

```
In [1]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [2]: path=r"C:\Users\Sruth\Downloads\cognifyz dataset.csv"
df=pd.read_csv(path)
df
```

Out[2]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality
0	6317637	Le Petit Souffle	162	Makati City	Third Floor, Century City Mall, Kalayaan Avenu...	Century City Mall, Poblacion, Makati City
1	6304287	Izakaya Kikufuji	162	Makati City	Little Tokyo, 2277 Chino Roces Avenue, Legaspi...	Little Tokyo, Legaspi Village, Makati City
2	6300002	Heat - Edsa Shangri-La	162	Mandaluyong City	Edsa Shangri-La, 1 Garden Way, Ortigas, Mandal...	Edsa Shangri-La, Ortigas, Mandaluyong City
3	6318506	Ooma	162	Mandaluyong City	Third Floor, Mega Fashion Hall, SM Megamall, O...	SM Megamall, Ortigas, Mandaluyong City
4	6314302	Sambo Kojin	162	Mandaluyong City	Third Floor, Mega Atrium, SM Megamall, Ortigas...	SM Megamall, Ortigas, Mandaluyong City
...
9546	5915730	Naml Gurme	208	İstanbul	Kemankeş Karamustafa Paşası Mahallesi, Rıhtım ...	Karaköy
9547	5908749	Ceviz Acağı	208	İstanbul	Koşuyolu Mahallesi, Muhittin Köstendamağı Cadd...	Koşuyolu
9548	5915807	Huqqa	208	İstanbul	Kuruçeşme Mahallesi, Muallim Naci Caddesi, N...	Kuruçeşme
9549	5916112	Ak Kahve	208	İstanbul	Kuruçeşme Mahallesi, Muallim Naci Caddesi, N...	Kuruçeşme
9550	5927402	Walter's Coffee Roastery	208	İstanbul	Cafea Mahallesi, Bademaltı Sokak, No 21/B, ...	Moda

9551 rows × 21 columns

Determine the top three most common cuisines in the dataset.

```
In [3]: df[['Cuisines']].head()
```

```
Out[3]:
```

	Cuisines
0	French, Japanese, Desserts
1	Japanese
2	Seafood, Asian, Filipino, Indian
3	Japanese, Sushi
4	Japanese, Korean

```
In [4]: df[['Cuisines']].tail()
```

```
Out[4]:
```

	Cuisines
9546	Turkish
9547	World Cuisine, Patisserie, Cafe
9548	Italian, World Cuisine
9549	Restaurant Cafe
9550	Cafe

```
In [5]: Total=df['Cuisines'].str.split(',').explode()  
Total
```

```
Out[5]:
```

0	French
0	Japanese
0	Desserts
1	Japanese
2	Seafood
	...
9547	Cafe
9548	Italian
9548	World Cuisine
9549	Restaurant Cafe
9550	Cafe

Name: Cuisines, Length: 19719, dtype: object

```
In [6]: top_3_cusines=Total.value_counts().head(3)  
top_3_cusines
```

```
Out[6]:
```

Cuisines	count
North Indian	2992
Chinese	1880
Fast Food	1314

Name: count, dtype: int64

```
In [7]: pd.DataFrame(top_3_cusines)
```

Out[7]:

count	
Cuisines	
North Indian	2992
Chinese	1880
Fast Food	1314

Calculate the percentage of restaurants that serve each of the top cuisines

```
In [8]: # Calculate the percentage of restaurants that serve each of the top cuisines
top_3_percentage = (top_3_cusines / len(df)) * 100
top_3_percentage
```

Out[8]:

Cuisines	
North Indian	31.326563
Chinese	19.683803
Fast Food	13.757722

Name: count, dtype: float64

```
In [9]: pd.DataFrame(top_3_percentage)
```

Out[9]:

count	
Cuisines	
North Indian	31.326563
Chinese	19.683803
Fast Food	13.757722

In []:

Level1- Task-2

city analysis

```
In [10]: df.columns
```

Out[10]:

```
Index(['Restaurant ID', 'Restaurant Name', 'Country Code', 'City', 'Address',
      'Locality', 'Locality Verbose', 'Longitude', 'Latitude', 'Cuisines',
      'Average Cost for two', 'Currency', 'Has Table booking',
      'Has Online delivery', 'Is delivering now', 'Switch to order menu',
      'Price range', 'Aggregate rating', 'Rating color', 'Rating text',
      'Votes'],
      dtype='object')
```

```
In [11]: city=df['City'].value_counts()
city
```

```
Out[11]: City
New Delhi      5473
Gurgaon        1118
Noida          1080
Faridabad      251
Ghaziabad      25
...
Panchkula      1
Mc Millan      1
Mayfield       1
Macedon        1
Vineland Station 1
Name: count, Length: 141, dtype: int64
```

```
In [20]: top_city=city.idxmax()
top_city
```

```
Out[20]: 'New Delhi'
```

```
In [17]: #identify the city with the highest number of restaurants in data set

city_counts=df['City'].value_counts()
most_resturants_city=city_counts.idxmax()
most_resturants_count=city_counts.max()
print(f"The city with highest number of restaurants is {most_resturants_city} wit
```

The city with highest number of restaurants is New Delhi with 5473 restaurants.

```
In [23]: # calculate average rating for each city

Average_ratings=df.groupby('City')['Aggregate rating'].mean()
print(Average_ratings)
```

```
City
Abu Dhabi      4.300000
Agra           3.965000
Ahmedabad      4.161905
Albany         3.555000
Allahabad      3.395000
...
Weirton        3.900000
Wellington City 4.250000
Winchester Bay 3.200000
Yorkton        3.300000
🚩🚩stanbul    4.292857
Name: Aggregate rating, Length: 141, dtype: float64
```

```
In [24]: #Determine the city with highest avg ratings.
Average_ratings=df.groupby('City')['Aggregate rating'].mean()
city_with_highest_rating=Average_ratings.idxmax()
highest_rating=Average_ratings.max()
print(f"city with the highest average rating : {city_with_highest_rating} with a
```

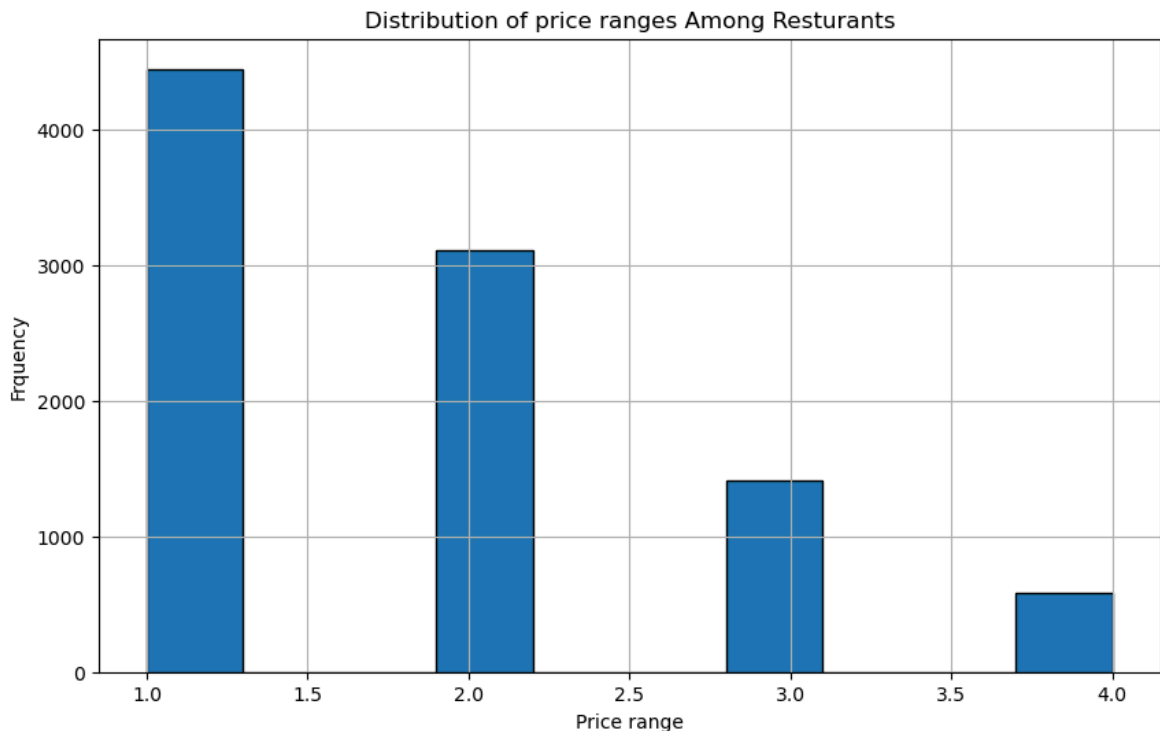
city with the highest average rating : Inner City with an average rating 4.90

TASK-3

```
In [25]: # create a histogram Distribution of price ranges Among Resturants

price_ranges=df['Price range']
```

```
plt.figure(figsize=(10,6))
plt.hist(price_ranges,bins=10,edgecolor='black')
plt.title('Distribution of price ranges Among Resturants')
plt.xlabel('Price range')
plt.ylabel('Frquency')
plt.grid(True)
plt.show()
```



In [26]: *# calculate the percentage of resturants in each price range category*

```
price_ranges=df['Price range']
price_ranges_counts=price_ranges.value_counts()
total_resturants=len(price_ranges)
price_ranges_percentage=(price_ranges_counts/total_resturants)*100
print(price_ranges_percentage)
```

```
Price range
1    46.529159
2    32.593446
3    14.741912
4     6.135483
Name: count, dtype: float64
```

TASK-4 Online Delivery

In [30]: *#find count of hotels which provides online delivery*

```
online_delivery = df['Has Online delivery'].value_counts()
online_delivery
```

```
Out[30]: Has Online delivery
No      7100
Yes     2451
Name: count, dtype: int64
```

In [31]: *#find total restaurants*

```
total_restaurants = online_delivery.sum()
total_restaurants
```

Out[31]: 9551

```
In [32]: #find online_delivery_percentage  
online_delivery_percentage = round((online_delivery['Yes'] / total_restaurants)  
online_delivery_percentage
```

Out[32]: 25.66

```
In [33]: # find data of restaurant has online delivery  
df[df['Has Online delivery']=='Yes']
```

Out[33]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality
565	5704255	Famous Dave's Barbecue	214	Abu Dhabi	Near The One, Level 3, Abu Dhabi Mall, Tourist...	Abu Dhabi Mall, Tourist Club Area (Al Zahiyah)	Abu Mall, Club A Za
566	5701978	Pizza Di Rocco	214	Abu Dhabi	Near Corner of Salam and Al Falah Street (9th ...	Al Dhafrah	Al Dh Abu
571	5700052	Cho Gao - Crowne Plaza Abu Dhabi	214	Abu Dhabi	Crowne Plaza Abu Dhabi, Sheikh Hamdan Bin Moha...	Crowne Plaza Abu Dhabi, Al Markaziya	Crowne Abu Dh Marl Abu
572	5702418	Gazebo	214	Abu Dhabi	Ground Level, Next to E-Max, Dalma Mall, Mussa...	Dalma Mall, Mussafah Sanaiya	Dalma Mu Sanaiy
573	5700386	Sangeetha Vegetarian Restaurant	214	Abu Dhabi	Opposite Cristal Hotel, Behind KM Trading, Ele...	Madinat Zayed	M Zayed
...
9166	11371	Chili's	1	Pune	UG 49, Phoenix Market City, Nagar Road, Viman ...	Phoenix Market City, Viman Nagar	PI Marke Viman I
9168	18292672	Blue Water	1	Pune	Punawale, Near Basket Bridge,Off Aundh-Ravet B...	Ravet	Ravet
9170	6507967	Tales & Spirits	1	Pune	Plot 64, Shivaji Housing Society, Senapati Bap...	Senapati Bapat Road	Se Bapat
9171	6506206	18 Degrees Resto Lounge	1	Pune	8th & 9th Floor, Spot 18 Mall, Pimple Saudagar...	Spot 18 Mall, Pimple Saudagar	Spot 18 F Sau
9194	96814	Saffron Mantra	1	Secunderabad	The Purple Leaf Hotel,	Karkhana	Kar Secunde

Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Lc Ve
				Karkhana, Secunderabad		

2451 rows × 21 columns

```
In [34]: # find data of restaurant doesn't has online delivery
df[df['Has Online delivery']=='No']
```

Out[34]:

	Restaurant ID	Restaurant Name	Country Code	City	Address	Locality
0	6317637	Le Petit Souffle	162	Makati City	Third Floor, Century City Mall, Kalayaan Avenu...	Century City Mall, Poblacion, Makati City
1	6304287	Izakaya Kikufuji	162	Makati City	Little Tokyo, 2277 Chino Roces Avenue, Legaspi...	Little Tokyo, Legaspi Village, Makati City
2	6300002	Heat - Edsa Shangri-La	162	Mandaluyong City	Edsa Shangri-La, 1 Garden Way, Ortigas, Mandal...	Edsa Shangri-La, Ortigas, Mandaluyong City
3	6318506	Ooma	162	Mandaluyong City	Third Floor, Mega Fashion Hall, SM Megamall, O...	SM Megamall, Ortigas, Mandaluyong City
4	6314302	Sambo Kojin	162	Mandaluyong City	Third Floor, Mega Atrium, SM Megamall, Ortigas...	SM Megamall, Ortigas, Mandaluyong City
...
9546	5915730	Naml Gurme	208	İstanbul	Kemankeş Karamustafa Paşası Mahallesi, Rıhtım ...	Karaköy
9547	5908749	Ceviz Aca	208	İstanbul	Koşuyolu Mahallesi, Muhittin Köstendağ Cadd...	Koşuyolu
9548	5915807	Huqqa	208	İstanbul	Kuruçeşme Mahallesi, Muallim Naci Caddesi, N...	Kuruçeşme
9549	5916112	Ak Kahve	208	İstanbul	Kuruçeşme Mahallesi, Muallim Naci Caddesi, N...	Kuruçeşme
9550	5927402	Walter's Coffee Roastery	208	İstanbul	Cafea Mahallesi, Bademaltı Sokak, No 21/B, ...	Moda

7100 rows × 21 columns

In [37]: *# comparing the average ratings of resturants with online devlivery and without*

```
avg_ratings_with_onlinedelivery=df[df['Has Online delivery']=='Yes']['Aggregate  
avg_ratings_without_onlinedelivery=df[df['Has Online delivery']=='No']['Aggregate  
print(f"Average rating for resturants with online delivery : {avg_ratings_with_o  
print(f"Average rating for resturants with out online delivery : {avg_ratings_wi
```

Average rating for resturants with online delivery : 3.25
Average rating for resturants with out online delivery : 2.47

In []: