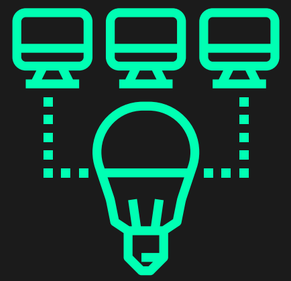
TEAM NAME: POPPIBOIS



Cube Highways Hackathon

Team

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ENHANCING USER EXPERIENCE AT **CUBE STOPS**

KEY POINTS

- Use ML model to predict the customer turnout
- Take registrations according to ML model predictions
- Maintain a real-time database of tables.
- Manage customers
- Track real-time location of vehicles to estimate time of arrival
- Keep track of waiting time
- Manage pre-ordering
- Online bill payment
- Vehicle parking booking
- Drive-in facility

ML model to predict customer turnout

- Analyze data of the table registrations at different times in a day
  - Divide the day into 4 phases
  - For each phase, plot the number of registrations against actual turnout using matplotlib
  - Different inferences can be obtained for different phases and further strategies are developed accordingly.
- Use supervised learning to train the model to predict the number of customers actually visiting after reserving a table

- Factors for predicting turnout (dataset attributes)
  - The phase of the day
  - Customer history
  - Type of vehicle
  - The distance of the customer from the cube stop
  - Estimated waiting time offered
  - Number of people (table for 'x')
  - Pre-ordering food or not

- Building the model
  - Split the data into testing and training data
  - Do model selection and preprocessing
  - Train the data using Multiple Regression, ExtraTressRegressor, and RandomForestClassifier
  - Test the model for each of the algorithm and analyze the accuracy score and confusion matrix
  - Use the technique with the highest accuracy score and build the model using it by training for the whole data
  - Import pickle and dump the .pkl file to make the model ready for predictions

Take registrations according to ML model predictions

- Using the model we will be able to predict the actual number of people turning out, out of the total registration
- With the help of the prediction, we can take more registration than the number of tables available considering non turn out of customers
- This way we can reduce the number of empty tables and enhancing the user experience by maximizing efficiency

Maintain real-time database of tables.

- Create a dynamic database of all the tables
- It should reflect if the table has been booked or not
- It will store the details of the customer to whom the table has been assigned to
- Easy to segregate booked, occupied, and empty tables
- Keep some tables reserved for spot booking
- Those tables can also be used in the rare case of turnout being more than that predicted by the ML model

Manage customers

- The customers should download the cube stop booking app and log in using a google account or apple id
- They will get the option of reserving a table on the app where they can reserve a table for themselves in advance
- The app will store customer data (Name, contact number, email id, current location on booking, number of members)
- The app will also provide an option for pre-ordering food to enhance customer service

Track real time location of vehicles to estimate time of arrival

- The app asks for your permission to access your current location
- After receiving the permission, the app uses APIs taken from google maps to get access to your current location.
- The map then calculates the estimated time you'll take to reach the cube stop using the said APIs from google maps

- There will be regular notifications about the current distance from the cubestop during the journey
- The app will only access your location if you have booked a table or ordered food at the cube stop
- There will be timely updates to check for traffic during the journey
- The app will also provide navigations if required
- The best route from the current location will also be displayed

Keep track of waiting time

- There will be a real-time tracking of the number of tables available
- The ML model will tell the total number of possible reservations
- Once the limit has been reached, all the further reservations will be in waiting
- The waiting time will be shown dynamically to the user
- The user will be notified in case of a change in the waiting time
- The number of tables will be monitored and once the waiting time is over, a table will be allotted and table details shared with the user

Manage pre-ordering

- We will provide the option of pre-ordering to the customers.
- This will serve the purpose of saving time for the customers so that they can order food while en-route the cube stop
- Moreover, it will also create less hassle on the stop as the public will be ordering online, hence reducing the queue
- Pre-ordering will provide the customers the option to add extra notes for their orders which will be followed while cooking.

Online Bill Payment

- The user will get the option of payment of the bill on the app
- After ordering the food either on or before arrival, the user will get the option of completing payment by various pathways.
- Apart from paying in cash at the cube stop, the users will also be able to pay online using the app to make it hassle-free and catalyze the process.
- The app will give the option of paying through UPI, credit card, or debit card.
- An e-bill will be generated after payment and sent via email id to the user.

Vehicle Parking Booking

- When the users book a table, they will also get the functionality of booking parking for their vehicle.
- This will contribute to saving time and also minimize chances of chaos outside the cube stop.
- The user can book a parking slot by entering vehicle details like vehicle type, vehicle number, and owner's name.
- The parking token will be generated on the app itself and the user can directly go and park the vehicle after he reaches the cube stop.
- If the parking is full, the user will be given options to wait or to opt for a drive-in.

Drive-in facility

- The app also lets you choose whether you want to take away the order.
- The advantage of the drive-in is that the meals can be consumed while continuing the journey (especially for those who are short on time) and can also save time as there will be no time wasted in parking and dining in.
- To avail the drive-in facility through app, users will have to place order before they come in 5-Km radius of the cube stop.
- The orders will be confirmed as soon as the vehicle enters the 5-Km radius and a booking number will be generated which will help ensure negligible waiting time for the customers.

THANK YOU