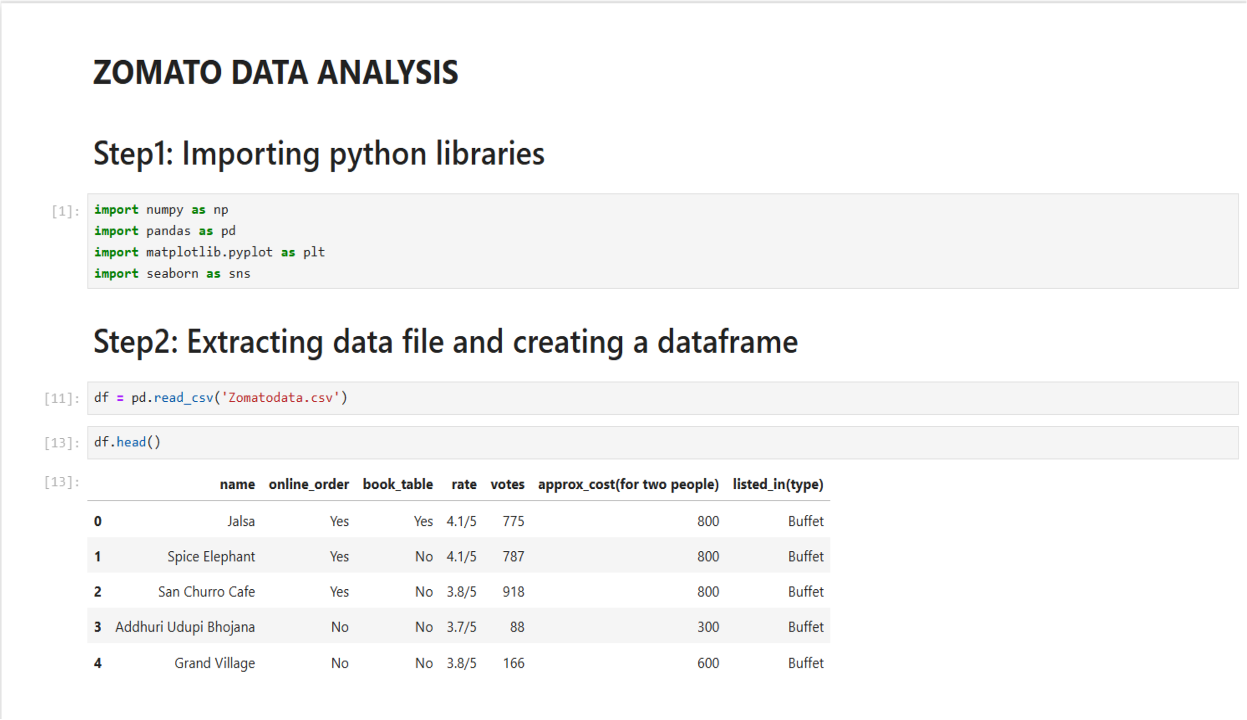


ZOMATO DATA ANALYSIS

Step1: Importing python libraries

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

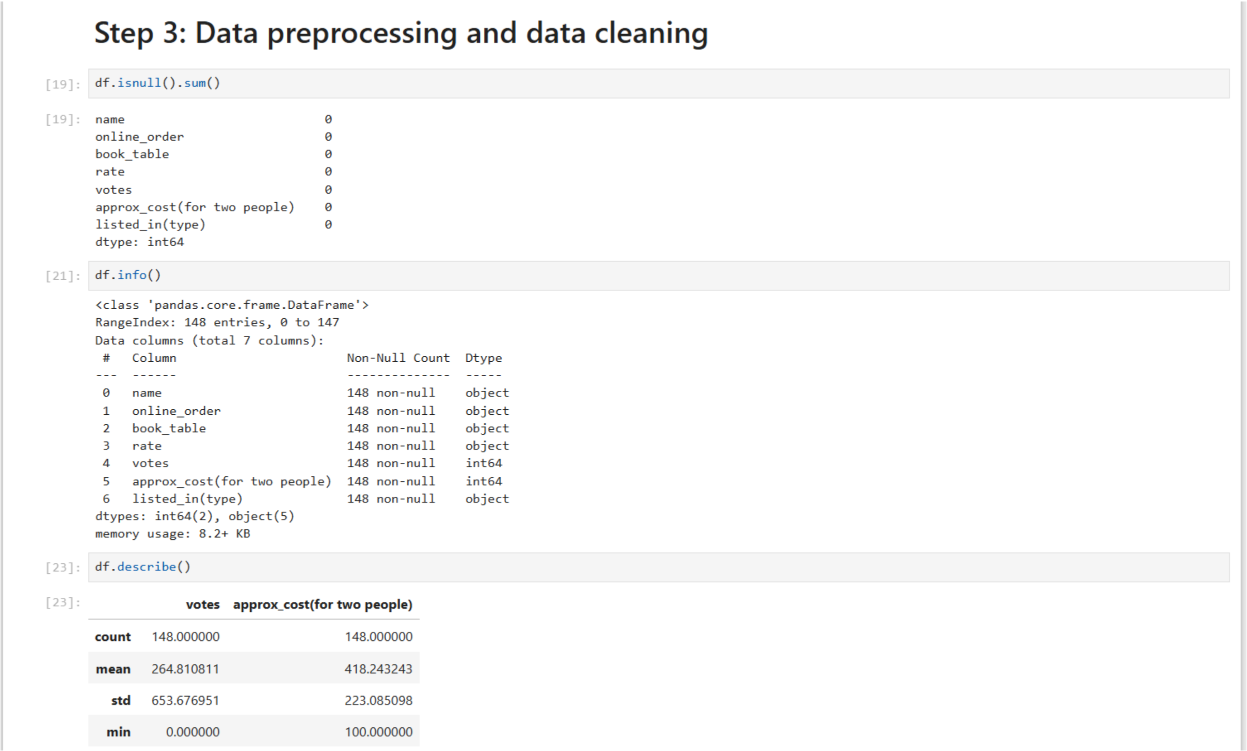
Step2: Extracting data file and creating a dataframe

```
[11]: df = pd.read_csv('Zomatodata.csv')
```

```
[13]: df.head()
```

[13]:

	name	online_order	book_table	rate	votes	approx_cost(for two people)	listed_in(type)
0	Jalsa	Yes	Yes	4.1/5	775	800	Buffet
1	Spice Elephant	Yes	No	4.1/5	787	800	Buffet
2	San Churro Cafe	Yes	No	3.8/5	918	800	Buffet
3	Addhuri Udupi Bhojana	No	No	3.7/5	88	300	Buffet
4	Grand Village	No	No	3.8/5	166	600	Buffet



Step 3: Data preprocessing and data cleaning

```
[19]: df.isnull().sum()
```

```
[19]: name                           0
      online_order                   0
      book_table                     0
      rate                           0
      votes                          0
      approx_cost(for two people)    0
      listed_in(type)                0
      dtype: int64
```

```
[21]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 148 entries, 0 to 147
Data columns (total 7 columns):
 #   Column                       Non-Null Count  Dtype 
---  ------                       --------------  ----- 
 0   name                         148 non-null    object
 1   online_order                 148 non-null    object
 2   book_table                   148 non-null    object
 3   rate                         148 non-null    object
 4   votes                        148 non-null    int64 
 5   approx_cost(for two people)  148 non-null    int64 
 6   listed_in(type)              148 non-null    object
dtypes: int64(2), object(5)
memory usage: 8.2+ KB
```

```
[23]: df.describe()
```

[23]:

	votes	approx_cost(for two people)
count	148.000000	148.000000
mean	264.810811	418.243243
std	653.676951	223.085098
min	0.000000	100.000000

[23]:
```
df.describe()
```

[23]:

	votes	approx_cost(for two people)
count	148.000000	148.000000
mean	264.810811	418.243243
std	653.676951	223.085098
min	0.000000	100.000000
25%	6.750000	200.000000
50%	43.500000	400.000000
75%	221.750000	600.000000
max	4884.000000	950.000000

Remove denominator from rate column and change it to float data type

[26]:
```
def splitRate(value):
    value=str(value).split('/')[0]
    return float(value)

df['rate'] = df['rate'].apply(splitRate)
```

[28]:
```
df.head()
```

[28]:

	name	online_order	book_table	rate	votes	approx_cost(for two people)	listed_in(type)
0	Jalsa	Yes	Yes	4.1	775	800	Buffet
1	Spice Elephant	Yes	No	4.1	787	800	Buffet
2	San Churro Cafe	Yes	No	3.8	918	800	Buffet
3	Addhuri Udupi Bhojana	No	No	3.7	88	300	Buffet
4	Grand Village	No	No	3.8	166	600	Buffet

[28]:
```
df.head()
```

[28]:

	name	online_order	book_table	rate	votes	approx_cost(for two people)	listed_in(type)
0	Jalsa	Yes	Yes	4.1	775	800	Buffet
1	Spice Elephant	Yes	No	4.1	787	800	Buffet
2	San Churro Cafe	Yes	No	3.8	918	800	Buffet
3	Addhuri Udupi Bhojana	No	No	3.7	88	300	Buffet
4	Grand Village	No	No	3.8	166	600	Buffet

[30]:
```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 148 entries, 0 to 147
Data columns (total 7 columns):
 #   Column                       Non-Null Count  Dtype  
---  ------                       --------------  -----  
 0   name                         148 non-null    object 
 1   online_order                 148 non-null    object 
 2   book_table                   148 non-null    object 
 3   rate                         148 non-null    float64
 4   votes                        148 non-null    int64  
 5   approx_cost(for two people)  148 non-null    int64  
 6   listed_in(type)              148 non-null    object 
dtypes: float64(1), int64(2), object(4)
memory usage: 8.2+ KB
```

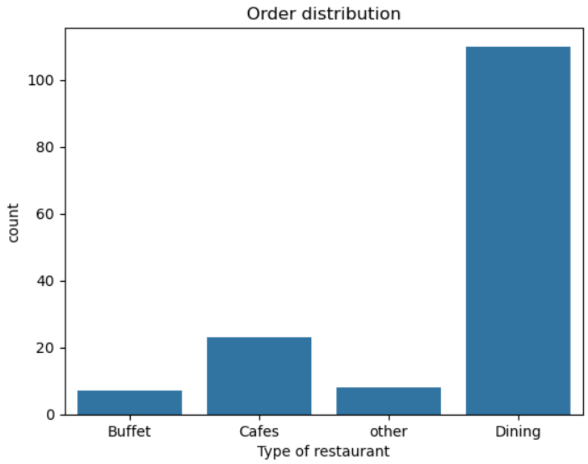
Now the data is preprocessed and cleaned, ready for the analysis.

Step 4: Exploratory Data Analysis

Q1: What type of restaurant do the majority of customers order from?

[38]:

```
sns.countplot(x='listed_in(type)', data = df)
plt.title('Order distribution')
plt.xlabel('Type of restaurant')
plt.show()
```

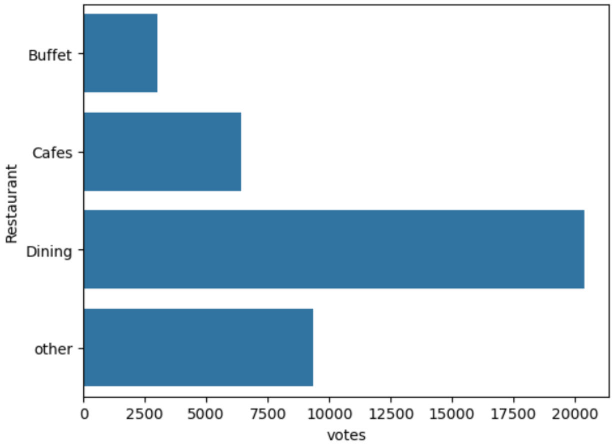


Conclusion : The majority of the orders are from dining restaurants.

Q2: How many votes has each type of restaurant received from customers?

[53]:

```
restaurant_votes = df.groupby(['listed_in(type)'], as_index=False)['votes'].sum()
plt.ylabel('Restaurant')
sns.barplot(x = 'votes',y= 'listed_in(type)' ,data = restaurant_votes)
plt.show()
```

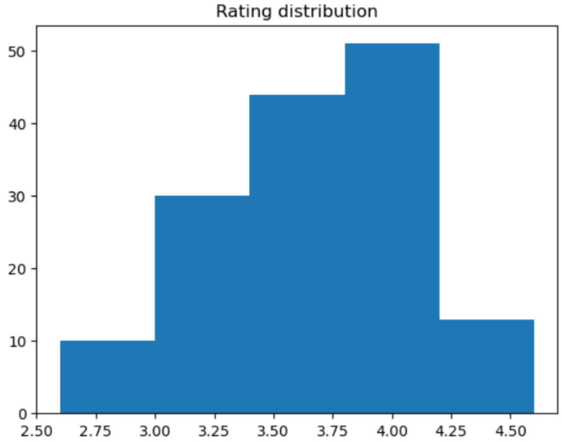


Conclusion:Vote count distribution shows buffet gets least and dining gets most of the votes.

Q3: What are the ratings that the majority of restaurants have received?

[58]:

```
plt.hist(df['rate'],bins=5)
plt.title('Rating distribution')
plt.show()
```

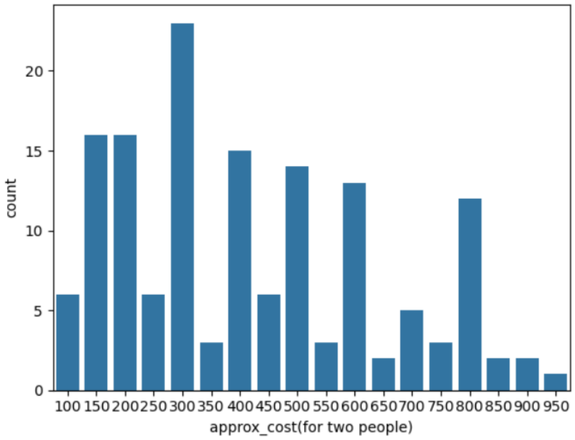


Majority of the ratings is from 3.5 to 4.

Q4: Zomato has observed that most of the couples order most of their food online.What is their average spending on each order?

[79]:

```
sns.countplot(x = 'approx_cost(for two people)', data = df)
plt.show()
```

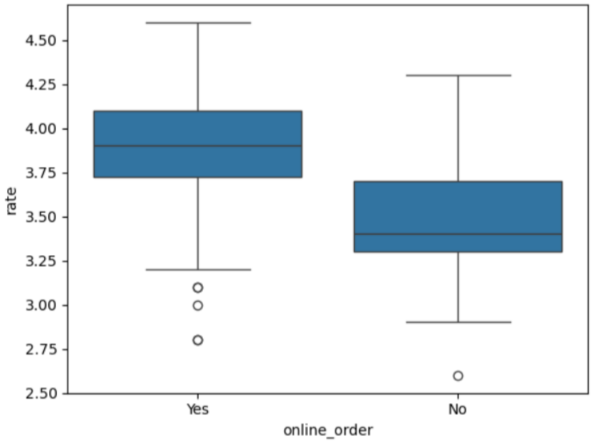


Conclusion: The majority of couples prefer restaurants with an appropriate spending of 300 rupees.

Q5: Which mode(offline, online) has received the maximum rating?

[81]:

```
sns.boxplot(x='online_order', y= 'rate', data=df)
plt.show()
```

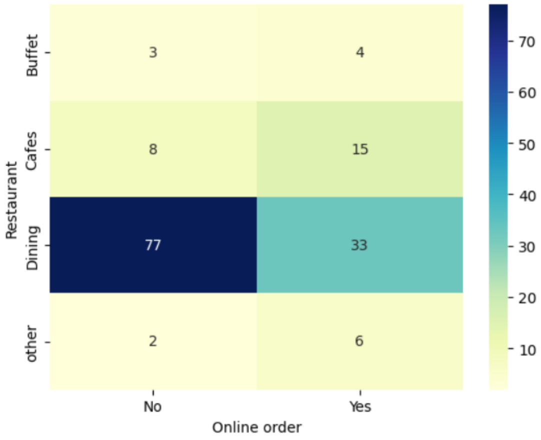


Conclusion: Offline orders received lower ratings as compared to online orders which averages around 4.0 ratings.

Q6: Which type of restaurant recieved more offline orders, so that Zomato can provide those customers with some good offers?

[101]:

```
pivot_table = df.pivot_table(index='listed_in(type)', columns='online_order',aggfunc='size',fill_value =0)
sns.heatmap(pivot_table, annot = True, cmap = "YlGnBu", fmt='d')
plt.xlabel('Online order')
plt.ylabel('Restaurant')
plt.show()
```



Conclusion: Dining restaurants primarily accpet offline orders, whereas cafes primarily receive online orders. This suggesrs that clients prefer to place orders in person at restaurants, but prefer online ordering at cafes.