Discussion and Background of the Business Problem:

- Restaurant businesses are the one business now booming and as well as every one wants to try food in all restaurants. So, have to search a good restaurant based on reviews, fame, good will and mouth talk

- when we start a business, it causes risk factor and failure of business without having a proper knowledge and chef selection

- Starting a Restaurant is something which requires a nice measure of venture. You should take costs like kitchen, furniture, utensils, porcelain, and so on, and so forth and the spending plan for something very similar. Start with a financial plan of the amount you will spend on these dependent on limit of eatery and administrations you mean to serve.

- Restaurant for the most part is opened in places which have a high foot fall and these spots are ridiculous costly, Keep the expense in your brain before you get down to monetary arranging.

Starting a restaurant, as intimidating as it can sound, is certainly not a cakewalk. But that doesn't mean your efforts will not be rewarded. Once you establish your brand in the market, there is usually no turning back. Before starting any restaurant, there are 5 major factors that you need to keep in mind to embark on a journey to run a successful restaurant.

- 1. Money - Isn't it obvious for money to be in the first place?! There is no doubt that you need money to set up a restaurant and to run it smoothly. But, researching about the financials, as to estimate the different costs involved and to plan accordingly is the key.

- 2. Time - Are you ready to devote your time to your restaurant? And when I say time, I mean 'most' of your time at least until your restaurant elevates to the next level. Be prepared to spend most of your time at your restaurant. After all, it is 'your' restaurant and it is on you to make it big!

- 3. Staff - Most restaurant owners succumb to the responsibilities of running a restaurant and overlook the importance of good customer service. Putting together an efficient team to handle your restaurant operations is critical to ensure customer satisfaction. Apart from this, hiring fine chefs and maintaining a positive relationship with them can go a long way in aiding to your restaurant success.

- 4. Location - Think about it...would you prefer going to a place close to home or workplace, or would you travel miles to satisfy your hunger, especially if you live in a traffic-prone city? The significance of setting up your restaurant in a popular and populous location can fetch you with a good crowd and can keep your business running.

- 5. Concept and Cuisine - In recent times, with an increase in social media users and food bloggers, ambience and the type of food you serve beats every other factor. Hashtags and taking pictures in pretty locations is the new trend. To stay up to date and to attract all kinds of customers, it is a good idea to come up with interesting concepts and menu.

- **Problem Statement**

- What is the best location for a restaurant in Hyderabad Neighbourhood?

- In what Neighbourhood should I open a restaurant to have the best chance of being successful?

- How to attract a customer with discounted offers

- Trade-off between price and location

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- **Description of the Data:**

- The following data is required to answer the issues of the problem:

- List of neighbourhoods of Hyderabad with their geodata (latitude and longitude)

- List of metro stations in Hyderabad with their address location

- List of prices of products(food) in Hyderabad area with their addresses and price

- **How the data will be used to solve the problem**

- The data will be used as follows:

- Use Foursquare and geopy data to map top 10 venues for all Hyderabad neighbourhoods and clustered in groups

- Use foursquare and geopy data to map the location of metro stations , separately and on top of the above clustered map in order to be able to identify the resturants

- Use Foursquare and geopy data to map the location of resturants places, in some form, linked to the locations

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- **Data Preparation**

- The Dataset is provided to us by REGex Institute for training purpose. The Data can also be found at Kaggle.

- The dataset contains the following features:

- Name: This feature contains the name of the restaurant in a city

- Price: Contains the approximate cost of meal

- Cuisine Category: Consists of different food categories, separated by comma

- City: Contains the name of the city the restaurant is located in.

- City Region: Contains the neighbourhood in which the restaurant is located

- URL: This feature contains the URL of the restaurant on the Zomato website

- Cuisine Type: Type of the restaurant

- Timing: Opening and closing time of a restaurant.

- Rating Type: Ratings in terms of Excellent/Average/Good.

- Rating: Contains the overall rating of the restaurant out of 5

- Votes: Contains total number of votes for the restaurant

- **Data Integration**

- This step involves integration of all the files containing data for each city into a single file/ data frame. For this, Python's Pandas, NumPy and Glob libraries have been used.

- Importing the data as Data Frame

- Give the path of Folders Containing CSV Files

- Run the Script to Integrate all files inside a folder

- Export the new CSV File

- **Data Cleaning (Pre-processing)**

- The next step is data cleaning process. This involves deletion of unnecessary and redundant features of the data.

- Data Cleaning is the process of ensuring that your data is correct, consistent and useable by identifying any errors or corruptions in the data, correcting or deleting them, or manually processing them as needed to prevent the error from happening again. Data given to us was containing lot of errors like Null values, White Spaces, Hyphen, Latin Letters, Incorrect value. We have used Python Library Pandas for Data Cleaning purpose.

- Importing the data as Data Frame

- Explore the data and check for errors that make data Inefficient for further analysis

- Check the datatype and convert as per requirement

- Check for Null Values and the custom Null

- Replace or Drop Null values, Replace the Null values using Mean taking Groupby.

- Export the data

- For data analysis, we do not need the contact details of the restaurant so, the URL column is removed along with the Page Number column which is also of no use for the analysis.

- The Null or Garbage values in Rating and Votes column are filled using Mean of the hotels grouping by City and Cuisine Type.

- Moreover, the timing column is not providing any additional information which may be used for the analysis since only the opening and closing time of the restaurant is specified so, this column is removed as well

Step 1 : Choose CITY

Ahmedabad   Alappuzha   Amravati   Aurangabad   Bhopal   **Chandigarh**   Coimbatore   Darjeeling   Delhi NCR   Gangtok   Gorakhpur   Guwahati   Haridwar   Ind

Agra   Ajmer   Allahabad   Amritsar   Bengaluru   Bhubaneswar   Chennai   Cuttack   Dehradun   Dharamshala   Goa   Guntur   Gwalior   Hyderabad

Step 2 : Choose Region on basis of City

Result : On basis of city and region -> Cusine Type provided in a particular restaurant with Rating_type.
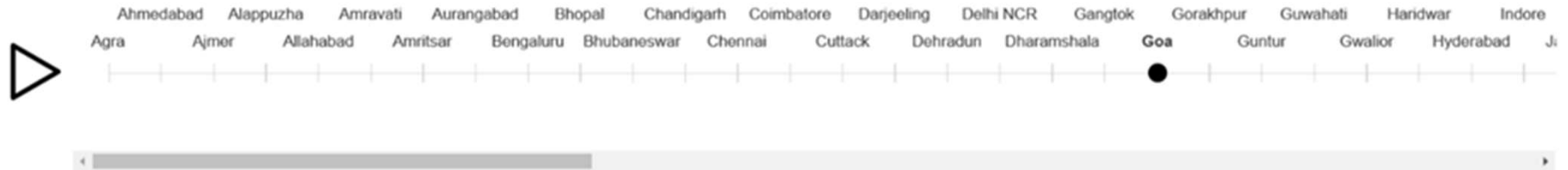
RATING_TYPE
● Average   ● Good   ● Very Good
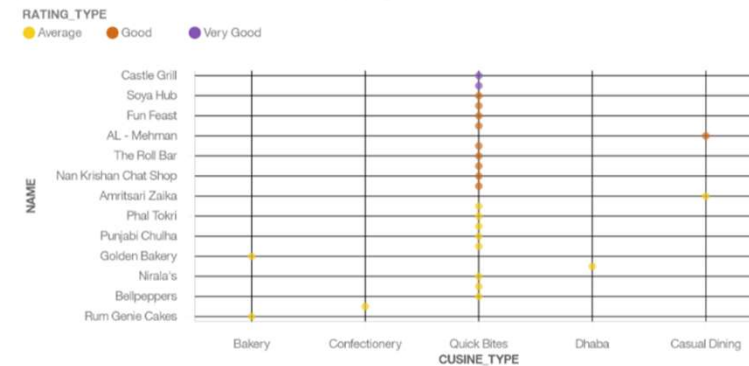
Data Visualization
Business Case-1: Check the Cuisines and their Ratings Served by a restaurant in a Region of selected City

Step1:- Select city
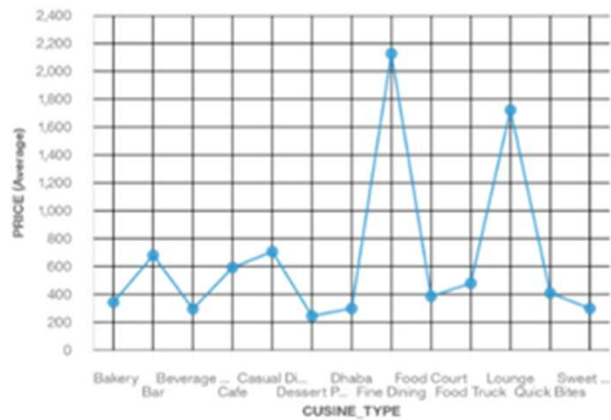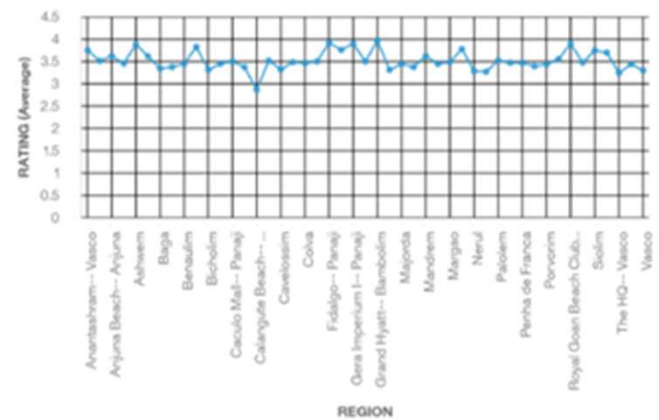
Ahmedabad   Alappuzha   Amravati   Aurangabad   Bhopal   Chandigarh   Coimbatore   Darjeeling   Delhi NCR   Gangtok   Gorakhpur   Guwahati   Haridwar   Indore

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Result:- Cusine type with average price

Result:- Region with average rating
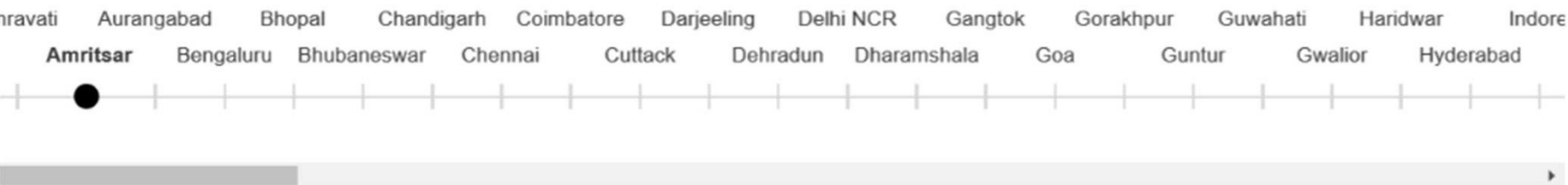
total number of restaurants

REGION