```
import numpy as np
import pandas as pd
import matplotlib.pyplot as plt
import seaborn as sns
%matplotlib inline
```

```
df = pd.read_csv('/kaggle/input/jet-airways/data.csv')
```

```
df.head()
```

	Restaurant	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	Price range	Aggregate rating	Rating color	Rating text	Votes
0	6317637	Limeh	216	Makati City	Tamani Garden, Ayala Center, Makati City, Metro Manila	Tamani Garden, Ayala Center, Makati City	Tamani Garden, Ayala Center, Makati City, Makati City, Metro Manila	121.027535	14.565443	Japanese	1500	Botswana Pula(P)	Yes	No	No	3	4.8	Dark Green	Excellent	314
1	6304287	Heritage Restaurant	162	Mandaluyong City	Unit 3rd Floor, Mall Of Asia Arena, Coral Way, Mall Of Asia Complex, Pasay City, Metro Manila	Mall Of Asia Arena, Coral Way, Mall Of Asia Complex, Pasay City	Mall Of Asia Arena, Coral Way, Mall Of Asia Complex, Pasay City, Mandaluyong City, Metro Manila	121.0199	14.54778	Japanese	4000	Botswana Pula(P)	Yes	No	No	4	4.5	Dark Green	Excellent	591
2	6300002	Cafe Mesa	162	Mandaluyong City	Ground Floor, The Square, Ortigas Avenue, Ortigas Center, Pasig City, Metro Manila	Ortigas Avenue, Ortigas Center, Pasig City	Ortigas Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.0582	14.58602	Filipino, Seafood, Asian, Pizza	1000	Botswana Pula(P)	Yes	No	No	3	4.8	Dark Green	Excellent	270
3	6318506	Dosa	162	Mandaluyong City	Ground Floor, Ortigas Avenue, Ortigas Center, Pasig City, Metro Manila	Ortigas Avenue, Ortigas Center, Pasig City	Ortigas Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.0568	14.58524	Indonesian, Malaysian, Asian, Seafood	1000	Botswana Pula(P)	Yes	No	No	3	4.8	Dark Green	Excellent	365
4	6314302	Dosa	162	Mandaluyong City	Ground Floor, Ortigas Avenue, Ortigas Center, Pasig City, Metro Manila	Ortigas Avenue, Ortigas Center, Pasig City	Ortigas Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.0568	14.58524	Indonesian, Malaysian, Asian, Seafood	1000	Botswana Pula(P)	Yes	No	No	3	4.6	Dark Green	Excellent	239

5 rows × 21 columns

```
df.shape
```

```
(9551, 21)
```

```
df.dtypes
```

```
Restaurant                int64
Restaurant Name          object
Country Code              int64
City                     object
Address                  object
Locality                 object
Locality Verbose         object
Longitude                float64
Latitude                 float64
Cuisines                 object
Average Cost for two      int64
Currency                 object
Has Table booking        object
Has Online delivery      object
Is delivering now        object
Price range               int64
Aggregate rating          float64
Rating color             object
Rating text              object
Votes                     int64
dtype: object
```

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 9551 entries, 0 to 9550
Data columns (total 21 columns):
 #   Column                Non-Null Count  Dtype
---  ------                --------------  -----
 0   Restaurant            9551 non-null   int64
 1   Restaurant Name       9551 non-null   object
 2   Country Code          9551 non-null   int64
 3   City                  9551 non-null   object
 4   Address               9551 non-null   object
 5   Locality              9551 non-null   object
 6   Locality Verbose      9551 non-null   object
 7   Longitude             9551 non-null   float64
 8   Latitude              9551 non-null   float64
 9   Cuisines              9542 non-null   object
 10  Average Cost for two  9551 non-null   int64
 11  Currency              9551 non-null   object
 12  Has Table booking     9551 non-null   object
 13  Has Online delivery   9551 non-null   object
 14  Is delivering now     9551 non-null   object
 15  Price range           9551 non-null   int64
 16  Aggregate rating      9551 non-null   float64
 17  Rating color          9551 non-null   object
 18  Rating text           9551 non-null   object
 19  Votes                 9551 non-null   int64
 20  Features              9551 non-null   object
dtypes: float64(5), int64(6), object(10)
memory usage: 1527.3+ KB
```

```
df.describe()
```

	Restaurant	Country Code	Longitude	Latitude	Average Cost for two	Price range	Aggregate rating	Votes
count	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000	9551.000000
mean	9051128.655518	18.365616	64.126574	25.854381	1199.210763	1.804837	2.666370	156.909748
std	8811451.960422	56.754742	41.467058	11.007935	16121.183073	0.905609	1.516378	430.169145
min	53.000000	1.000000	27.604804	-41.464761	0.000000	1.000000	0.000000	0.000000
25%	301962.000000	14.000000	77.081343	28.478713	250.000000	1.000000	2.500000	5.000000
50%	6004089.000000	14.000000	77.191964	28.570469	400.000000	2.000000	3.200000	31.000000
75%	18352958.000000	14.000000	77.282006	28.642758	1000.000000	2.000000	3.700000	131.000000
max	18500651.000000	216.000000	174.832089	55.976294	800000.000000	4.000000	4.900000	10934.000000

First find the missing values

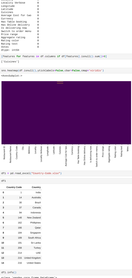
```
df.isnull().sum()
```

```
Restaurant            0
Restaurant Name       0
Country Code          0
City                  0
Address               0
Locality              0
Locality Verbose      0
Longitude             0
Latitude              0
Cuisines              9
Average Cost for two  0
Currency              0
Has Table booking     0
Has Online delivery   0
Is delivering now     0
Price range           0
Aggregate rating      0
Rating color          0
Rating text           0
Votes                 0
Features              0
dtype: int64
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
sns.heatmap(df.isnull(),yticklabels=False,cbar=False,cmap='viridis')
```




```
df[df.Cuisines.isnull()]
```

	Restaurant	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	Price range	Aggregate rating	Rating color	Rating text	Votes
9000	5928800	Red O	216	Mandaluyong City	Shop 1, Ground Floor, The Forum, Emerald Avenue, Ortigas Center, Pasig City, Metro Manila	The Forum, Emerald Avenue, Ortigas Center, Pasig City	The Forum, Emerald Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.056831	14.585754	NaN	1500	Botswana Pula(P)	Yes	No	No	4	4.9	Dark Green	Excellent	334
9001	5929390	Terrace - Sheraton New Delhi	1	New Delhi	Sheraton New Delhi, Africa Avenue, New Delhi, Delhi	Sheraton New Delhi, Africa Avenue, New Delhi	Sheraton New Delhi, Africa Avenue, New Delhi, New Delhi, Delhi	77.216721	28.557808	Continental, Asian, Indian	2000	Indian Rupees(Rs.)	Yes	No	No	4	4.0	Green	Very Good	516
9002	5929402	Qubitos - Mayfair	1	Mumbai (Bombay)	Shop 18, Mayfair Housing, Bandra - Versova Link Road, Andheri (West), Mumbai	Mayfair Housing, Bandra - Versova Link Road, Andheri (West)	Mayfair Housing, Bandra - Versova Link Road, Andheri (West), Mumbai (Bombay)	72.826502	19.132739	Mediterranean, Middle Eastern	1500	Indian Rupees(Rs.)	No	No	No	3	4.1	Green	Very Good	265
9003	5929821	Beijing Restaurant	216	Makati City	G/F Zen Plaza, Salcedo St. cor. Valero St., Salcedo Village, Makati City, Metro Manila	Zen Plaza, Salcedo St. cor. Valero St., Salcedo Village, Makati City	Zen Plaza, Salcedo St. cor. Valero St., Salcedo Village, Makati City, Makati City, Metro Manila	121.0154	14.5547	Chinese	800	Botswana Pula(P)	Yes	No	No	3	4.2	Green	Very Good	78
9004	5929830	Kanas	216	Makati City	2nd Floor, Century City Mall, Kalayaan Avenue cor. Gen. Santos St., Poblacion, Makati City, Metro Manila	Century City Mall, Kalayaan Avenue cor. Gen. Santos St., Poblacion, Makati City	Century City Mall, Kalayaan Avenue cor. Gen. Santos St., Poblacion, Makati City, Makati City, Metro Manila	121.0231	14.5592	Seafood, Asian, Filipino, Indian	2000	Botswana Pula(P)	Yes	No	No	4	4.3	Green	Very Good	444

5 rows × 21 columns

```
df.dtypes
```

```
Restaurant                int64
Restaurant Name          object
Country Code              int64
City                     object
Address                  object
Locality                 object
Locality Verbose         object
Longitude                float64
Latitude                 float64
Cuisines                 object
Average Cost for two      int64
Currency                 object
Has Table booking        object
Has Online delivery      object
Is delivering now        object
Price range               int64
Aggregate rating          float64
Rating color             object
Rating text              object
Votes                     int64
Features                 object
dtype: object
```

```
df[df.Cuisines.isnull].shape
```

```
(9, 21)
```

```
df[df.Cuisines.isnull].Cuisines.value_counts
```

```
<bound_method_wrapper_set_name.<locals>.wrapper_cmp_method_bytes>
```

```
df[df.Cuisines.isnull].Cuisines.value_counts()
```

```
Series([], Name: Cuisines, dtype: int64)
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
df.isnull().sum
```

```
<bound_method_DataFrame.sum of       Restaurant  Restaurant Name  Country Code  City  Address  Locality  \
0          False            False         False  False    False     False
1          False            False         False  False    False     False
2          False            False         False  False    False     False
3          False            False         False  False    False     False
4          False            False         False  False    False     False
...          ...              ...           ...    ...      ...       ...
9546       False            False         False  False    False     False
9547       False            False         False  False    False     False
9548       False            False         False  False    False     False
9549       False            False         False  False    False     False
9550       False            False         False  False    False     False

      Locality Verbose  Longitude  Latitude  Cuisines  Average Cost for two  \
0                False      False     False     False                 False
1                False      False     False     False                 False
2                False      False     False     False                 False
3                False      False     False     False                 False
4                False      False     False     False                 False
...                ...        ...       ...       ...                   ...
9546             False      False     False     False                 False
9547             False      False     False     False                 False
9548             False      False     False     False                 False
9549             False      False     False     False                 False
9550             False      False     False     False                 False

      Currency  Has Table booking  Has Online delivery  Is delivering now  \
0        False              False                False              False
1        False              False                False              False
2        False              False                False              False
3        False              False                False              False
4        False              False                False              False
...        ...                ...                  ...                ...
9546     False              False                False              False
9547     False              False                False              False
9548     False              False                False              False
9549     False              False                False              False
9550     False              False                False              False

      Price range  Aggregate rating  Rating color  Rating text  Votes  \
0           False             False         False        False  False
1           False             False         False        False  False
2           False             False         False        False  False
3           False             False         False        False  False
4           False             False         False        False  False
...           ...               ...           ...          ...    ...
9546        False             False         False        False  False
9547        False             False         False        False  False
9548        False             False         False        False  False
9549        False             False         False        False  False
9550        False             False         False        False  False

      Features
0        False
1        False
2        False
3        False
4        False
...        ...
9546     False
9547     False
9548     False
9549     False
9550     False

[9551 rows × 21 columns]>
```

to check data type

```
df.dtypes
```

```
Restaurant                int64
Restaurant Name          object
Country Code              int64
City                     object
Address                  object
Locality                 object
Locality Verbose         object
Longitude                float64
Latitude                 float64
Cuisines                 object
Average Cost for two      int64
Currency                 object
Has Table booking        object
Has Online delivery      object
Is delivering now        object
Price range               int64
Aggregate rating          float64
Rating color             object
Rating text              object
Votes                     int64
Features                 object
dtype: object
```

```
df[df.Cuisines.isnull].dtypes
```

```
Restaurant                int64
Restaurant Name          object
Country Code              int64
City                     object
Address                  object
Locality                 object
Locality Verbose         object
Longitude                float64
Latitude                 float64
Cuisines                 object
Average Cost for two      int64
Currency                 object
Has Table booking        object
Has Online delivery      object
Is delivering now        object
Price range               int64
Aggregate rating          float64
Rating color             object
Rating text              object
Votes                     int64
Features                 object
dtype: object
```

```
df[df.Cuisines.isnull].Cuisines.value_counts()
```

```
Series([], Name: Cuisines, dtype: int64)
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
df[df.Cuisines.isnull].shape
```

```
(9, 21)
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
df[df.Cuisines.isnull].Cuisines.value_counts()
```

```
Series([], Name: Cuisines, dtype: int64)
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
df[df.Cuisines.isnull].shape
```

```
(9, 21)
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
df[df.Cuisines.isnull].Cuisines.value_counts
```

```
<bound_method_wrapper_set_name.<locals>.wrapper_cmp_method_bytes>
```

```
df[df.Cuisines.isnull].Cuisines.value_counts()
```

```
Series([], Name: Cuisines, dtype: int64)
```

```
[features for features in df.columns if df[features].isnull().sum()>0]
```

```
['Cuisines']
```

```
df.head()
```

	Restaurant	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	Price range	Aggregate rating	Rating color	Rating text	Votes
0	6317637	Limeh	216	Makati City	Tamani Garden, Ayala Center, Makati City, Metro Manila	Tamani Garden, Ayala Center, Makati City	Tamani Garden, Ayala Center, Makati City, Makati City, Metro Manila	121.027535	14.565443	Japanese	1500	Botswana Pula(P)	Yes	No	No	3	4.8	Dark Green	Excellent	314
1	6304287	Heritage Restaurant	162	Mandaluyong City	Unit 3rd Floor, Mall Of Asia Arena, Coral Way, Mall Of Asia Complex, Pasay City, Metro Manila	Mall Of Asia Arena, Coral Way, Mall Of Asia Complex, Pasay City	Mall Of Asia Arena, Coral Way, Mall Of Asia Complex, Pasay City, Mandaluyong City, Metro Manila	121.0199	14.54778	Japanese	4000	Botswana Pula(P)	Yes	No	No	4	4.5	Dark Green	Excellent	591
2	6300002	Cafe Mesa	162	Mandaluyong City	Ground Floor, The Square, Ortigas Avenue, Ortigas Center, Pasig City, Metro Manila	Ortigas Avenue, Ortigas Center, Pasig City	Ortigas Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.0582	14.58602	Filipino, Seafood, Asian, Pizza	1000	Botswana Pula(P)	Yes	No	No	3	4.8	Dark Green	Excellent	270
3	6318506	Dosa	162	Mandaluyong City	Ground Floor, Ortigas Avenue, Ortigas Center, Pasig City, Metro Manila	Ortigas Avenue, Ortigas Center, Pasig City	Ortigas Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.0568	14.58524	Indonesian, Malaysian, Asian, Seafood	1000	Botswana Pula(P)	Yes	No	No	3	4.8	Dark Green	Excellent	365
4	6314302	Dosa	162	Mandaluyong City	Ground Floor, Ortigas Avenue, Ortigas Center, Pasig City, Metro Manila	Ortigas Avenue, Ortigas Center, Pasig City	Ortigas Avenue, Ortigas Center, Pasig City, Mandaluyong City, Metro Manila	121.0568	14.58524	Indonesian, Malaysian, Asian, Seafood	1000	Botswana Pula(P)	Yes	No	No	3	4.6	Dark Green	Excellent	239

5 rows × 21 columns

Observation:-

Zomato has maximum records or transaction are from India after USA and then UK.

```
df.columns
```

```
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',
       'Price range', 'Aggregate rating', 'Rating color',
       'Rating text', 'Votes', 'Features'],
      dtype='object')
```

```
df.Aggregate rating.value_counts()
```

```
Aggregate rating
0.0    2148
3.2     186
3.1     181
3.3     157
3.0     150
3.4     150
2.9     117
3.5     155
2.8      88
3.6     143
2.7      52
3.7     121
2.6      37
3.8      95
3.9      87
2.5      25
4.0      85
4.1      75
2.4      19
4.2      62
4.3      30
2.3       9
4.4      41
4.5      15
2.2       2
4.6       9
4.7       5
2.1       1
4.8       8
4.9       2
2.0       7
1.9       1
Name: count, dtype: int64
```

```
df[df.Aggregate rating.isin([0,1,2,3,4,5])].shape
```

```
(9551, 21)
```

```
df[df.Aggregate rating.isin([0,1,2,3,4,5])].Aggregate rating.value_counts
```

```
<bound_method_wrapper_set_name.<locals>.wrapper_cmp_method_bytes>
```

```
df[df.Aggregate rating.isin([0,1,2,3,4,5])].Aggregate rating.value_counts()
```

```
Aggregate rating
0.0    2148
3.2     186
3.1     181
3.3     157
3.0     150
3.4     150
2.9     117
3.5     155
2.8      88
3.6     143
2.7      52
3.7     121
2.6      37
3.8      95
3.9      87
2.5      25
4.0      85
4.1      75
2.4      19
4.2      62
4.3      30
2.3       9
4.4      41
4.5      15
2.2       2
4.6       9
4.7       5
2.1       1
4.8       8
4.9       2
2.0       7
1.9       1
Name: count, dtype: int64
```

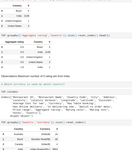
```
df[df.Aggregate rating.isin([0,1,2,3,4,5])].Aggregate rating.count
```

```
<bound_method_Series.count of 0    4.8
1    4.5
2    4.8
3    4.8
4    4.6
...  ...
9546 0.0
9547 0.0
9548 0.0
9549 0.0
9550 0.0
Name: Aggregate rating, Length: 9551, dtype: float64>
```

```
df[df.Aggregate rating.isin([0,1,2,3,4,5])].Aggregate rating.count()
```

```
9551
```

```
import matplotlib
%matplotlib inline
df[df.Aggregate rating.isin([0,1,2,3,4,5])].Aggregate rating.plot(kind='hist')
```




```
sns.kdeplot(df[df.Aggregate rating.isin([0,1,2,3,4,5])].Aggregate rating,shade=True,label=['Poor','Average','Cutline','Good','Great'])
```

```
<matplotlib.axes._subplots.AxesSubplot>
```

Observation

- Most people are only high due to a Blue Color
- Most people are only high due to a Green Color

```
sns.countplot(df[df.Rating color].Rating color,palette=['blue','red','orange','yellow','green','green'])
```

```
<matplotlib.axes._subplots.AxesSubplot>
```

Observation

```
df[df.Country Code].Country Code.count()
```

```
9551
```

```
df[df.Country Code].Country Code.count().head(5)
```

```
Aggregate rating  Country  0
0                 India    2148
1                 India    1080
2                 India    424
3                 United States    3
4                 United States    9
Name: count, dtype: int64
```

Observations Maximum number of 0 rating are from India

```
df.dtypes
```

```
Restaurant                int64
Restaurant Name          object
Country Code              int64
City                     object
Address                  object
Locality                 object
Locality Verbose         object
Longitude                float64
Latitude                 float64
Cuisines                 object
Average Cost for two      int64
Currency                 object
Has Table booking        object
Has Online delivery      object
Is delivering now        object
Price range               int64
Aggregate rating          float64
Rating color             object
Rating text              object
Votes                     int64
Features                 object
dtype: object
```

```
df[df.Country Code].Country Code.count().head(5)
```

```
Aggregate rating  Country  0
0                 India    2148
1                 India    1080
2                 India    424
3                 United States    3
4                 United States    9
Name: count, dtype: int64
```

Observations Maximum number of 0 rating are from India

```
df.dtypes
```

```
Restaurant                int64
Restaurant Name          object
Country Code              int64
City                     object
Address                  object
Locality                 object
Locality Verbose         object
Longitude                float64
Latitude                 float64
Cuisines                 object
Average Cost for two      int64
Currency                 object
Has Table booking        object
Has Online delivery      object
Is delivering now        object
Price range               int64
Aggregate rating          float64
Rating color             object
Rating text              object
Votes                     int64
Features                 object
dtype: object
```

```
df[df.Country Code].Country Code.count().head(5).count()
```

```
5
```