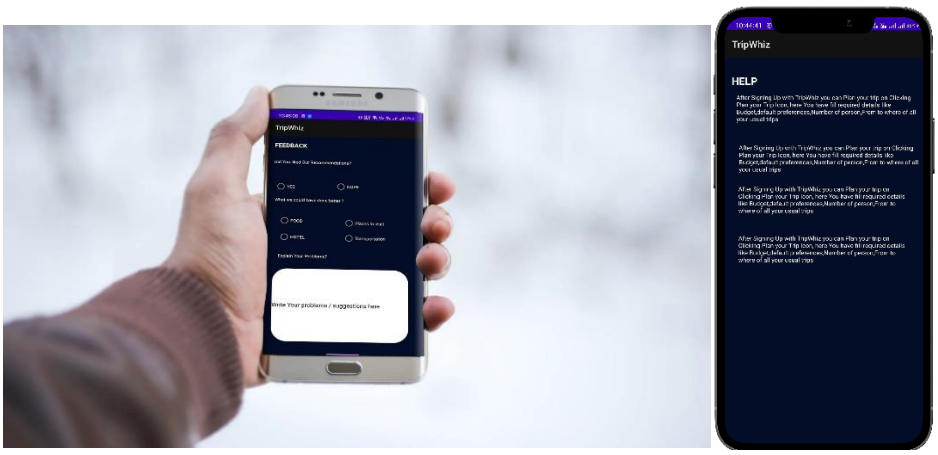
10-Map (It will redirect you to a Map/Interface either of Move APIs or Google Map so you can manually analyses your surroundings)

3- PLAN YOUR TRIP



*Plan Your trip is also one of Most Important Activity of This project, Here user will Fill details which are necessary for Next trip details Like Budget, From, To Number of Member and At the date Start and End date of their trip, Then User can check For feasibility if The Trip Will be Feasible under User given constraint like Budget >= Accommodation + FOOD + Travel then Finally these will go our recommendation engine and Final Output will came. In Output Activity.

4-FEEDBACK & 5-HELP

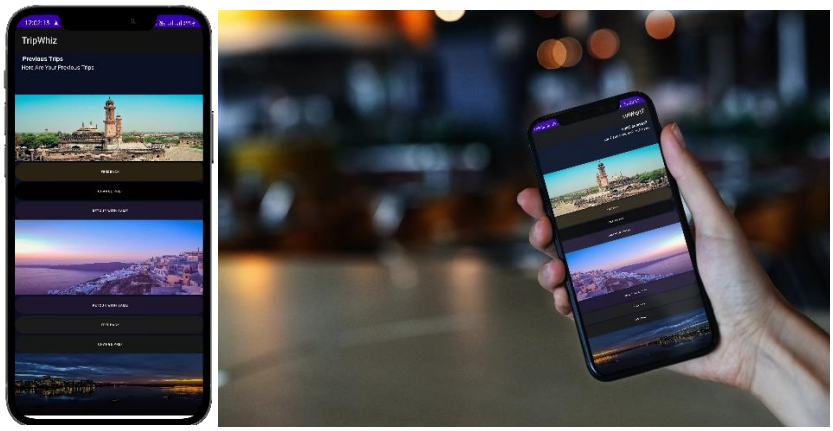


4-Mobile apps have become the bread and butter for many digital marketers. This is mostly credited to the fact that a quality mobile app has the potential to promote and grow your business tremendously. It can open new channels of revenue, introduce you to new marketing strategies So users' feedback will help us to improve Our app.

TripWhiz

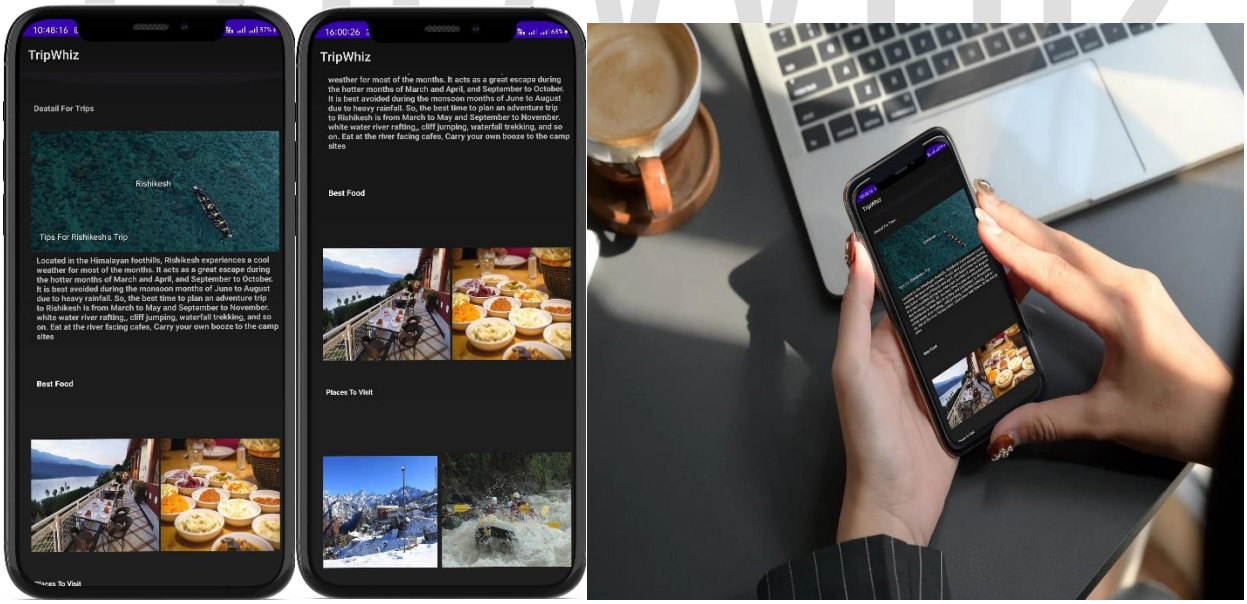
5.HELP is a basic Activity which have Information about App like How to use this App and how does it work, basic information so that users can use this App without any issue.

6-PREVIOUS TRIPS



This App uses Recycler View to show Previous Trip done by the user This Activity Come useful to users who are frequent traveler to same places iteratively so that he don't need to do everything every time manually what he can do is change date and Retour the destination again if he has do any Small changes to it he can also Do it here, because it also has Option of Changes preferences and he can also Provide us feedback, what we could have done better.

7-DETAIL PAGE: GUIDE

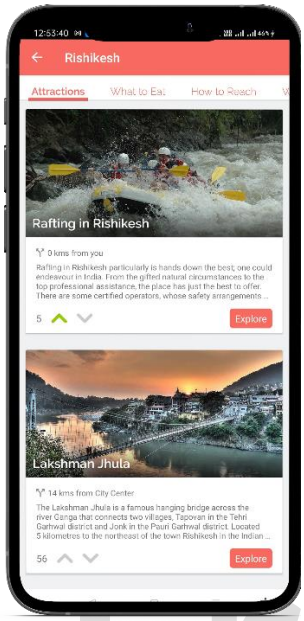


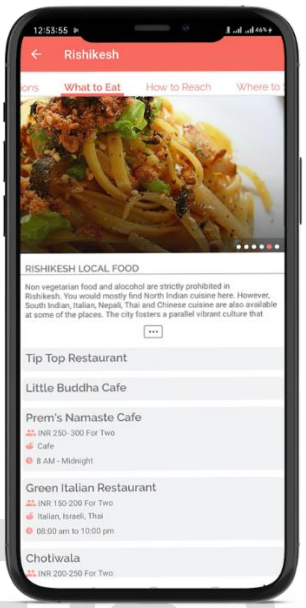
Detail Page Consist of All the information About particular destination of users: -

About: - About Section of this Activity tells some glimpse of best Things about that particular Destination Place this section also provide some 3-4 Points of Tips before travelling to those destination, This Detail page also have Information of Best Places to visit in those area and also

Food to Eat, they're in form of Card view to information like name of Restaurant & Name of The Activities.

OUTPUT SCREENS: PLACES TO VISIT/THINGS TO DO/ACCOMODATION/TRAVEL

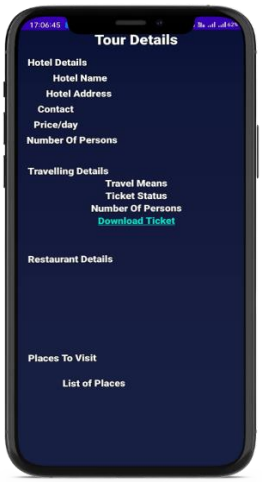




Here is the Output of places to visit Food to eat and restaurant Information which is best Under Your Budget for testing we have Pretty high amount so we can do everything at destination places which Is Famous there. Similar Activity will their show Hotel that user should Book and Mode of travel. Travel Information

9- TOUR DETAILS

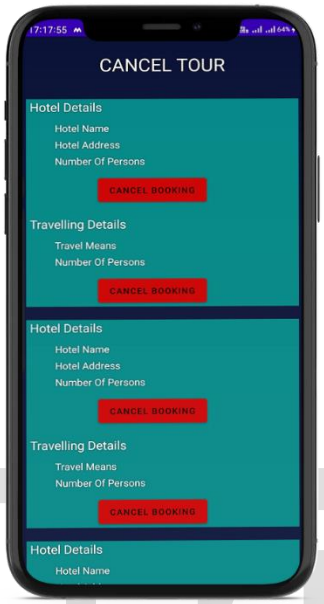
This Activity have information Like Hotel Name HOTEL address Price/Number of Days Number of people You have booked your hotel for,



Not only for Hotel it does have information for Travel like (cost, Number of person Mean) similar also have Restaurants details.

10=CANCEL TOUR

Cancel Tour is more like A customization Activity where you Cancel Your Planned Tour, Can changes some item whom you didn't like you does like our hotel recommendation you can particularly change that likewise others Things to.



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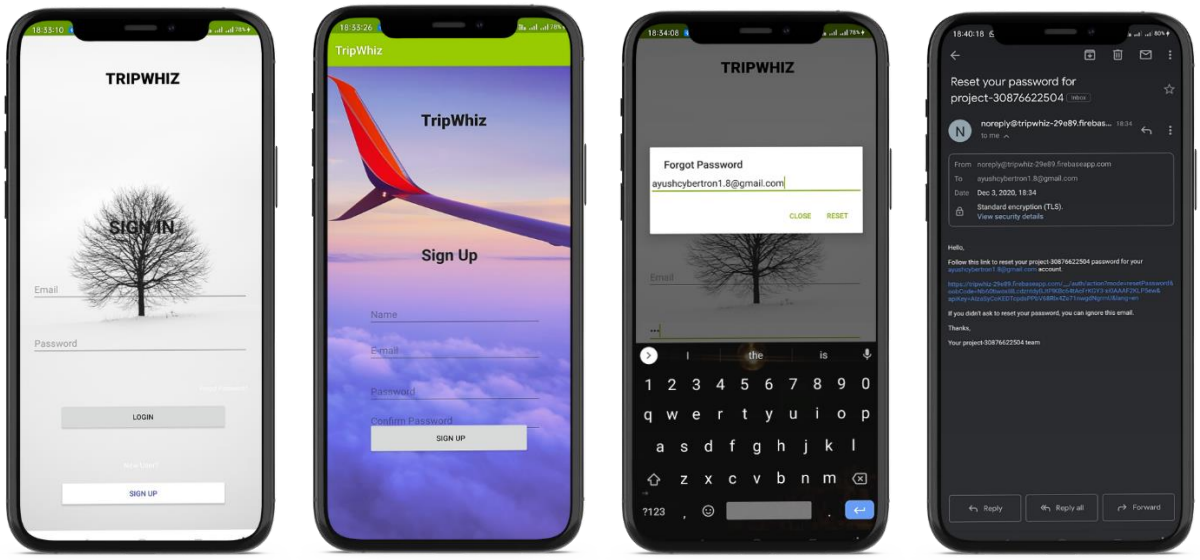
11-LOGIN / SIGNUP

As we have described Above in the Backend section UNDER firebase Technology that we have implemented Full-fledged Signup/Login Page with Forget Password Finality so here I will be showing you Activity screen of TripWhiz Login Sign Up page.



Above Activities showing complete Login details and Process, LAST activity showing mail Sent by our firebase Backend to User's Email for reset his password.

12-HAMBURGER MENU

The hamburger button, so named for its unintentional resemblance to a hamburger, is a button typically placed in a top corner of a graphical user interface. Its function is to toggle a menu or navigation bar between being collapsed behind the button or displayed on the screen

From here you can navigate to any page easily with simple right swipe gesture from Left side.

13: PREFRENCES CHOICE MENU ACTIVITY

This is the Activity where user will Select its Activity for Example HOTEL TYPE, RESTURENT TYPE,

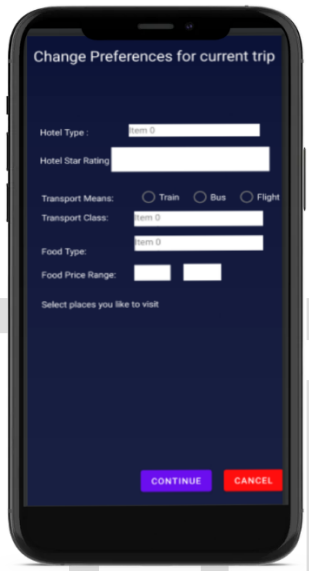
FOOD PREFRENCES, PLACES TO VISIT AND ITS TYPE, COMFORT LEVEL, TRAVEL PREFRENCES ETC.

14: FEASIBILTY CRITERIA

Research & Calculation performed under hood whether the trip is Possible user given constraint or not for example consider Unrealistic scenarios like Planning a trip with Negligible Amount of Budget like user want everything 5 Star budget have given I/p of 10 rupees For Delhi to Manali Trip which Impossible.

Below are some of the activity showing Feasibility report for users trip and also showing whether trip is possible or Not and as we have described earlier section when user want to change his / her preferences for next trip.

- **CHANGE PREFRENCES FOR CURRENT TRIP**



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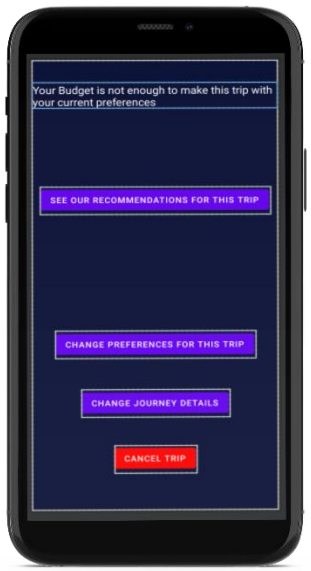
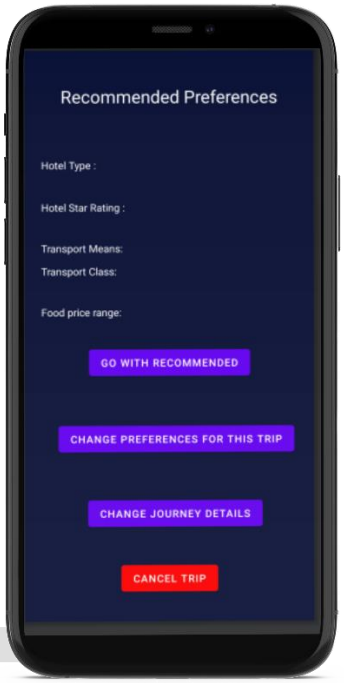
- **CASE WHEN TRIP IS NOT FEASIBLE**



- **RECOMENDATION PREFRENCES**



So, we are done with Activities Some are remaining to show but all of them is Similar to the once shown Above.

Future aspects of this application

Introduction

The Indian tourism and hospitality industry have emerged as one of the key drivers of growth among the services sector in India. Tourism in India has significant potential considering the rich cultural and historical heritage, variety in ecology, terrains and places of natural beauty spread across the country. Tourism is also a potentially large employment generator besides being a significant source of foreign exchange for the country. In FY20, 39 million jobs were created in the tourism sector in India; this accounted for 8.0% of the total employment in the country. The number is expected to rise by two% annum to 52.3 million jobs by 2028.

According to WTTC, India ranked 10th among 185 countries in terms of travel & tourism's total contribution to GDP in 2019. During 2019, contribution of travel & tourism to GDP was 6.8% of the total economy, ~ Rs 13,68,100 crore (US$ 194.30 billion).

Market Size

India is the most digitally advanced traveler nation in terms of digital tools being used for planning, booking, and experiencing a journey. India's rising middle class and increasing disposable income has supported the growth of domestic and outbound tourism.

During 2019, foreign tourist arrivals (FTAs) in India stood at 10.89 million, achieving a growth rate of 3.20% y-o-y. During 2019, FEEs from tourism increased 4.8% y-o-y to Rs 1,94,881 crore (US$ 29.96 billion). In 2019, arrivals through e-Tourist Visa increased by 23.6% y-o-y to 2.9 million.

International hotel chains are increasing their presence in the country, and it will account for around 47% share in the tourism and hospitality sector of India by 2020 and 50% by 2022

Road Ahead

India's travel and tourism industry has huge growth potential. The industry is also looking forward to the expansion of e-Visa scheme, which is expected to double the tourist inflow in India. India's travel and tourism industry has the potential to expand by 2.5% on the back of higher budgetary allocation and low-cost healthcare facility according to a joint study conducted by Yes Bank.

TripWhiz

Our application

As we got to know above that travel industry is growing and it will grow further in near future. So as our app will grow as it solves traveler's very big problem of planning a proper trip. The algorithm of our application plans a trip just by knowing the budget and some preferences.

In this world of stress where anyone has hardy some peace of mind, this app helps them to plan a holiday and release their stress. As some rest helps them to get back with a better focus on their work.

SOURCE CODE

- Our GitHub Source Code Link
- https://github.com/cybertronayush/TripWhiz
- Documentation of Project
- https://github.com/cybertronayush/TripWhiz/wiki

TripWhiz

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TripWhiz

THANK YOU!

THANK YOU SO MUCH FOR READING REPORT AND CHECKING OUT OUR PROJECT!

HAVE A NICE DAY

REGARGS!