Battle of Neighbourhoods-
Chasing Localities with best foods!

1.Introduction:

Mumbai, a city located on the shore of Arabian Sea, on the western coast of India, is one of the most populous cities in the world. The project helps in finding out the localities in Mumbai, India having the best food places. The project helps in analyzing the which localities has the best cuisines. Also, providing information about ratings given to these restaurants by diners. Being a multicultural city, the city has wide variety of traditional Indian as well as International Cuisines. At the end of the project, we would be able to answer several questions like What is the best locality for traditional Indian cuisines? Localities with highest rated restaurants Which areas have lowest number of restaurants?

Mumbai's culture is a blend of traditional festivals, food, music, and theatres. The city offers a cosmopolitan and diverse lifestyle with a variety of food, entertainment, and night life, available in a form and abundance comparable to that in other world capitals. Mumbai's history as a major trading centre has led to a diverse range of cultures, religions, and cuisines coexisting in the city. This unique blend of cultures is due to the migration of people from all over India since the British period.

Gaining insights from this data, anyone who wants to set up his new business in this field can check for its feasibility. They can decide upon the localities where they want to come up and cuisines they would like to offer.

2. Data Used:

a. Zomato Dataset: Zomato Data set-Indian restaurants

This zomato exploratory data analysis is for the foodies to find best restaurants, value for money restaurants in their locality. It also helps to find their required cuisines in their locality. The data is collected using zomato API. The extraction process involves two steps. In first step the city IDs of all the zomato available cities in India are stored using zomato "/cities" API. In the second step using these city IDs, restaurant details in the respective cities are stored in comma separated file (csv). The dataset is quite rich with details of 100k+ restaurants like locality, ratings, types of cuisine available.

	name	locality	longitude	latitude	cuisines	aggregate_rating	rating_text	votes
134852	Drinkery 51	Bandra Kurla Complex	72.867493	19.067176	North Indian, Asian, Continental, Seafood	4.4	Very Good	3796
134853	Joey's Pizza	Malad West	72.834666	19.178188	Pizza	4.5	Excellent	7932
134854	Hitchki	Powai	72.907331	19.119930	Modern Indian, North Indian, Chinese, Momos, C...	4.7	Excellent	3762
134855	Tamasha	Lower Parel	72.827496	19.006060	Finger Food, Continental	4.7	Excellent	4979
134856	Bayroute	Juhu	72.825368	19.110684	Egyptian, Turkish, Lebanese, Moroccan, Greek	4.9	Excellent	706

b. Foursquare API:

The This API has a database of more than 105 million places. This project would use Four-square API as its prime data gathering source. Many organizations are using to geo-tag their photos with detailed info about a destination, while also serving up contextually relevant locations for those who are searching for a place to eat, drink or explore. This API provides the ability to perform location search, location sharing and details about a business. Foursquare users can also use photos, tips and reviews in many productive ways to add value to the results. It is used to extract information of different venues in the localities based on thier latitudes and longitudes.

3. Approach

- Collect the Mumbai city data from Zomato kaggel dataset
- Using Foursquare API we will find all venues for each neighborhood.
- Filter out all venues that are nearby by locality.
- Using aggregative rating for each restaurant to find the best places.
- Visualize the Ranking of neighborhoods using folium library(python)

4. Procedure

Library Imports

```
import numpy as np

import pandas as pd
pd.set_option('display.max_columns', None)
pd.set_option('display.max_rows', None)

import json

!conda install -c conda-forge geopy --yes
from geopy.geocoders import Nominatim

import requests
```

```
from pandas.io.json import json_normalize


import matplotlib.cm as cm
import matplotlib.colors as colors

# import k-means from clustering stage
from sklearn.cluster import KMeans

!conda install -c conda-forge folium=0.5.0 --yes
import folium
```

Reading Data

```
df=pd.read_csv('zomato_restaurants_in_India.csv')
df.head()
```

Cleaning the data

```
df_mumbai = df[df['city'] == 'Mumbai']

df_mumbai = df_mumbai[df_mumbai['aggregate_rating'] !=0.0]
```

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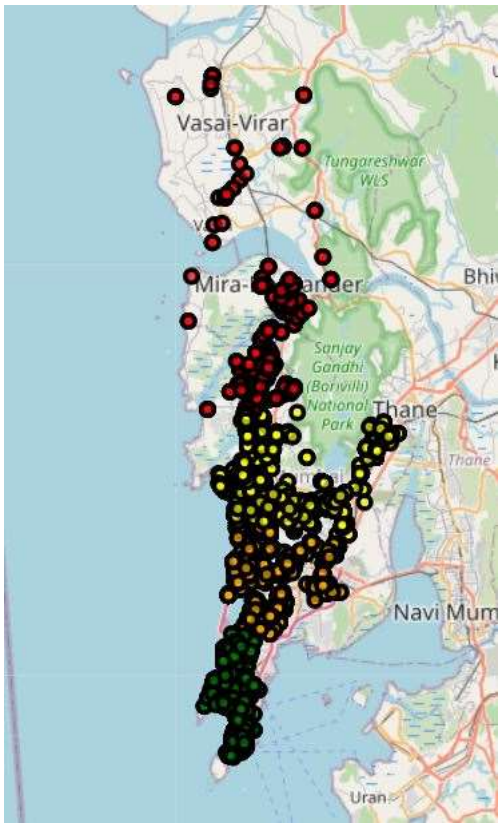
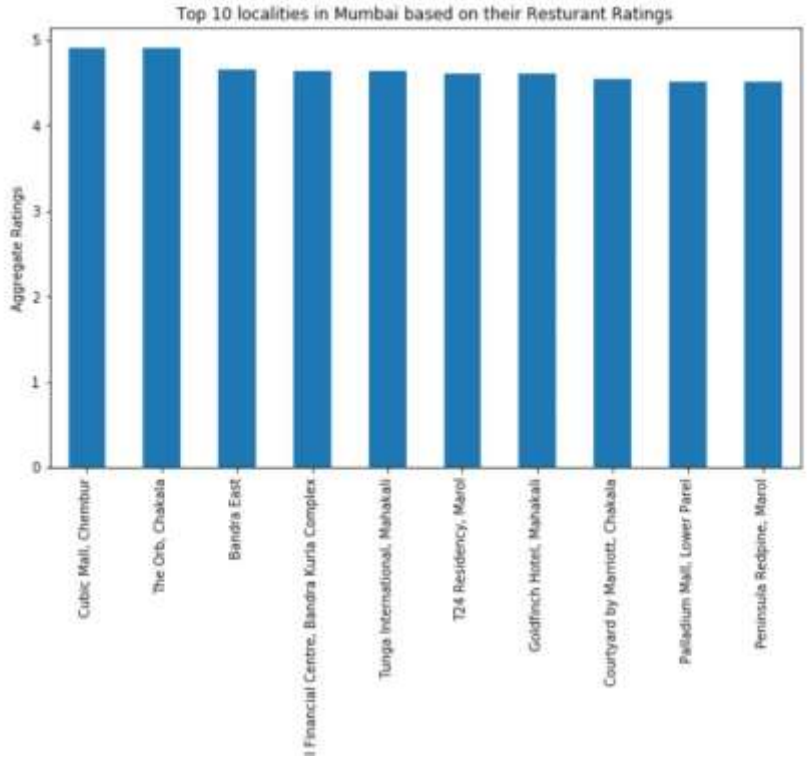
Cluster Mapping

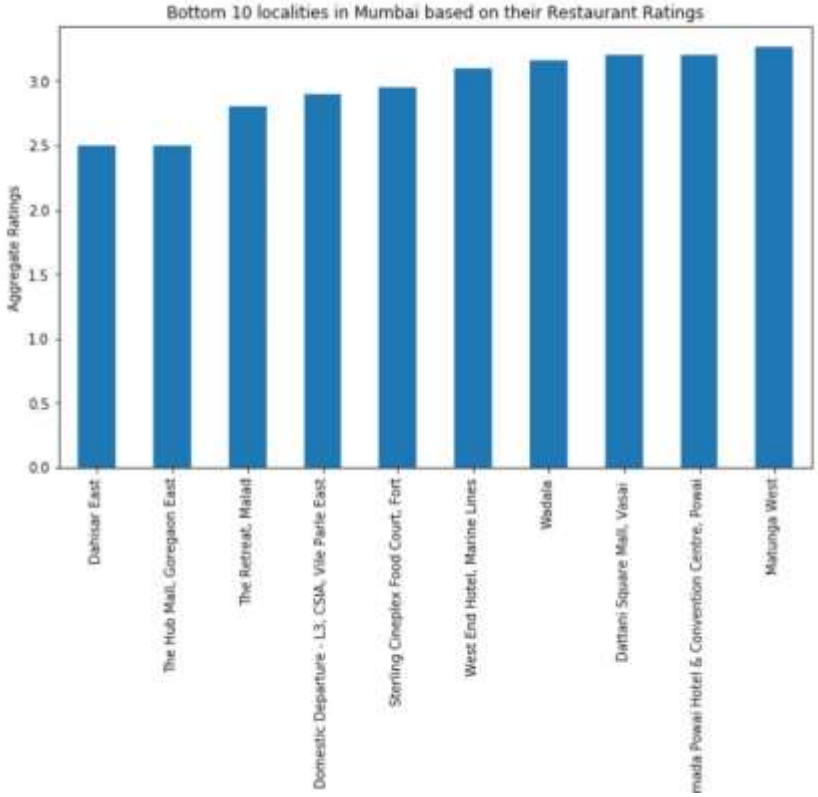
```
Mumbai_restmap = folium.Map(location=[19.0760, 72.8777], zoom_start=11)

X = df_mum['latitude']

Y = df_mum['longitude']
```

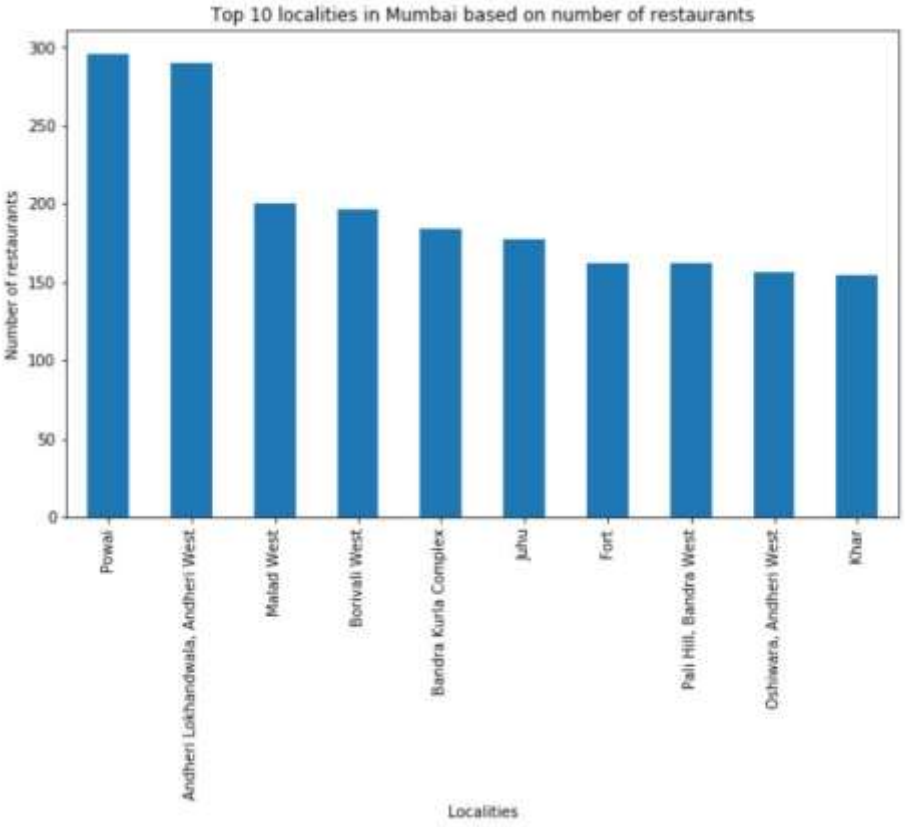
```
Z = np.stack((X, Y), axis=1)

kmeans = KMeans(n_clusters=5, random_state=0).fit(Z)

clusters = kmeans.labels_

colors = ['red', 'green', 'blue', 'yellow','orange']

df_mum ['Cluster'] = clusters

for latitude, longitude, Locality, cluster in zip(df_mum['latitude'], df_mum['longitude'],
df_mum['locality'], df_mum['Cluster']):

    label = folium.Popup(Locality, parse_html=True)

    folium.CircleMarker(

        [latitude, longitude],

        radius=4,

        popup=label,

        color='black',

        fill=True,

        fill_color=colors[cluster],

        fill_opacity=0.7).add_to(Mumbai_restmap)
```

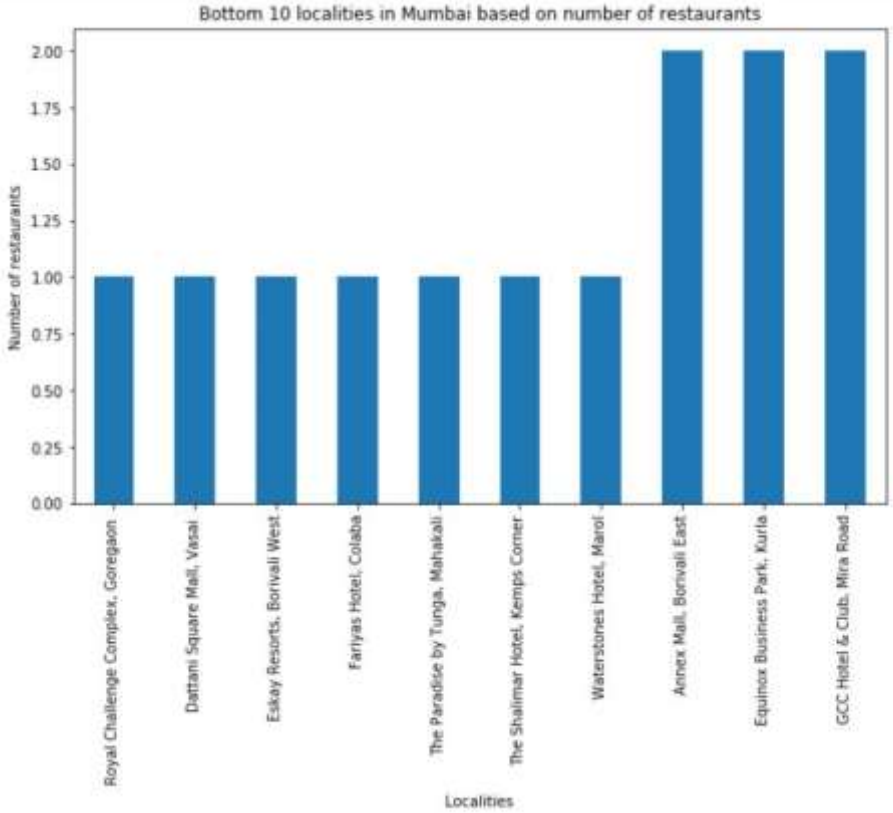
Mumbai_restmap




Top 10 localities in Mumbai based on their Resturant Ratings
Aggregate Ratings
0
1
2
3
4
5
Cubic Mall, Chembur
The Orb, Chakala
Bandra East
I Financial Centre, Bandra Kurla Complex
Tunga International, Mahakali
T24 Residency, Marol
Goldfinch Hotel, Mahakali
Courtyard by Marriott, Chakala
Palladium Mall, Lower Parel
Peninsula Redpine, Marol


Bottom 10 localities in Mumbai based on their Restaurant Ratings
Aggregate Ratings
0.0
0.5
1.0
1.5
2.0
2.5
3.0
Dahisar East
The Hub Mall, Goregaon East
The Retreat, Malad
Domestic Departure - L3, CSIA, Vile Parle East
Sterling Cineplex Food Court, Fort
West End Hotel, Marine Lines
Wadala
Dattani Square Mall, Vasai
mada Powai Hotel & Convention Centre, Powai
Matunga West


Top 10 localities in Mumbai based on number of restaurants
Number of restaurants
300
250
200
150
100
50
0
Powai
Andheri Lokhandwala, Andheri West
Malad West
Borivali West
Bandra Kurla Complex
Juhu
Fort
Pali Hill, Bandra West
Oshiwara, Andheri West
Khar
Localities


Bottom 10 localities in Mumbai based on number of restaurants
Number of restaurants
2.00
1.75
1.50
1.25
1.00
0.75
0.50
0.25
0.00
Royal Challenge Complex, Goregaon
Dattani Square Mall, Vasai
Eskay Resorts, Borivali West
Fariyas Hotel, Colaba
The Paradise by Tunga, Mahakali
The Shalimar Hotel, Kemps Corner
Waterstones Hotel, Marol
Annex Mall, Borivali East
Equinox Business Park, Kurla
GCC Hotel & Club, Mira Road
Localities

Conclusions

Analysis of different features gives us an gist of variety of food available across various locations in Mumbai. Exploring the data help here can help an businessman to decide where to open up new businesses. The graphs plotted here shows there is an abundance of restaurants present in Powai area, whereas areas like Dahisar are still faraway from opening up of restaurant business.