```
In [1]: import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
import plotly.express as px
import plotly.io as pio
pio.renderers.default = 'svg'
```

Out[2]:

	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	
0	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	Mumbai	First International Financial Centre Bandra	https://www.zomato.com/mumbai/hitchki- bandra-k	1	Casual Dining	12noo
1	Baba Falooda	400	Desserts,Ice Cream,Beverages	Mumbai	Mahim	https://www.zomato.com/mumbai/baba-falooda-mah	1	Dessert Parlor	2
2	Chin Chin Chu	1800	Asian,Chinese	Mumbai	Juhu	https://www.zomato.com/mumbai/chin-chin-chu-ju	1	Casual Dining	12n
3	Butterfly High	1000	Modern Indian	Mumbai	Bandra Kurla Complex	https://www.zomato.com/mumbai/butterfly-high-b	1	Bar	12noo
4	BKC DIVE	1200	North Indian,Chinese,Continental	Mumbai	Bandra Kurla Complex	https://www.zomato.com/mumbai/bkc-dive-bandra	1	Bar	113(
15076	Hari Om Snack Bar	350	Fast Food,South Indian,Chinese	Mumbai	Kandivali West	https://www.zomato.com/mumbai/hari-om- snack-ba	99	Quick Bites	11ar
15077	PitaBurg	400	Fast Food,Lebanese	Mumbai	Lower Parel	https://www.zomato.com/mumbai/pitaburg-lower-p	99	none	11pm(Mon,Tu
15078	Uncha Otlawala	300	Desserts,Ice Cream	Mumbai	Kandivali West	https://www.zomato.com/mumbai/uncha- otlawala-1	99	Dessert Parlor	9am
15079	Mandarin Panda	400	Desserts, Chinese, Thai	Mumbai	Malad West	https://www.zomato.com/mumbai/mandarin-panda-m	99	none	12n
15080		NaN	NaN	NaN	NaN	NaN	NaN	NaN	

¹⁵⁰⁸¹ rows × 12 columns

Getting Basic Information about the Dataset

```
In [3]: 1 dataset.shape
Out[3]: (15081, 12)
In [4]: 1 dataset.info()
```

<class 'pandas.core.frame.DataFrame'>
RangeIndex: 15081 entries, 0 to 15080
Data columns (total 12 columns):

#	Column	Non-Null Count	Dtype
0	NAME	15081 non-null	object
1	PRICE	15080 non-null	object
2	CUSINE_CATEGORY	15079 non-null	object
3	CITY	15080 non-null	object
4	REGION	15080 non-null	object
5	URL	15080 non-null	object
6	PAGE NO	15080 non-null	object
7	CUSINE TYPE	15080 non-null	object
8	TIMING	15015 non-null	object
9	RATING_TYPE	14070 non-null	object
10	RATING	15080 non-null	object
11	V0TES	15080 non-null	object
dtvn	es: obiect(12)		

dtypes: object(12)
memory usage: 1.4+ MB

In [5]:

dataset.describe()

Out[5]:

	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
count	15081	15080	15079	15080	15080	15080	15080	15080	15015	14070	15080	15080
unique	12720	67	3183	2	241	13823	944	23	2551	31	35	1124
top	NAME	400	CUSINE_CATEGORY	Mumbai	REGION	URL	PAGE NO	Quick Bites	11am to 11pm(Mon-Sun)	Average	-	-
freq	942	2042	942	14138	942	942	942	5262	1192	5112	2360	2360

Dataset Cleaning

- 1. Removing the redundunt rows of data
- 2. Removing the Null Records
- 3. Converting the DataTypes of numerical columns to numeric dataype
- 4. Working with 'Timing' column
- 5. Removing the restaurant records whose Rating or Votes is 0
- 6. Working on 'RATING_TYPE' Column
- 7. Working on 'REGION' Column
- 8. Removing Duplicate records

```
In [6]: # 1. Removing the redundunt rows of data

# Checking redundunt rows of data

wrong_data= dataset['PAGE NO']=='PAGE NO'
dataset[wrong_data]
```

Out[6]:

	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
15	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
31	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
47	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
63	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
79	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
15000	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
15016	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
15032	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
15048	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
15064	NAME	PRICE	CUSINE_CATEGORY	CITY	REGION	URL	PAGE NO	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES

942 rows × 12 columns

In [7]:

Performing Negation of the wrong dataset and then storing the correct data back in the dataset DataFr # This permamnently remove the wrong data from the original dataframe

4 dataset= dataset[~wrong_data]

```
In [8]: # Dropping columns which are not required for further analysis
dataset.drop(['URL', 'PAGE NO','CITY'], axis =1, inplace =True)
dataset
```

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1438057742.py:3: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

Out[8]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES
0	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	First International Financial Centre Bandra	Casual Dining	12noon to 130am(Mon-Sun)	Excellent	4.9	3529
1	Baba Falooda	400	Desserts,Ice Cream,Beverages	Mahim	Dessert Parlor	2pm to 1am(Mon-Sun)	Very Good	4.4	1723
2	Chin Chin Chu	1800	Asian,Chinese	Juhu	Casual Dining	12noon to 1am(Mon-Sun)	Very Good	4.2	337
3	Butterfly High	1000	Modern Indian	Bandra Kurla Complex	Bar	12noon to 130am(Mon-Sun)	Very Good	4.3	1200
4	BKC DIVE	1200	North Indian,Chinese,Continental	Bandra Kurla Complex	Bar	1130am to 1am(Mon-Sun)	Veľmi dobré	4.4	5995
15076	Hari Om Snack Bar	350	Fast Food,South Indian,Chinese	Kandivali West	Quick Bites	11am to 230am(Mon-Sun)	Good	3.7	64
15077	PitaBurg	400	Fast Food,Lebanese	Lower Parel	none	11am to 11pm(Mon,Tue,Wed,Thu,Sun),11am to	Average	3.4	99
15078	Uncha Otlawala	300	Desserts,Ice Cream	Kandivali West	Dessert Parlor	9am to 1230AM(Mon-Sun)	Good	3.5	29
15079	Mandarin Panda	400	Desserts, Chinese, Thai	Malad West	none	12noon to 330pm,7pm to 1am(Mon-Sun)	Good	3.7	121
15080		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

14139 rows × 9 columns

```
In [9]: | 1 | # 2. Removing the Null Records
```

3 #Checking for Null records

dataset.isnull().sum()

Out[9]: NAME

0 **PRICE** 1 CUSINE_CATEGORY 2 1 REGION CUSINE TYPE 1 **TIMING** 66 RATING_TYPE 1011 **RATING** 1 **VOTES** 1 dtype: int64

In [10]:

1 # Checking for a null row

dataset[dataset['PRICE'].isnull()]

Out[10]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	HIMING	RATING_TYPE	RATING	VOIES
15080		NaN	NaN	NaN	NaN	NaN	NaN	NaN	NaN

```
In [11]:
             # Droping the above row from the dataset
             dataset= dataset.drop(labels=15080, axis=0)
             # Replacing the other null records with NA
             dataset.fillna('NA', inplace = True)
             # Confirming all the null records are correct
             dataset.isnull().sum()
Out[11]: NAME
                             0
         PRICE
         CUSINE_CATEGORY
                             0
         REGION
         CUSINE TYPE
                             0
         TIMING
                             0
                             0
         RATING_TYPE
         RATING
                             0
         VOTES
         dtype: int64
In [12]:
             # 3. Converting the DataTypes of numerical columns to numeric dataype
             # Checking for text values in the numerical column before converting it to numeric datatype
             dataset[('RATING')].value_counts()
Out[12]: RATING
                    2360
         3.5
                    1094
         3.4
                    1036
                      960
         3.6
                      953
         NEW
         3.3
                      926
         3.7
                      917
         3.2
                      801
                      782
         3.8
         3.1
                      734
                      622
         3.0
         3.9
                      596
         2.9
                      409
                      408
         4.0
         2.8
                      309
                      298
         4.1
         4.2
                      199
         2.7
                      170
         4.3
                      148
         4.4
                      99
         2.6
                      77
                      57
         Opening
         4.5
                       46
         2.5
                       39
         4.6
                       32
         2.4
                       26
         4.7
                      13
         2.3
                       10
         2.1
                        5
                        4
         2.2
         4.8
                        4
         2.0
         Name: count, dtype: int64
In [13]:
             # Replacing the text values with '0'
```

dataset['RATING'].replace(to_replace=['-','NEW','Opening'], value = '0', inplace= True)

```
In [14]:
             #Checking for text values in the numerical column before converting it to numeric datatype
             dataset['VOTES'].value_counts()
Out[14]: VOTES
                 2360
         NEW
                  953
                  364
         4
         5
                  320
                  288
         6
         1029
                    1
         7350
                    1
         964
                    1
         585
                    1
         1249
                    1
         Name: count, Length: 1123, dtype: int64
In [15]:
             # Replacing the text values with '0'
             dataset['VOTES'].replace(to_replace=['-','NEW','Opening'], value = '0', inplace= True)
In [16]:
             # Changing Data Type of the numerical columns
             dataset['PRICE'] = dataset['PRICE'].astype('int64')
             dataset['RATING'] = dataset['RATING'].astype('float64')
             dataset['VOTES']=dataset['VOTES'].astype('int64')
             dataset.info()
In [17]:
         <class 'pandas.core.frame.DataFrame'>
         Index: 14138 entries, 0 to 15079
         Data columns (total 9 columns):
              Column
                               Non-Null Count Dtype
          0
              NAME
                               14138 non-null object
          1
              PRICE
                                14138 non-null int64
          2
              CUSINE_CATEGORY 14138 non-null object
          3
                                14138 non-null object
              REGION
              CUSINE TYPE
                                14138 non-null object
          5
                                14138 non-null object
              TIMING
          6
              RATING_TYPE
                                14138 non-null object
          7
                                14138 non-null float64
              RATING
              VOTES
                                14138 non-null int64
         dtypes: float64(1), int64(2), object(6)
         memory usage: 1.1+ MB
In [18]:
             # 4. Working with 'Timing' column
             dataset['TIMING'].value_counts()
Out[18]: TIMING
         11am to 11pm(Mon-Sun)
                                                             1192
         11am to 12midnight(Mon-Sun)
                                                              632
         12noon to 12midnight(Mon-Sun)
                                                              467
         11am to 1130pm(Mon-Sun)
                                                              309
         10am to 10pm(Mon-Sun)
                                                              267
         1130am to 4pm,630pm to 1230AM...
                                                                1
         12midnight to 5am, 12noon to 12midnight (Mon-Sun)
                                                                1
         12midnight to 1230AM, 12noon to 4pm, 7pm to ...
                                                                1
         12noon to 330pm,630pm to 12midnight...
                                                                1
         8am to 11pm, 12midnight to 115am (Mon-Sun)
                                                                1
```

Name: count, Length: 2551, dtype: int64

Out[19]:

	0	1
0	12noon to 130am	Mon-Sun)
1	2pm to 1am	Mon-Sun)
2	12noon to 1am	Mon-Sun)
3	12noon to 130am	Mon-Sun)
4	1130am to 1am	Mon-Sun)
15075	8am to 11pm,12midnight to 115am	Mon-Sun)
15076	11am to 230am	Mon-Sun)
15077	11am to 11pm	Mon,Tue,Wed,Thu,Sun),11am to
15078	9am to 1230AM	Mon-Sun)
15079	12noon to 330pm,7pm to 1am	Mon-Sun)

14138 rows × 2 columns

```
In [20]:  # Assigning the columns back to the original dataframe

dataset['TIMING']= temp_dataset[0]
    dataset['DAYS_OPEN']= temp_dataset[1]
    dataset
```

Out[20]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS.
0	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	First International Financial Centre Bandra	Casual Dining	12noon to 130am	Excellent	4.9	3529	Мс
1	Baba Falooda	400	Desserts,Ice Cream,Beverages	Mahim	Dessert Parlor	2pm to 1am	Very Good	4.4	1723	Мс
2	Chin Chin Chu	1800	Asian,Chinese	Juhu	Casual Dining	12noon to 1am	Very Good	4.2	337	Мс
3	Butterfly High	1000	Modern Indian	Bandra Kurla Complex	Bar	12noon to 130am	Very Good	4.3	1200	Мс
4	BKC DIVE	1200	North Indian,Chinese,Continental	Bandra Kurla Complex	Bar	1130am to 1am	Veľmi dobré	4.4	5995	Мс
15075	Tirupati Balaji	500	Chinese,Fast Food,North Indian	Oshiwara Andheri West	Casual Dining	8am to 11pm,12midnight to 115am	Good	3.5	267	Мс
15076	Hari Om Snack Bar	350	Fast Food,South Indian,Chinese	Kandivali West	Quick Bites	11am to 230am	Good	3.7	64	Мс
15077	PitaBurg	400	Fast Food,Lebanese	Lower Parel	none	11am to 11pm	Average	3.4	99	Mon,Tue,Wed,Thu,Sur
15078	Uncha Otlawala	300	Desserts,Ice Cream	Kandivali West	Dessert Parlor	9am to 1230AM	Good	3.5	29	Мс
15079	Mandarin Panda	400	Desserts,Chinese,Thai	Malad West	none	12noon to 330pm,7pm to 1am	Good	3.7	121	Мс

14138 rows \times 10 columns

```
In [21]: # Removing the bracket character from Days column

dataset['DAYS_OPEN']=dataset['DAYS_OPEN'].str.replace(r'\(|\)','',regex=True)
dataset.head()
```

Out[21]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_OPEN	
0	Hitchki	1200	Modern Indian, North Indian, Chinese, Momos, Birya	First International Financial Centre Bandra	Casual Dining	12noon to 130am	Excellent	4.9	3529	Mon-Sun	
1	Baba Falooda	400	Desserts,Ice Cream,Beverages	Mahim	Dessert Parlor	2pm to 1am	Very Good	4.4	1723	Mon-Sun	
2	Chin Chin Chu	1800	Asian, Chinese	Juhu	Casual Dining	12noon to 1am	Very Good	4.2	337	Mon-Sun	
3	Butterfly High	1000	Modern Indian	Bandra Kurla Complex	Bar	12noon to 130am	Very Good	4.3	1200	Mon-Sun	
4	BKC DIVE	1200	North Indian, Chinese, Continental	Bandra Kurla Complex	Bar	1130am to 1am	Veľmi dobré	4.4	5995	Mon-Sun	


```
Out[22]: NAME
                               0
         PRICE
                               0
         CUSINE_CATEGORY
                               0
         REGION
                               0
                               0
         CUSINE TYPE
         TIMING
                               0
         RATING_TYPE
                               0
         RATING
                               0
         V0TES
                                0
                             160
         DAYS_OPEN
         dtype: int64
```

```
In [23]:  # Replacing the Null values with 'NA'
dataset.fillna('NA', inplace= True)

# Checking info of all the columns
dataset.info()
```

```
Index: 14138 entries, 0 to 15079
Data columns (total 10 columns):
#
    Column
                     Non-Null Count Dtype
0
    NAME
                     14138 non-null object
1
    PRICE
                     14138 non-null int64
2
    CUSINE_CATEGORY 14138 non-null object
                     14138 non-null object
3
    REGION
    CUSINE TYPE
                     14138 non-null object
5
    TIMING
                     14138 non-null object
    RATING_TYPE
                     14138 non-null object
6
7
                     14138 non-null float64
    RATING
                     14138 non-null int64
8
    VOTES
    DAYS_OPEN
9
                     14138 non-null object
dtypes: float64(1), int64(2), object(7)
memory usage: 1.2+ MB
```

<class 'pandas.core.frame.DataFrame'>

```
In [24]: # 5.Removing the restaurant records whose Rating or Votes is 0
remove_data= (dataset['RATING']==0.0)| (dataset['VOTES']==0)
dataset[remove_data]
```

Out[24]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_OPEN
32	Hotel Annapoorna Refreshments	400	Maharashtrian, Mughlai, Chinese	Ghansoli	Quick Bites	1030am to 1230AM	Not rated	0.0	0	Mon-Sun
34	Biryani 9	600	Biryani,North Indian	Near Andheri East Station	none	11am to 3am	NA	0.0	0	Mon-Sun
36	D Fusion Flavours	350	Chinese	Goregaon East	none	12noon to 330pm,7pm to 3am	NA	0.0	0	Mon-Sun
39	Nation Tadka	400	North Indian,South Indian,Chinese,Fast Food	Worli	none	12noon to 1230AM	Not rated	0.0	0	Mon-Sun
83	Link Way Restaurant	500	North Indian, Chinese	Jogeshwari	Quick Bites	12noon to 4pm,8pm to 1am	Not rated	0.0	0	Mon-Sun
14998	Foodies House	0	Chinese	Goregaon East	none	12noon to 4am	NA	0.0	0	Mon-Sun
14999	Khansama	0	Biryani	Lower Parel	none	12noon to 3am	NA	0.0	0	Mon-Sun
15010	Earth Cafe @ Waterfield	800	Cafe,Healthy Food,Italian,Pizza,Beverages	Linking Road Bandra West	Café	10am to 10pm	NA	0.0	0	Mon- Thu,10am to 11pmFri-Sun
15023	How About Some Cream	200	Beverages	Mumbai Central	Beverage Shop	12noon to 3am	NA	0.0	0	Mon-Sun
15046	Food And Taste Theory	800	Continental,Italian	Phoenix Marketcity Kurla	Casual Dining	9am to 12midnight	NA	0.0	0	Mon-Fri,9am to 1230AMSat- Sun

3371 rows \times 10 columns

```
In [25]: #Performing Negation of the useless dataset and then storing the correct data back in the raw_df DataFr #This permamnently remove the wrong data from the original dataframe dataset=dataset[~remove_data]
```

In [26]: 1 # 6. Working on 'RATING_TYPE' Column

Checking the unique values in the column
dataset["RATING_TYPE"].value_counts()

Out[26]: RATING_TYPE

Average 5111 Good 4330 Very Good 1137 Excellent 95 Poor 47 Veľmi dobré Skvělá volba Dobrze Bardzo dobrze 2 Ortalama 2 Bueno 2 İyi 2 Buono Dobré 2 2 Bom 2 Priemer 2 Průměr Muito Bom 2 Promedio 2 Muy Bueno 1 Sangat Baik Média 1 Biasa 1 Skvělé Baik 1 Çok iyi 1 Excelente Velmi dobré 1 Media 1 Name: count, dtype: int64

In [27]: # Translating the texts into proper English text dataset['RATING_TYPE'].replace(to_replace='Excelente', value = 'Excellent', inplace= True) dataset['RATING_TYPE'].replace(to_replace=['Velmi dobré', 'Bardzo dobrze', 'Muy Bueno', 'Velmi dobré'], va dataset['RATING_TYPE'].replace(to_replace=['Skvělá volba', 'Dobrze', 'Bueno', 'Buono', 'Dobré', 'Bom', 'Skvěl dataset['RATING_TYPE'].replace(to_replace=['Priemer', 'Média', 'Çok iyi'], value='Average', inplace=True dataset['RATING_TYPE'].replace(to_replace=['Průměr', 'Promedio', 'Ortalama', 'Muito Bom', 'İyi'], value='P dataset['RATING_TYPE'].replace(to_replace=['Baik', 'Biasa', 'Media', 'Sangat Baik'], value='Very Poor', i

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1437517308.py:3: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1437517308.py:4: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1437517308.py:5: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1437517308.py:6: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1437517308.py:7: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1437517308.py:8: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

Out [28]: RATING_TYPE

Average 5115
Good 4347
Very Good 1148
Excellent 96
Poor 57
Very Poor 4

Name: count, dtype: int64

1

1

1

1

```
In [30]:  # Removing the irrelevant text from the Region column

dataset['REGION']=dataset['REGION'].str.replace('[a-zA-Z].+-- ','',regex=True)
```

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/281350927.py:3: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
In [31]:  # Removing the West & East from the Region column

dataset['REGION']=dataset['REGION'].str.replace(' West| west| East| east','',regex=True)
    value_counts=dataset['REGION'].value_counts()
    value_counts
```

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/912230691.py:3: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

```
Out[31]: REGION
         Thane
                               726
                               412
         Mira Road
         Andheri
                               409
         Malad
                               378
         Kandivali
                               377
         Flea Bazaar Café
                                 3
         Majiwada
                                 3
         Panvel
                                 2
         CBD Belapur
                                 1
         Girgaon Chowpatty
                                 1
         Name: count, Length: 101, dtype: int64
```

Hotel Emerald—— Juhu

Sea Princess-- Juhu

Trident-- Bandra Kurla Complex

Hotel Satkar Residency—— Majiwada

Name: count, Length: 237, dtype: int64

Aureole Hotel-- Andheri East

for region, count in value counts, items(); print(f'REGION; {region}, Count; {count})

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:3: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:4: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:5: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:6: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel 80995/1199884452.py:7: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:8: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame. Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:9: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:10: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame. Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:11: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:12: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:13: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame. Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

/var/folders/07/ykgp85052b11h5kz22ghn8l40000gn/T/ipykernel_80995/1199884452.py:14: SettingWithCopyWarning:

A value is trying to be set on a copy of a slice from a DataFrame.

Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.htm l#returning-a-view-versus-a-copy (https://pandas.pydata.org/pandas-docs/stable/user_guide/indexing.html#returning-a-view-versus-a-copy)

In [33]:

8. Removing Duplicate records
Finding all the duplicate rows
dataset[dataset.duplicated()]

Out [33]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_OPEN
4064	Sai Sannidhi Restaurant & Bar	1000	North Indian,Konkan	Dahisar	Casual Dining	11am to 12midnight	Good	3.7	99	Mon-Sun
4068	Konkan Katta	400	Seafood,Maharashtrian,Malwani	Mahakali	Quick Bites	11am to 330pm,630pm to 1130pm	Good	3.5	181	Mon-Sun
4082	Usmaniya Hotel	600	Mughlai	Fort	Casual Dining	1030am to 1130pm	Average	3.2	8	Mon-Sun
4083	Gina's Cakes	450	Bakery	Dombivali	none	11am to 11pm	Good	3.5	49	Mon-Sun
4084	Konkanastha Lunch Home	400	Seafood,Malwani	Chakala	Casual Dining	12noon to 3pm,730pm to 1030pm	Good	3.5	44	Mon-Sun
14200	Mezbaan Family Restaurant	350	Chinese,Mughlai	Mumbra	Dhaba	12noon to 1230AM	Average	2.8	97	Mon-Sun
14204	Jyoti Lunch Home	650	Chinese,North Indian,Seafood,Mughlai	Mulund	Casual Dining	11am to 1230AM	Good	3.5	49	Mon-Sun
14253	On Toes	900	Italian,North Indian,Chinese	Malad	Casual Dining	12noon to 3pm,7pm to 1230AM	Good	3.6	76	Mon-Sun
14761	Frosty Farm	400	Ice Cream, Desserts, Fast Food	Malad	Dessert Parlor	1pm to 1215AM	Good	3.6	120	Mon-Sun
14928	Shree Manu Sagar	300	North Indian, Chinese, Indian	Ghansoli	Quick Bites	1130am to 415pm,7pm to 1215AM	Average	3.3	51	Mon-Sun

220 rows \times 10 columns

In [34]:

1 # Dropping all the duplicate rows 2

dataset=dataset.drop_duplicates()

Copying the cleaned data into a new DataFrame

Out[35]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_OP
0	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	Bandra	Casual Dining	12noon to 130am	Excellent	4.9	3529	Mon-s
1	Baba Falooda	400	Desserts,Ice Cream,Beverages	Mahim	Dessert Parlor	2pm to 1am	Very Good	4.4	1723	Mon-5
2	Chin Chin Chu	1800	Asian,Chinese	Juhu	Casual Dining	12noon to 1am	Very Good	4.2	337	Mon-§
3	Butterfly High	1000	Modern Indian	Bandra	Bar	12noon to 130am	Very Good	4.3	1200	Mon-S
4	BKC DIVE	1200	North Indian,Chinese,Continental	Bandra	Bar	1130am to 1am	Very Good	4.4	5995	Mon-S
15075	Tirupati Balaji	500	Chinese,Fast Food,North Indian	Andheri	Casual Dining	8am to 11pm,12midnight to 115am	Good	3.5	267	Mon-5
15076	Hari Om Snack Bar	350	Fast Food,South Indian,Chinese	Kandivali	Quick Bites	11am to 230am	Good	3.7	64	Mon-{
15077	PitaBurg	400	Fast Food,Lebanese	Lower Parel	none	11am to 11pm	Average	3.4	99	Mon,Tue,Wed,Thu,Sun,11 to
15078	Uncha Otlawala	300	Desserts,Ice Cream	Kandivali	Dessert Parlor	9am to 1230AM	Good	3.5	29	Mon-5
15079	Mandarin Panda	400	Desserts,Chinese,Thai	Malad	none	12noon to 330pm,7pm to 1am	Good	3.7	121	Mon-s

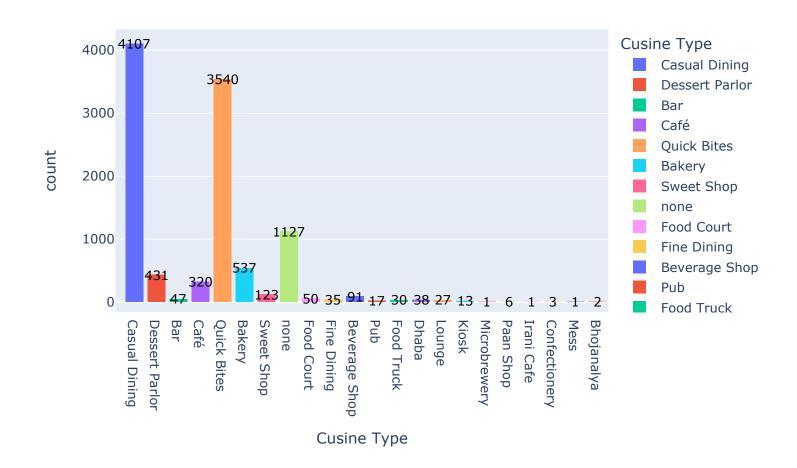
10547 rows × 10 columns

Performing Exploratory Data Analysis

Q1) How many restaurants are in Mumbai for each type of cuisine?

In [36]:	1 #pip install -U	J kaleido
In [37]:	1 counts = PP_Zom 2 counts	nato_dataset['CUSINE TYPE'].value_counts()
Out[37]:	CUSINE TYPE	
		4107
		3540
	none 1	1127
	Bakery	537
		431
	Café	320
	Sweet Shop	123
	Beverage Shop	91
	Food Court	50
	Bar	47
	Dhaba	38
	Fine Dining	35
	Food Truck	30
	Lounge	27
	Pub	17
	Kiosk	13
	Paan Shop	6
	Confectionery	3
	Bhojanalya	2
	Microbrewery	1
	Irani Cafe	1
	Mess Name: count, dtype:	1 : int64

No. of Restaurants by Cusine Type

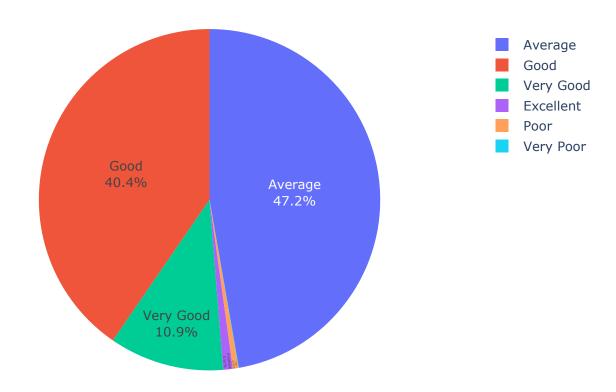


Q2) What is the percentage of restaurants by Rating Type in Mumbai?

Out[39]:

	RATING_TYPE	COUNT OF RESTAURANTS	PERCENTAGE
0	Average	4983	47.245662
1	Good	4263	40.419077
2	Very Good	1145	10.856168
3	Excellent	96	0.910211
4	Poor	56	0.530957
5	Very Poor	4	0.037925

Percentage of Restaurants by Rating Types



Q3) Which are the Top 10 highest rated Seafood Restaurant in Mumbai?

In [41]: 1 seafood_restaurant= PP_Zomato_dataset[PP_Zomato_dataset['CUSINE_CATEGORY'].str.contains('Seafood')]
2 seafood_restaurant.sort_values(by='RATING',ascending=False).head(10)

Out[41]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_O
7104	Thangabali	1000	Seafood,South Indian,Mangalorean,Andhra,Kerala	Khar	Bar	12noon to 4pm,7pm to 3am	Excellent	4.7	564	Mon-
76	Ceremonial Kitchen & Co	1000	Seafood, Maharashtrian, North Indian, Chinese	Thane	Casual Dining	1130am to 1130pm	Excellent	4.6	350	Mon-
13685	Maharashtra Lunch Home	600	Maharashtrian, Malwani, Konkan, Seafood	Kharghar	Casual Dining	11am to 345pm,7pm to 1145pm	Excellent	4.6	209	Mon-
12433	Quarter Canteen	1100	North Indian, Seafood, Chinese	Bandra	Casual Dining	12noon to 330pm,7pm to 1am	Excellent	4.5	573	Mon-
902	The Harbour Bay - SeaFood Kitchen & Bar	2400	Seafood,Beverages	Bandra	Casual Dining	12noon to 1am	Excellent	4.5	100	Mon-
884	Rajmanya- Seafood family restaurant	800	Maharashtrian,Konkan,Seafood	Vashi	Casual Dining	11am to 11pm	Excellent	4.5	178	Mon-
3380	Peco Peco	700	Chinese, Seafood, Asian	Powai	none	12noon to 330pm,7pm to 1230AM	Excellent	4.5	497	Mon-
9954	Pi Bar and Kitchen	1600	Continental, European, Italian, Seafood, Pizza, Des	Andheri	Bar	12noon to 6pm,7pm to 12midnight	Excellent	4.5	2068	Mon-
903	Ferry Wharf	1500	Seafood,Mangalorean	Bandra	Casual Dining	11am to 330pm,7pm to 1230AM	Very Good	4.4	459	Mon-
915	Monis Bar and Restaurant	1000	North Indian, Chinese, Continental, Seafood, Bever	Thane	Casual Dining	1130am to 330pm,6pm to 1130pm	Very Good	4.4	662	Mon-

Q4) Which are the best Food Truck in Mumbai?

In [42]: 1 best_foodtruck=PP_Zomato_dataset[PP_Zomato_dataset['CUSINE TYPE']=='Food Truck']
 best_foodtruck.sort_values(by='RATING', ascending = False).head(3)

Out[42]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_OPEN
262	Dumpling Delights	200	Momos	Matunga	Food Truck	430pm to 930pm	Very Good	4.3	212	Mon-Sun
1017	Street Food Co.	250	Fast Food, Chinese	Virar	Food Truck	6pm to 3am	Very Good	4.1	274	Mon-Sun
7922	Honeys Delights	100	Fast Food,Burger	Malad	Food Truck	Closed	Good	3.9	66	Mon,4am to 7amTue- Sun

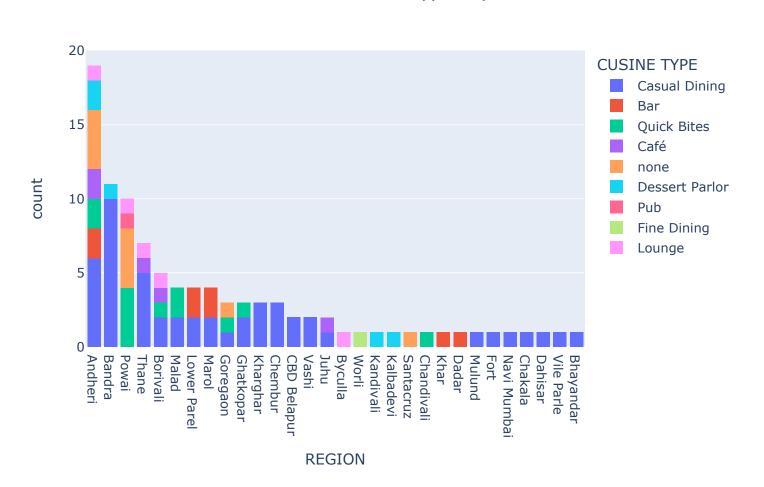
Q5) Which places have the highest rated restaurant for each Cuisine Type in Mumbai?

Out [43]:

	NAME	REGION	CUSINE TYPE	RATING
0	Hitchki	Bandra	Casual Dining	4.9
6	Persian Darbar	Marol	Casual Dining	4.5
7	Tanatan	Juhu	Casual Dining	4.7
9	Plum by Bent Chair	Lower Parel	Casual Dining	4.7
10	Angrezi Dhaba	Dadar	Bar	4.5
14228	Zaika Crave - Club Aquaria	Borivali	Casual Dining	4.5
14234	Cone Culture	Kharghar	Casual Dining	4.6
15007	Dessertino	Kandivali	Dessert Parlor	4.8
15051	Tick-eat	Mulund	Casual Dining	4.5
15056	Daftar Goregaon	Goregaon	Casual Dining	4.6

97 rows × 4 columns

No. of Best Restaurants for Each Cusine Types by Places



Q6) What is the Avg Price Distibution of highest rated restaurant for each Cuisine Type in Mumbai?

Out [45]:

In [46]:

REGION CUSINE TYPE MEAN PRICE

Bar

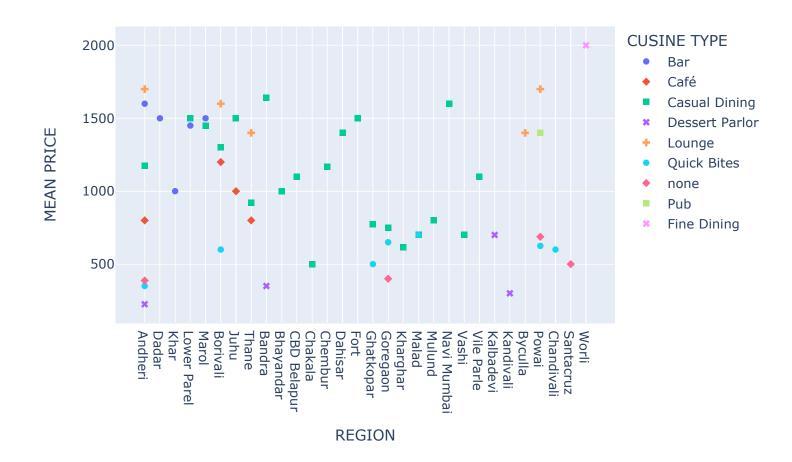
1600.0

Andheri

	1	Andheri	Café	800.0	
	2	Andheri	Casual Dining	1175.0	
	3	Andheri	Dessert Parlor	225.0	
	4	Andheri	Lounge	1700.0	
	1	fig	, scattor(av	ca prico V	= 'REGION',y='MEAN PRICE', color='CUSINE TYPE',symbol = 'CUSINE TYPE',
•		i 1g-px			ce Distibution of High Rated Restaurants for Each Cuisine Type').update_tr

3 fig.show()

Avg Price Distibution of High Rated Restaurants for Each Cuisine Type



Q7) Which areas have a large number of Chinese Restaurant Market?

Out[47]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	TIMING	RATING_TYPE	RATING	VOTES	DAYS_OPEN
0	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	Bandra	Casual Dining	12noon to 130am	Excellent	4.9	3529	Mon-Sun
2	Chin Chin Chu	1800	Asian,Chinese	Juhu	Casual Dining	12noon to 1am	Very Good	4.2	337	Mon-Sun
4	BKC DIVE	1200	North Indian, Chinese, Continental	Bandra	Bar	1130am to 1am	Very Good	4.4	5995	Mon-Sun
5	Flea Bazaar Café	800	American, Asian, Street Food, North Indian, Luckno	Lower Parel	Café	12noon to 1am	Very Good	4.2	2042	Mon-Sun
6	Persian Darbar	1300	Biryani,North Indian,Chinese,Mughlai	Marol	Casual Dining	10am to 3am	Excellent	4.5	3058	Mon-Sun
15071	Lucknow Zaika	500	North Indian, Chinese	Kurla	Quick Bites	12noon to 2am	Average	2.6	36	Mon-Sun
15072	Zuha's Kitchen	400	Chinese, North Indian, Mughlai	Mumbai Central	Quick Bites	12noon to 4pm,730pm to 430am	Average	3.3	13	Mon-Sun
15075	Tirupati Balaji	500	Chinese,Fast Food,North Indian	Andheri	Casual Dining	8am to 11pm,12midnight to 115am	Good	3.5	267	Mon-Sun
15076	Hari Om Snack Bar	350	Fast Food, South Indian, Chinese	Kandivali	Quick Bites	11am to 230am	Good	3.7	64	Mon-Sun
15079	Mandarin Panda	400	Desserts,Chinese,Thai	Malad	none	12noon to 330pm,7pm to 1am	Good	3.7	121	Mon-Sun

5119 rows × 10 columns

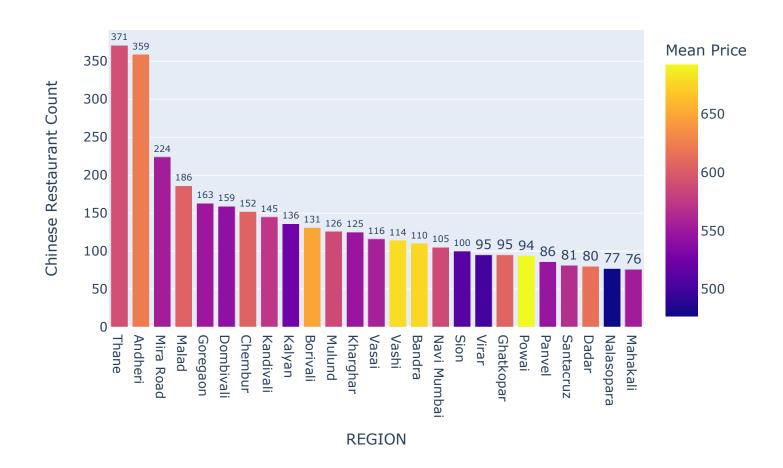
Out[48]:

Chinese	Restaurant	Count	Mean Price

REGION		
Thane	371	590.983827
Andheri	359	622.423398
Mira Road	224	553.348214
Malad	186	604.032258
Goregaon	163	548.773006

```
In [49]: 1
labels={'x': 'REGION', 'y': 'Chinese Restaurant Count'}, title=f'Chinese Restaurant Count by Location', color
de 5)
6
```

Chinese Restaurant Count by Location



Q8) Is there a relation between Price and Rating by each Cuisine Type?

In [50]:	1 correlation 2 correlation	_	omato_datase	<pre>set.groupby('CUSINE TYPE')[['PRICE', 'RATING']].corr().iloc[0::2, -1]</pre>
Out[50]:	CUSINE TYPE			
	Bakery	PRICE	0.123945	
	Bar	PRICE	0.290282	
	Beverage Shop	PRICE	0.173174	
	Bhojanalya	PRICE	-1.000000	\mathfrak{d}
	Café	PRICE	0.401321	1
	Casual Dining	PRICE	0.473607	7
	Confectionery	PRICE	0.818392	2
	Dessert Parlor	PRICE	0.194234	1
	Dhaba	PRICE	0.108422	2
	Fine Dining	PRICE	0.153549	9
	Food Court	PRICE	0.025806	õ
	Food Truck	PRICE	-0.015445	
	Irani Cafe	PRICE	NaN	V
	Kiosk	PRICE	0.180643	3
	Lounge	PRICE	0.307669	
	Mess	PRICE	NaN	
	Microbrewery	PRICE	NaN	
	Paan Shop	PRICE	-0.077152	
	Pub	PRICE	0.451411	
	Quick Bites	PRICE	0.152220	
	Sweet Shop	PRICE	0.089994	
	none	PRICE	0.265772	2
	Name: RATING, d	type: f	loat64	

In [51]: 1 pr=PP_Zomato_dataset.groupby(['CUSINE TYPE','RATING'])["PRICE"].mean().reset_index()
pr

Out[51]:

	CUSINE TYPE	RATING	PRICE
0	Bakery	2.7	400.000000
1	Bakery	2.8	285.714286
2	Bakery	2.9	328.571429
3	Bakery	3.0	300.000000
4	Bakery	3.1	369.117647
278	none	4.3	683.333333
279	none	4.4	555.000000
280	none	4.5	420.000000
281	none	4.6	687.500000
282	none	4.7	350.000000

283 rows × 3 columns

```
In [52]: 1 fig=px.line(pr,x='RATING', y= 'PRICE',color='CUSINE TYPE')
fig.show()
```



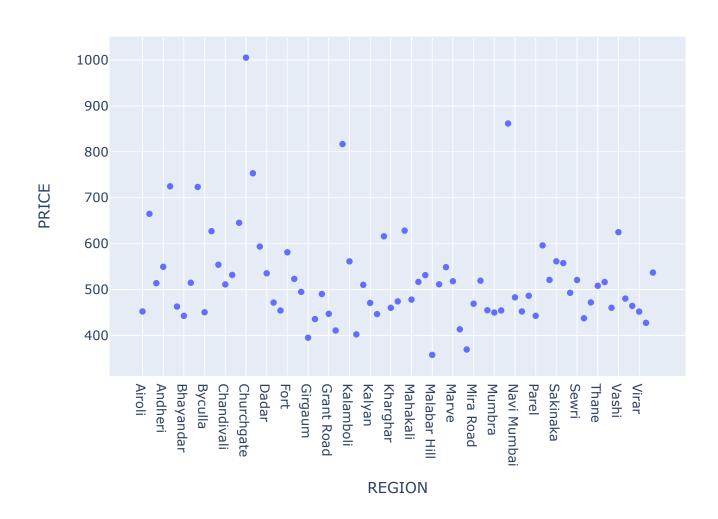
Q9) Is there a relation between Region and Price?

Out[53]:

	REGION	PRICE
0	Airoli	452.287582
1	Alibaug	665.000000
2	Ambernath	514.000000
3	Andheri	549.584270
4	Bandra	724.945946
70	Vikhroli	480.434783
71	Vile Parle	464.457831
72	Virar	452.027027
73	Wadala	427.500000
74	Worli	537.012987

75 rows × 2 columns

```
In [54]: 1 fig=px.scatter(regprice,x='REGION', y='PRICE').update_traces(marker_size=6)
2 fig.show()
```



Q10) Find the list of Affordable Restaurants?

The criteria for Affordable Restaurants would be:-

1) Low Price 2) High Rated

First step will be to find the restaurants with average cost 1/4th the average cost of most expensive restaurant in our dataframe.

Out[55]: 1250.0

```
In [56]: # Finding list of restaurants that have price less than and equal to 1/4th of the max price i.e Finding
aff_res=PP_Zomato_dataset[['NAME','PRICE','CUSINE_CATEGORY','REGION','CUSINE TYPE']]
aff_res=aff_res[aff_res['PRICE']<=1250]
aff_res.sort_values(by='PRICE',inplace = True)
aff_res</pre>
```

Out[56]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE
6137	Sanjog Wine N Dine	5	North Indian, Chinese	Thane	Casual Dining
2925	Jab We Eat	50	South Indian, North Indian, Maharashtrian, Fast Food	Girgaum	none
9598	Ho5 Store	50	Fast Food	Matunga	none
9589	Golden Butterfly	100	Bakery, Desserts	Mira Road	Bakery
5916	Madhuri Puranpoli	100	Maharashtrian	Vile Parle	none
2740	Peninsula Next	1200	North Indian, Mughlai, Chinese	Sion	Casual Dining
5528	The Thekka	1200	Finger Food, Continental, North Indian, Chinese	Vashi	Lounge
964	Bijoli Grill	1250	Bengali	Powai	Casual Dining
6045	Fabelle at The Chocolate Boutique - ITC Grand	1250	Desserts	Parel	Dessert Parlor
7301	SamBar Pub & Kitchen	1250	Finger Food, South Indian, North Indian	Khar	Pub

10190 rows × 5 columns

In [57]:

```
# Finding the high rated list of restaurants
highrate_res=PP_Zomato_dataset[['NAME','PRICE','CUSINE_CATEGORY','REGION','CUSINE TYPE','RATING']]
highrate_res=highrate_res[highrate_res['RATING']>=4.5]
highrate_res.sort_values(by='RATING',inplace = True)
highrate_res
```

Out [57]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	RATING
1675	The Delhi Spice	400	Chinese,Fast Food,North Indian	Goregaon	none	4.5
9777	Poetry By Love & Cheesecake	1000	Cafe, Desserts	Juhu	Café	4.5
697	Dhadak Resto Bar	1000	North Indian, Chinese, Continental	Thane	Casual Dining	4.5
711	Shaollin Temple	1000	Chinese,Thai	CBD Belapur	Casual Dining	4.5
9776	Burma Burma	1500	Asian,Burmese	Fort	Casual Dining	4.5
66	Downtown China	750	Chinese,Thai	Andheri	Casual Dining	4.8
9778	Rajdhani	950	Gujarati, Rajasthani, North Indian	Ghatkopar	Casual Dining	4.8
15007	Dessertino	300	Desserts,Ice Cream	Kandivali	Dessert Parlor	4.8
10669	Trumpet Sky Lounge	1700	North Indian, Chinese	Andheri	Lounge	4.9
0	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	Bandra	Casual Dining	4.9

97 rows \times 6 columns

```
In [58]: # Merge aff_res & highrate_res to get Affordable Restaurants with low price and high rating

highrate_aff_res= pd.merge(aff_res, highrate_res, how='inner', on=['NAME', 'REGION'])
highrate_aff_res=highrate_aff_res[['NAME', 'PRICE_x', 'CUSINE_CATEGORY_x', 'REGION', 'CUSINE TYPE_x']]
highrate_aff_res.rename(columns={'NAME':'NAME', 'PRICE_x':'PRICE', 'CUSINE_CATEGORY_x':'CUSINE_CATEGORY', highrate_aff_res
```

Out[58]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE
0	Cake Centre-The Dessert Maker	150	Desserts	Andheri	Dessert Parlor
1	Curry And Combos Twist	200	North Indian, Chinese	Andheri	Quick Bites
2	Moussestruck	200	Desserts	Andheri	none
3	Cone Culture	250	European	Kharghar	Casual Dining
4	Smiley Pops	300	Desserts,Ice Cream,Beverages,Sandwich	Andheri	Dessert Parlor
60	Wild Dining Restaurant	1200	North Indian, Continental, Mexican, Chinese	Andheri	Casual Dining
61	Invento	1200	Chinese,Fast Food,North Indian,Italian,Mexican	Lower Parel	Casual Dining
62	Culinary Tales	1200	Chinese, European, Continental, Salad, Italian, Pizza	Andheri	Casual Dining
63	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	Bandra	Casual Dining
64	The Joker Bistro	1200	North Indian, Chinese, Continental	CBD Belapur	Casual Dining

65 rows × 5 columns

Q11) Find the list of most Reliable Restaurants?

The criteria for Affordable Restaurants would be:-

1) Low Price 2) High Rated 3)Large No. of votes

First two steps has been already carried out. So next step will be to find the restaurants with Votes greater than Mean of Votes.

Out[60]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE	VOTES
4194	Sai Sagar Veg Treat	500	North Indian, South Indian, Chinese, Fast Food, Be	Kalyan	Casual Dining	178
884	Rajmanya- Seafood family restaurant	800	Maharashtrian, Konkan, Seafood	Vashi	Casual Dining	178
3914	Ice Cafe	500	Fast Food,Ice Cream,Beverages,Pizza	Borivali	Quick Bites	178
7897	Konkan Lajjatdar	500	Seafood,Biryani,Beverages,Chinese,Malwani,Konkan	Andheri	Casual Dining	178
3828	Frozen Delight -The Dessert Cafe	250	Desserts,Ice Cream	Airoli	Dessert Parlor	178
8539	Leopold Cafe & Bar	1600	American, Chinese, Mughlai, Italian	Colaba	Casual Dining	7327
1251	Joey's Pizza	800	Pizza	Malad	Quick Bites	7350
5337	Chili's American Grill & Bar	1400	American, Mexican, Burger, Tex-Mex	Powai	Casual Dining	7377
3751	Prithvi Cafe	700	Cafe,Fast Food	Juhu	Café	8000
8897	Candies	700	Cafe, Italian, North Indian, Desserts	Bandra	Café	10217

2345 rows × 6 columns

Criteria for most reliable, highest rated and affordable restaurants:-

Cost is below or =1250, Rating is above 4.5 & Votes are above 177

This is obtained by merging highrate_aff_res & mean_res

In [61]:

reliable_res= pd.merge(mean_res,highrate_aff_res,how='inner',on=['NAME','REGION'])
reliable_res=reliable_res[['NAME','PRICE_x','CUSINE_CATEGORY_x','REGION','CUSINE_TYPE_x']]
reliable_res.rename(columns={'NAME':'NAME','PRICE_x':'PRICE','CUSINE_CATEGORY_x':'CUSINE_CATEGORY','REGION','REGION','REGION','CUSINE_CATEGORY','REGION','REGION','CUSINE_CATEGORY','REGION','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','CUSINE_CATEGORY','REGION','REGION','CUSINE_CATEGORY','REGION','REGION','CUSINE_CATEGORY','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REGION','REG

Out[61]:

	NAME	PRICE	CUSINE_CATEGORY	REGION	CUSINE TYPE
0	Rajmanya- Seafood family restaurant	800	Maharashtrian, Konkan, Seafood	Vashi	Casual Dining
1	Fresh Food Co.	500	Continental, Healthy Food, Salad, Beverages, Desse	Santacruz	none
2	Dessertino	300	Desserts,Ice Cream	Kandivali	Dessert Parlor
3	Invento	1200	Chinese,Fast Food,North Indian,Italian,Mexican	Lower Parel	Casual Dining
4	Maharashtra Lunch Home	600	Maharashtrian, Malwani, Konkan, Seafood	Kharghar	Casual Dining
5	Regano's	600	Continental, Fast Food, Italian, Desserts	Malad	Casual Dining
6	Big Bang Cuurry	350	North Indian,Biryani,Rolls	Andheri	none
7	Sandy's Den	1000	Fast Food,Bar Food	Chembur	Casual Dining
8	Angrezi Patiyalaa	1200	North Indian, Finger Food, American, Mexican, Chinese	Andheri	Casual Dining
9	Maezo	1000	Modern Indian	Thane	Casual Dining
10	Tossin Pizza	900	Pizza, Italian, Fast Food	Chembur	Casual Dining
11	Little West Pizza	600	Pizza	Borivali	Quick Bites
12	Ceremonial Kitchen & Co	1000	Seafood, Maharashtrian, North Indian, Chinese	Thane	Casual Dining
13	Moussestruck	200	Desserts	Andheri	none
14	Daftar Goregaon	750	Pizza, Chinese, North Indian, Beverages	Goregaon	Casual Dining
15	Poetry By Love & Cheesecake	1000	Cafe,Desserts	Juhu	Café
16	Makhan Singh	800	North Indian, Chinese, Biryani	Powai	none
17	The Joker Bistro	1200	North Indian, Chinese, Continental	CBD Belapur	Casual Dining
18	Cone Culture	250	European	Kharghar	Casual Dining
19	Peco Peco	700	Chinese, Seafood, Asian	Powai	none
20	Shuruwat- Veg Food Journey	600	Continental, Tea, South Indian, Fast Food, Pizza, N	Ghatkopar	Casual Dining
21	Justice Cafe and Dine	800	Cafe, Chinese, Italian, Continental, North Indian,	Thane	Café
22	Thangabali	1000	Seafood, South Indian, Mangalorean, Andhra, Kerala	Khar	Bar
23	Harsh's Bistro	800	Chinese, Continental	Malad	Casual Dining
24	Quarter Canteen	1100	North Indian, Seafood, Chinese	Bandra	Casual Dining
25	Culinary Tales	1200	Chinese, European, Continental, Salad, Italian, Pizza	Andheri	Casual Dining
26	Dum & Curry	700	Mughlai,North Indian,Chinese	Powai	Quick Bites
27	Curry Culture	800	North Indian, Biryani, Chinese, Kebab, Mughlai, Asian	Powai	none
28	Belo Pops	300	Ice Cream, Desserts, Beverages	Andheri	none
29	Tick-eat	800	North Indian, Italian, Chinese, Mexican, Lebanese	Mulund	Casual Dining
30	Coppetto Artisan Gelato	350	Ice Cream, Desserts	Bandra	Dessert Parlor
31	Zaika Restaurant & Party Hall	1000	North Indian, Chinese, Beverages	Bhayandar	Casual Dining
32	Shaollin Temple	1000	Chinese,Thai	CBD Belapur	Casual Dining
33	Spice Republic	1200	Cafe, Continental, Mediterranean, Mexican, Italian	Borivali	Café
34	Aquafire Restaurant	1100	North Indian, Continental, Chinese, Italian	Vile Parle	Casual Dining
35	Rajdhani	950	Gujarati,Rajasthani,North Indian	Ghatkopar	Casual Dining
36	Wild Dining Restaurant	1200	North Indian, Continental, Mexican, Chinese	Andheri	Casual Dining
37	Family Tree	800	Italian, Mexican, North Indian, Chinese, Salad	Thane	Casual Dining
38	Bombay Salad Co.	900	Salad, Healthy Food, Juices	Bandra	Casual Dining
39	Cafe Monza	1000	Italian,American,Salad,Mexican	Kharghar	Casual Dining
40	Hitchki	1200	Modern Indian,North Indian,Chinese,Momos,Birya	Bandra	Casual Dining
41	Vedge	1000	Thai, Chinese, North Indian, Mexican, Italian, Asian	Andheri	Casual Dining
42	Joey's Pizza	800	Pizza	Malad	Quick Bites

In []: 1