Initial Project Problem Statement
Online Food Delivery System

In the present day, online food ordering in India has gained lot of prominence, leading to an increase in the number of companies that have partnered with various restaurants to provide food delivery services at several locations across multiple cities in India. We want to create a system for such a company that collects food orders online and provides with delivery agents for the orders received, in certain locations (in each city they are operational).

The firm generates income mainly through the commissions from the associated restaurants on online orders. The commissions range from 6% - 33%, it is decided during the start of the association with the restaurant, 22% being the average. If a restaurant was relatively making less sales (the sales are determined by the number of orders taken in a day), the commission for this restaurant is lesser than the restaurants that make more number of sales per day.

The **objective** is to handle the huge volumes of data that are captured and use them to better the functioning of the firm, by giving out relevant and better recommendations to customers, by expanding the associations (making connections with new restaurants), and ultimately grow as a company. (This can be done by incorporating better methods by using the reports generated according to the listed business goals.)

Assumptions:
- The commision percentage for each restaurant is fixed (i.e fixed throughout its association with the firm) and is decided when the restaurant ties up with this firm.
- No conditions, such as, rains and excessive traffic affect the delivery charge.
- The minimum billing order to avail free delivery is Rs.350.
- The assignment of a delivery agent happens on per location basis, depending on the zipcode of the agent and the restaurant. It is done online by the firm.
- The firm is operational across **25 cities** in India. In each city, there are several locations (locations) where the company offers their services.
- The number of locations the delivery operation takes place, is between **6 - 50**, depending on the city.
- Each restaurant may have multiple opening and closing times.
- Base delivery charge of a restaurant is fixed (and is between Rs. 30 - Rs.45). The additional delivery charges, if incurred, would be a sum of base delivery charge and Rs.15 per order.
- Delivery agents work for one fixed shift (Either the morning shift or the afternoon shift).
- Delivery agents get paid a minimum of Rs.20 per delivery taken. The payment per delivery ranges between Rs.20 - Rs. 45.
- Delivery services start only at 8AM in the morning and run till 11:30PM in the night.

Data Description:
Restaurants:
- One location in a city, has several restaurants that have tied up with this firm to leverage their delivery services. (That is to say that the delivery agents working from this location,

would be delivering food from these partner restaurants. One agent can deliver food from any restaurant to any customer at a given locality.)

- We capture the hours the restaurant is open and operational (Say a restaurant might be open from 8AM - 3:30PM and again from 7:00PM - 11:00PM).
- We would have to capture certain **basic data** of these restaurants, such as:
  - Name
  - Cuisine   *has to be captured only in menu.*
  - Address
  - Locality
  - City
  - Zipcode
  - Commission percentage offered
  - Average pick up time
  - Base delivery charge
  - Restaurant open time
  - Restaurant close time
- Delivery charge ranges from **Rs.30 - Rs.45**, for a distance **within 5Kms**, if the distance exceeds upto a maximum of **7Kms**, the charges would increase by **Rs.10** per kilometer, for any orders **below Rs.350**.
- One restaurant can serve items from different cuisines (more than one cuisine available at the same restaurant). This data will be captured additionally, in the menu details.
- The company has normal delivery hours from **10AM - 10PM** (no additional charge on delivery, i.e delivery charge will not exceed Rs.45 for any order, during these hours. Any deliveries before or after these hours would be charged a minimum of Rs.15 extra per delivery). Hence, deliveries between 8AM - 10AM and between 10PM to 11:30PM would be incurring additional delivery charge on base delivery charge. In order to serve these orders, the minimum required bill amount is **Rs.250** (otherwise the order does not get placed). Say, a few customers order food before 9AM or after 10PM, the delivery fee increases by Rs.15 for each delivery. In this case no free delivery is available.
- The average pick up time of a restaurant is an average of the total time taken to prepare the food and the time taken for the delivery guy to pick up the order from the restaurant.

Commissions:
- Each restaurant has a fixed commission amount to be paid to the firm.
- The commission percentage ranges from 6% - 33% for different restaurants.
- In order to keep track of commissions received from various restaurants, we need the following details:
  - Amount received
  - Date and time received.

Delivery agents:
- Each delivery agent works for a single location (depending on the zipcode).
- Each location has 5 - 35 delivery agents working from a location.
- An agent can opt for either 10AM - 4PM shift or 4PM - 10PM shift.

- The following **basic data** of all the delivery agents is required:
  - First name
  - Last name
  - Date of birth
  - Date of joining
  - Proof of Identity
  - Home address
  - Mobile number
  - Emergency contact
  - Location he/she works for
  - Zipcode
  - Shift opted.
- The delivery agent gets paid depending on the number of deliveries taken through the month (sum of all the deliveries(amount) taken, over a month)

Customers:
- Each customer is delivered his/her food by a delivery agent who works for a specific location.
- We require certain **basic information** regarding the customers, such as:
  - Name
  - E-mail ID
  - Phone number
  - Zipcode
  - Location
  - Landmark
  - Address

Orders:
- Each customer is associated with an order, which, in turn, is served by a particular restaurant.
- This order would be delivered by a particular delivery agent.
- The **order** between the customer and the restaurant is captured with following details:
  - Order received date and time
  - Order Amount
  - Payment mode (payment is either done by credit card, debit card, paytm, mobikwik or phonepay)
  - Delivery agent arrival time to restaurant
  - (Average pick up time) ← *on what data is it calculated*
  - Actual delivery time
  - Items ordered   *has to be loaded manually.*
  - Delivery amount charged

Menu:
- Each restaurant would have an associated menu, with the following details captured:
  - Item name

- o Item category (each item has a category breakfast, lunch, dinner, snack, late night snack- the items are available in the corresponding times)
  - o Cuisine
  - o Price
  - o Vegetarian or Non vegetarian
  - o Sometimes a single restaurant has multiple cuisines to deal with, so, the cuisine pertaining to that item is captured along with the item, in the menu.
- Availability of an item depends on its category, the category is decided by the restaurant.

Functional Requirements

- Identify the restaurants that provide maximum commission(to this firm) over a period, at a particular location.
- Determine the hours that require more time for delivery, and in which locations (During these hours, the delivery charges would increase also would be useful to determine if more delivery agents are required).
- Determine the day of the week with maximum sales in a particular city. Similarly, determine the day of week with maximum sales at a particular location.
- Identify the most ordered cuisine at a particular location (to make use of this in recommending similar restaurants, i.e restaurants with the same cuisines, in those locations).
- Determine 5 most prefered cuisines (cuisines with maximum online sales) in a city (in order to make new associations with restaurants serving these cuisines).
- Determine the average delivery time taken at a particular location.
- Identify the top 5 restaurants, in a city that gets the maximum number of orders, over a period of time. Similarly, the ones making lowest sales.
- Determine the average number of customers ordering before 10AM and after 10PM (during the hours the delivery services are provided).
- Determine the average number of customers in a city who make a bill amount lesser than Rs.350.
- Determine the locations with most customers (say 80% of the ones in the location) making orders below Rs.350.
- Identify delivery agents with less than 15 deliveries taken, in a day, on an average. Similarly, identify delivery agents with more than 25 deliveries taken, in an average, in a day (to give them a bonus of Rs.1500 per month, if it is equal to or more than 30 a bonus of Rs.1800 would be granted).
- Determine top 5 restaurants in a location based on the pick up time. ?
- Determine the most preferable mode of payment, in different cities.
- Identify customers with maximum order amount in a month.

- Minor changes are required.
- Buisness goals are seems fine.