A RESTAURANT RECOMMENDATION APPLICATION
(FOODIE HUB)
A PROJECT REPORT

SUBMITTED BY :
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CANDIDATE'S DECLARATION

We Puneet Kumar Sehrawat 2K19/IT/101 and Rajat Kumar 2K19/IT/104 hereby declare that the work presented in this project titled "Restaurant Recommendation Application", submitted to the B.Tech. (INFORMATION TECHNOLOGY) Delhi Technological University, Delhi for the award of the *Bachelor of Technology* degree in (INFORMATION TECHNOLOGY), is my original work and done under the guidance of Mrs Swati Sharda (Asst. Prof.).

November 2020

Place: Delhi

Students Name :

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CERTIFICATE

I hereby certify that the project dissertation titled “Restaurant Recommendation Application” which is submitted by Puneet Kumar Sehrawat (2K19/IT/101) and Rajat Kumar(2K19/IT/104) in Information Technology, Delhi Technological University, Delhi in partial fulfilment of the requirement for the completion of the third semester of their degree is a record of the project work carried out by the students under my supervision.

Place: Delhi
Date: 23th November 2020

Mrs Swati Sharda
Supervisor

Department of Information Technology Delhi Technological University
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Acknowledgement

We would like to convey our heartfelt thanks to our supervisor Mrs Swati Sharda for his ingenious ideas, tremendous help and cooperation.

We are extremely grateful to my friends who gave valuable suggestions and guidance for the completion of our project.
The cooperation and healthy criticism came handy and useful with them. Finally, We would like to thank all the above-mentioned people once again.

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Abstract

We have basically made a restaurant and food recommendation application. In which users will get nearby restaurants. Users can order food and mark them as favourite which will then be used to recommend restaurants. On the basis of the user's mood questions will be asked.

In this situation of covid - 19 pandemic, we came up with the idea of a 360° view of restaurants such that users can view restaurants and decide whether to visit the restaurant or get home delivery.

Language used :

- Javascript

Front-end:

- React-Native
- React VR

Database :

- Firebase

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Problem Statement

A Normal Person who lives alone doesn't like the food from every Restaurant and finding a good place to eat becomes a difficult and tedious job, so they need an App which recommends Restaurants to them.

Due to the Covid Pandemic, a user needs to see the inside of a Restaurant in a 360° Interactive View to decide whether to visit the Restaurant and eat the food there or get a delivery, because a Restaurant which is too small will not be safe to visit.

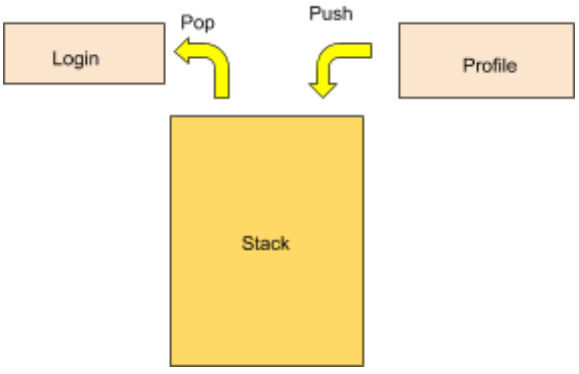
Solution To The Problem

So we came up with the idea of building the Restaurant Recommendation application. Users can find nearby restaurants from their location and they will get recommendations based on their previous activities so that a non-native person will not face difficulties adjusting to that place.
The app will also provide a 360° Interactive View of that Restaurant to aid the customer in deciding whether to visit the Restaurant and eat the food there or get a delivery. The 360° View will contain a detailed View of the various rooms of that Restaurant and can be used to navigate between the different rooms of the Restaurant.
This App will work on top of the Zomato Food API and the Restaurant Details will be fetched from their API.

User Interface

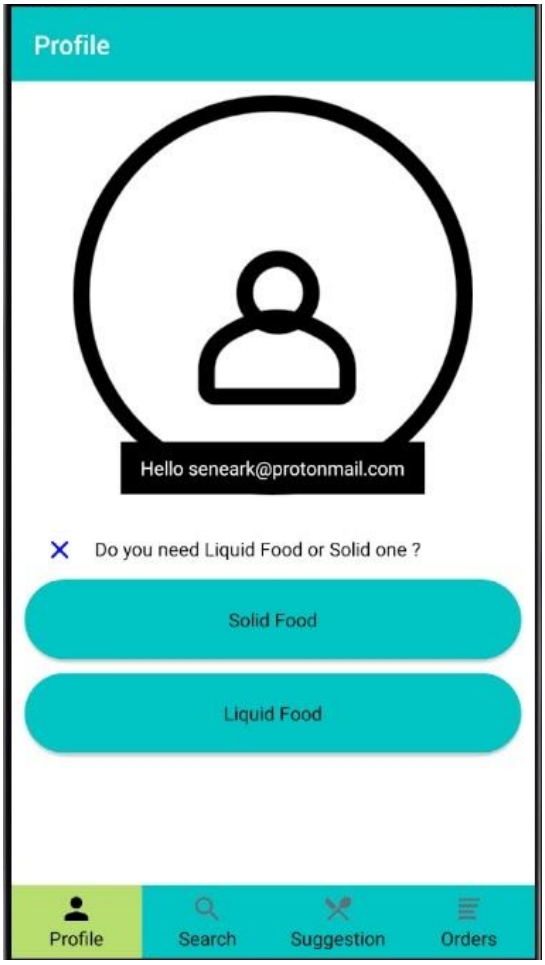
We have used React-Native to make our Restaurant and Food Recommendation application. React Native is an open-source mobile application framework used to develop applications.

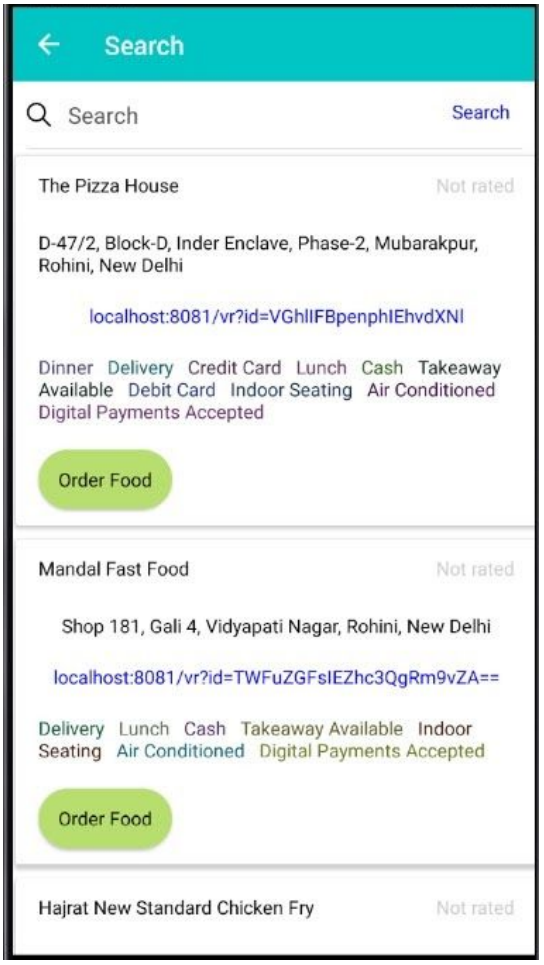
We have implemented Stack Data Structure using React Native Router Flux. It helps users to define all the routes in one central place and navigate and communicate between different screens in an easy way. Firstly, we have created different components and they are rendered before pushing into Stack. Here, the route objects are saved in a stack, while navigation between screens takes place with the invocation of push or pop.



Whenever the new user arrives he/she has to enter his credentials which before entering into the app are verified via email verification sent to the user entered email id. These user details are then sent to the firebase and a new user is created.

We have done this email verification process in order to avoid fake users such that they can't give fake recommendations for a particular restaurant to make it highlight.

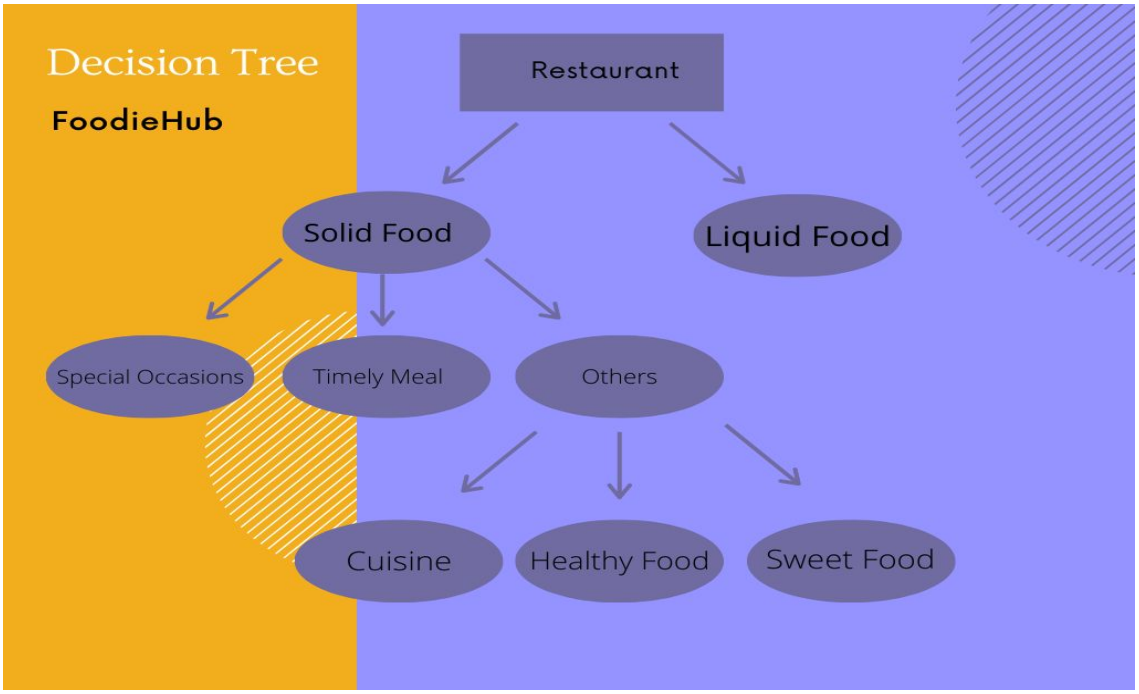




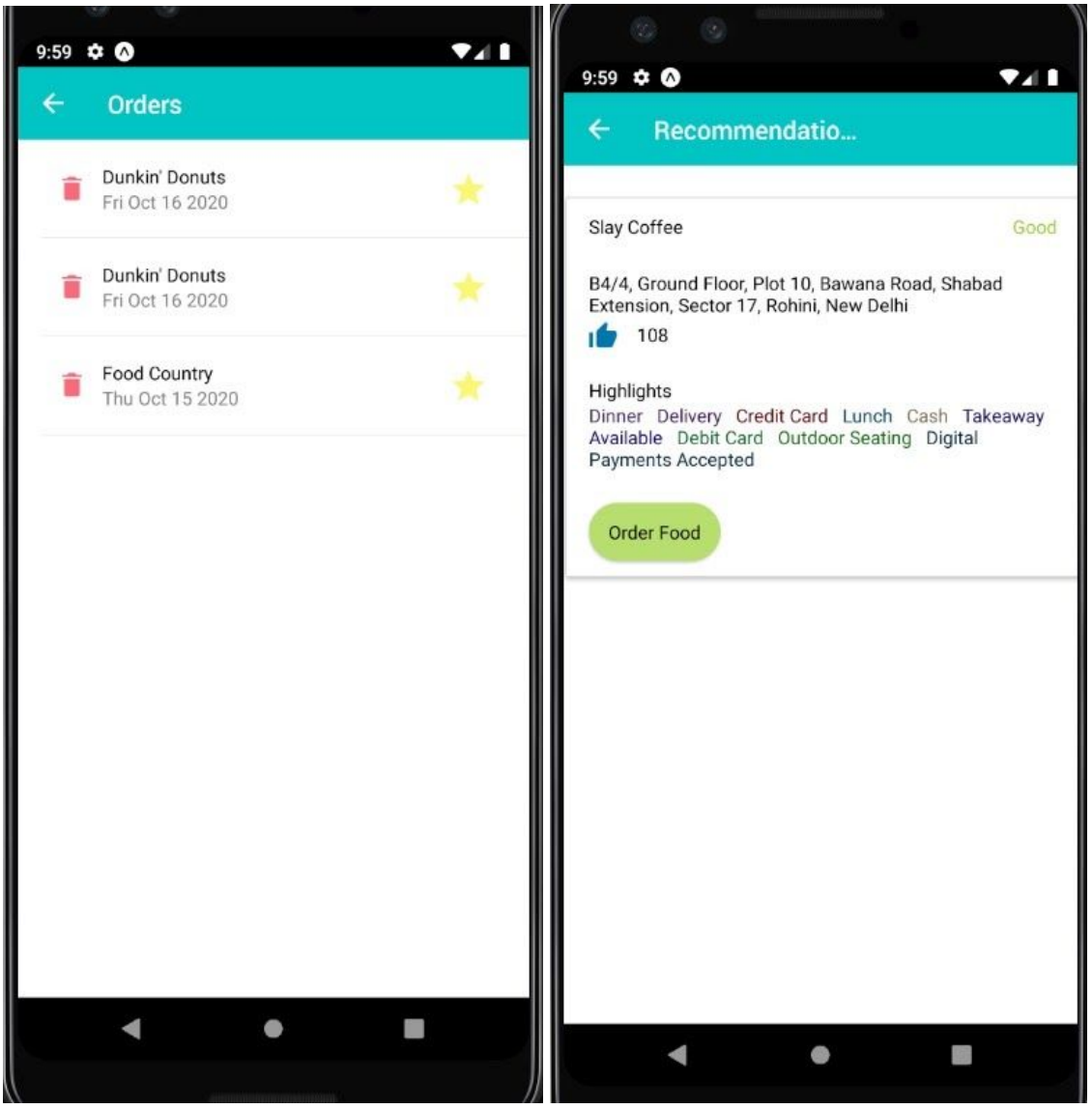
We have used Lottie Files for showing the loading Animations on our App. These Lottie Files are made using Adobe After effects and then exported as a JSON file.

Decision Tree

A User can also search for restaurants based on his current craving by using our Decision Tree which asks various questions to the user and tries to find his/her Current craving by traversing the tree and suggests restaurants based on the user's choice. A sample of the Decision Tree used in our project is given below



The Restaurants will then be shown on a Map along with their information and an Order Food button.
The Restaurants from which users order the food are added to the orders list from where users can mark them as favourites, which will then be used to suggest Restaurants to the user.

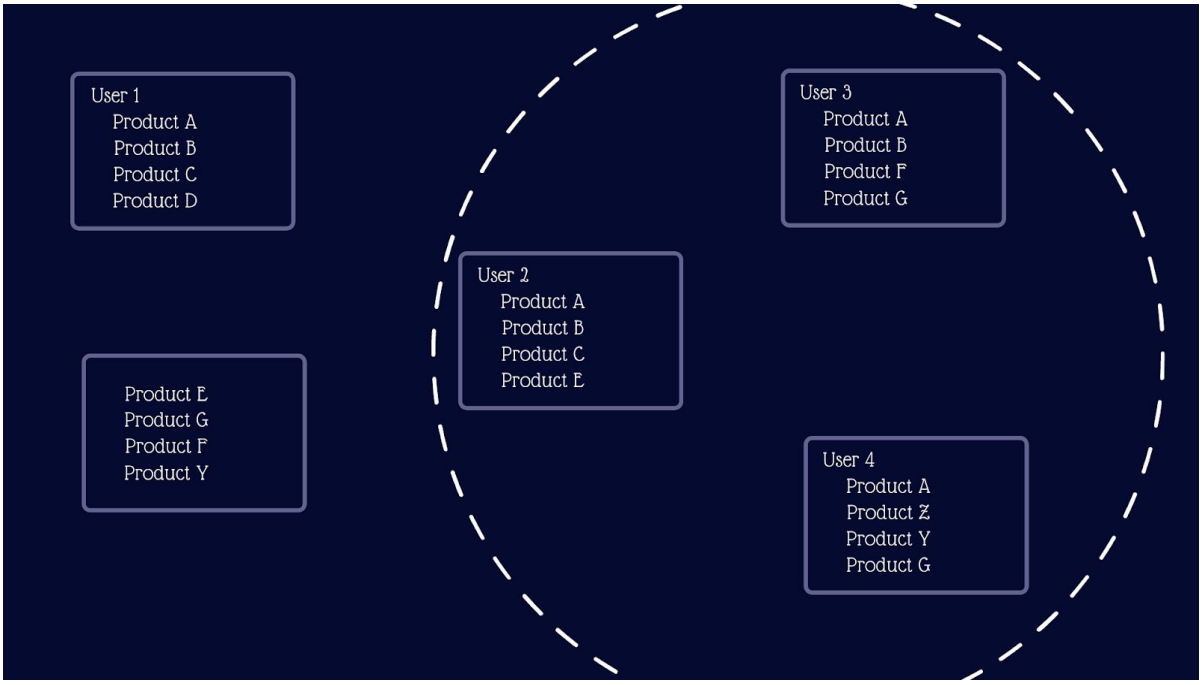

9:59
Orders
Dunkin' Donuts
Fri Oct 16 2020
Dunkin' Donuts
Fri Oct 16 2020
Food Country
Thu Oct 15 2020
9:59
Recommendatio...
Slay Coffee
Good
B4/4, Ground Floor, Plot 10, Bawana Road, Shabad Extension, Sector 17, Rohini, New Delhi
108
Highlights
Dinner Delivery Credit Card Lunch Cash Takeaway Available Debit Card Outdoor Seating Digital Payments Accepted
Order Food

Recommendation System

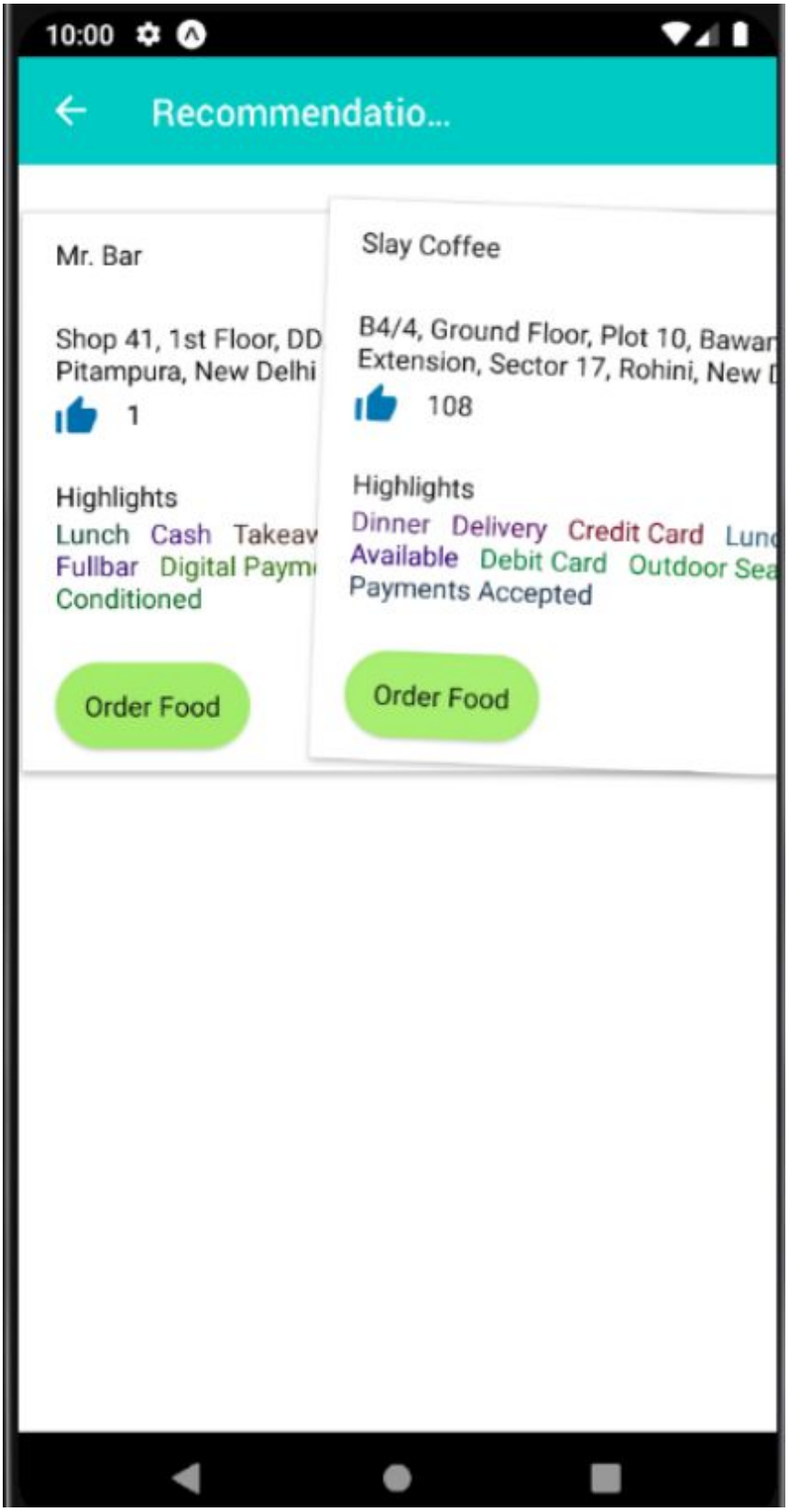
Recommendations will be given to the user based on his/her similarity to other users which will be calculated by finding the common restaurant of our logged-in user to all the other users.
Then the uncommon restaurants among all those restaurants will be assigned a Score of each restaurant is find using the Formula:

$$Score = \sum x_i.10$$

Where x_i is the similarity score.
All these Scores of Restaurants will then be sorted using Heap Sort and shown to the user.

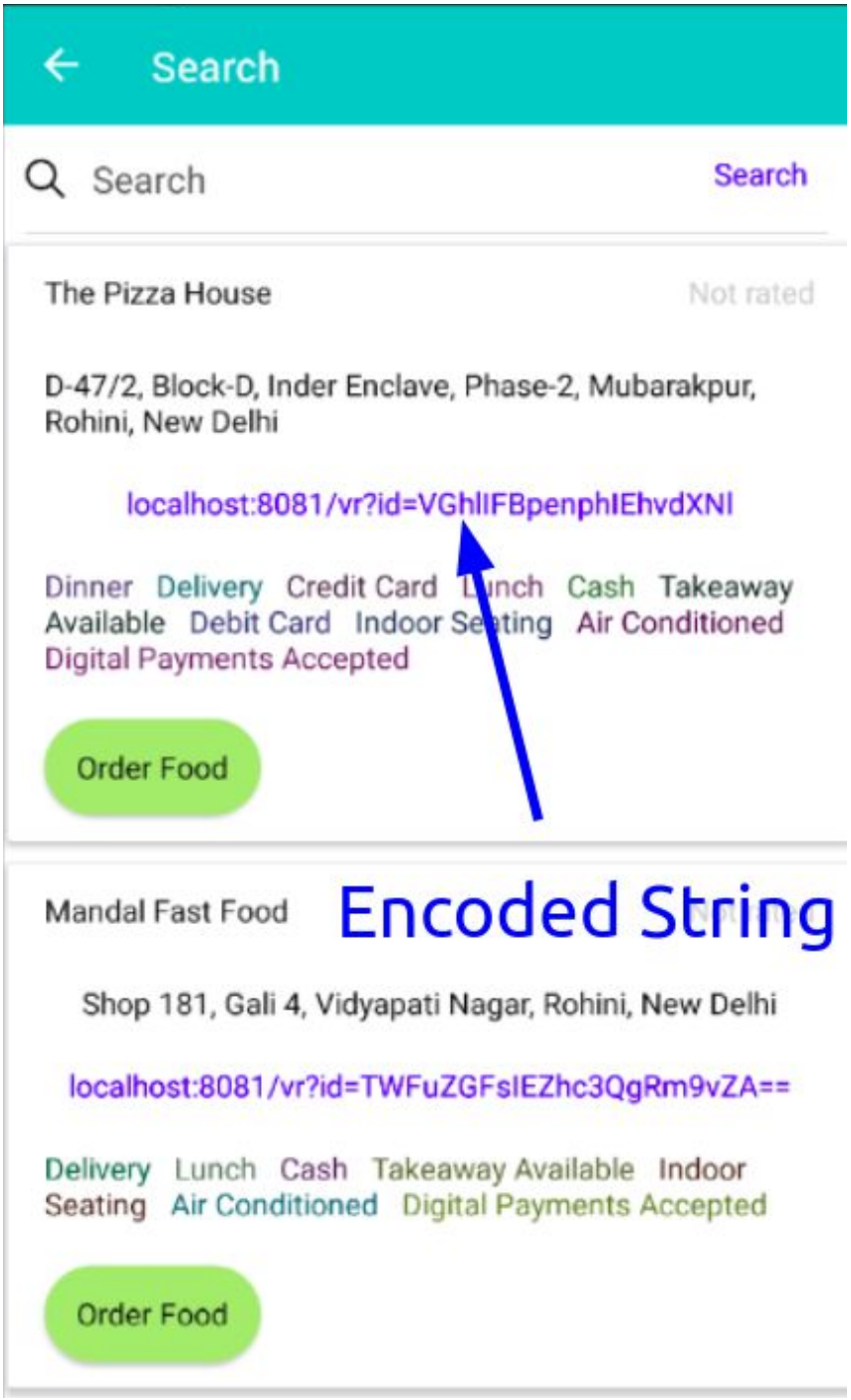


The Recommendations will then be shown using a stack which will contain the more Recommended restaurant on top and as we keep popping the restaurant we will keep getting less and less accurate restaurants.


10:00
Recommendatio...
Mr. Bar
Shop 41, 1st Floor, DD
Pitampura, New Delhi
1
Highlights
Lunch Cash Takeav
Fullbar Digital Paym
Conditioned
Order Food
Slay Coffee
B4/4, Ground Floor, Plot 10, Bawar
Extension, Sector 17, Rohini, New D
108
Highlights
Dinner Delivery Credit Card Lunc
Available Debit Card Outdoor Sea
Payments Accepted
Order Food

Base64 URL encoding

We have used Base64 URL encoding which encodes the URL of our React VR application to enhance the security of our app.
Base64 encoding converts the binary data into text format, which a user can handle safely. It has been used by many big companies for encoding their URLs.



React VR

With the help of react-VR framework, we are going to show a 360° interactive VR view of the restaurants. With the help of this, a user can easily navigate between the different rooms of that restaurant and check whether it is fit to eat there in this pandemic situation.
We will use a Hashmap/JSON object to store the data of each room and this will help in the navigation between different rooms. This Hashmaps will contain the image URL, an array of items which will be used to highlight various features in the room and a navigation link to the second room.

A Video URL of the Live Tour is given below:
https://drive.google.com/file/d/1Q7Uu4c0MDSVYaBnut5R-PrHH0IoMi0oO/view?usp=sharing

Bibliography:

- React Native
- Firebase
- React Router Native Flux
- Base64 URL Encoding
- Decision Tree