Step-1: Import necessary Python libraries

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

Step-2: Create the data frame

In [2]:
```
dataframe=pd.read_csv(r"F:\FSDS\Data-Analysis project\Zomato data .csv")
print(dataframe.head())
```

```
                  name online_order book_table   rate  votes  \
0                Jalsa          Yes        Yes  4.1/5    775
1        Spice Elephant          Yes         No  4.1/5    787
2       San Churro Cafe          Yes         No  3.8/5    918
3  Addhuri Udupi Bhojana           No         No  3.7/5     88
4          Grand Village           No         No  3.8/5    166

   approx_cost(for two people) listed_in(type)
0                          800          Buffet
1                          800          Buffet
2                          800          Buffet
3                          300          Buffet
4                          600          Buffet
```

In [3]:
```
dataframe=pd.read_csv(r"F:\FSDS\Data-Analysis project\Zomato data .csv")
```

In [7]:
```
dataframe
```

Out[7]:

	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
...	...	...	...	...	...	...	...
143	Melting Melodies	No	No	3.3/5	0	100	Dining
144	New Indraprasta	No	No	3.3/5	0	150	Dining
145	Anna Kuteera	Yes	No	4.0/5	771	450	Dining
146	Darbar	No	No	3.0/5	98	800	Dining
147	Vijayalakshmi	Yes	No	3.9/5	47	200	Dining

148 rows × 7 columns

Let's convert the data type of the "rate" column to float and remove the denominator

In [4]:
```
def handleRate(value):
    value=str(value).split('/')
    value=value[0];
    return float(value)

dataframe['rate']=dataframe['rate'].apply(handleRate)
print(dataframe.head())
```

```
                  name online_order book_table  rate  votes  \
0                Jalsa          Yes        Yes   4.1    775
1        Spice Elephant          Yes         No   4.1    787
2       San Churro Cafe          Yes         No   3.8    918
3  Addhuri Udupi Bhojana           No         No   3.7     88
4          Grand Village           No         No   3.8    166

   approx_cost(for two people) listed_in(type)
0                          800          Buffet
1                          800          Buffet
2                          800          Buffet
3                          300          Buffet
4                          600          Buffet
```

Summary of the data frame

In [5]:
```
dataframe.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
```

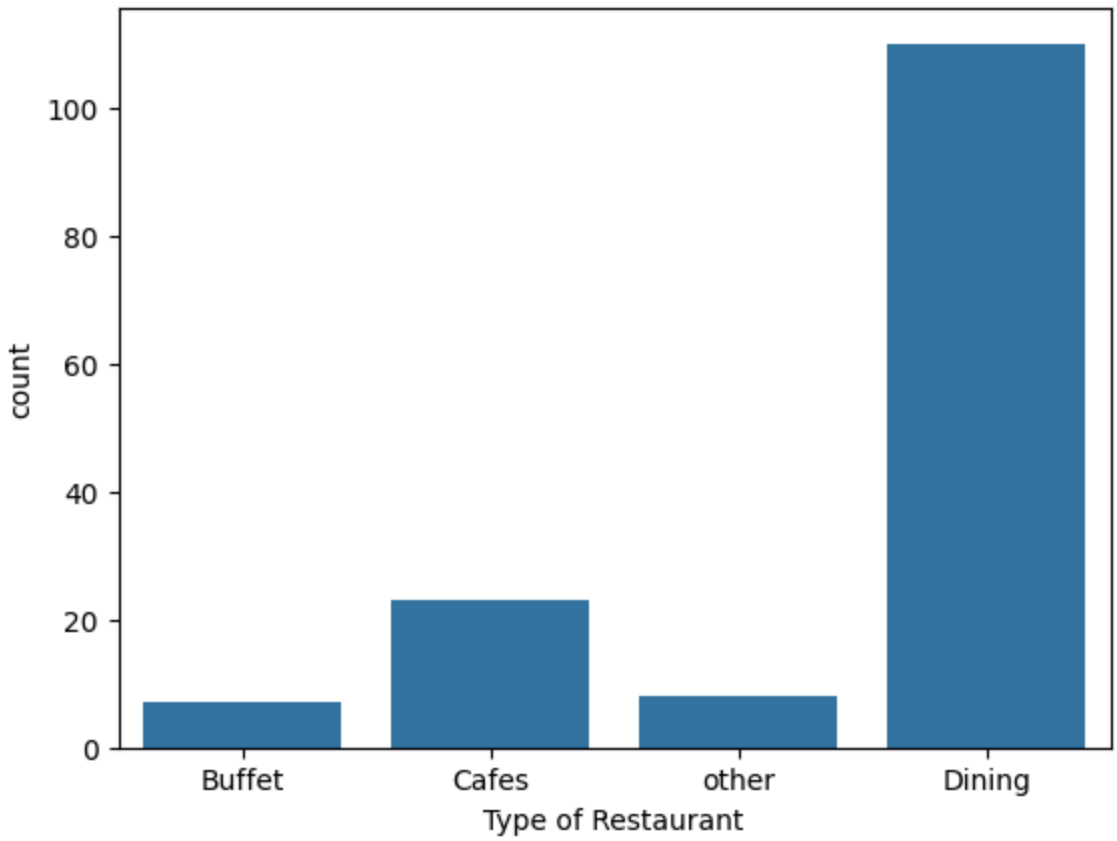
In [6]:
```
dataframe.isnull().sum()
# there is no null value in dataframe
```

Out[6]:
```
name                           0
online_order                   0
book_table                     0
rate                           0
votes                          0
approx_cost(for two people)    0
listed_in(type)                0
dtype: int64
```

Q.1: Type of Restaurant

In [7]:
```
sns.countplot(x=dataframe['listed_in(type)'])
plt.xlabel("Type of Restaurant")
```

Out[7]:
```
Text(0.5, 0, 'Type of Restaurant')
```

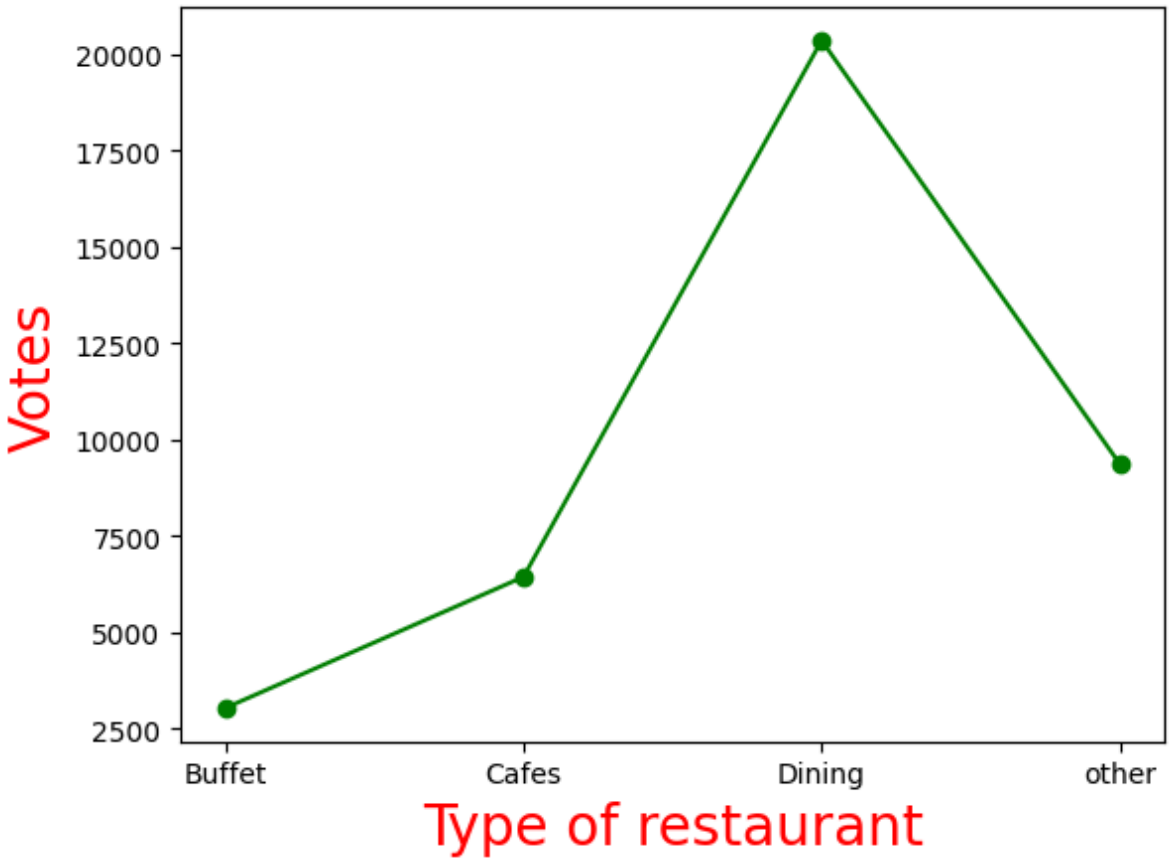


Conclusion- The majority of the restaurants fall into the dining category

Q2. Dining restaurants are preferred by a larger number of individuals

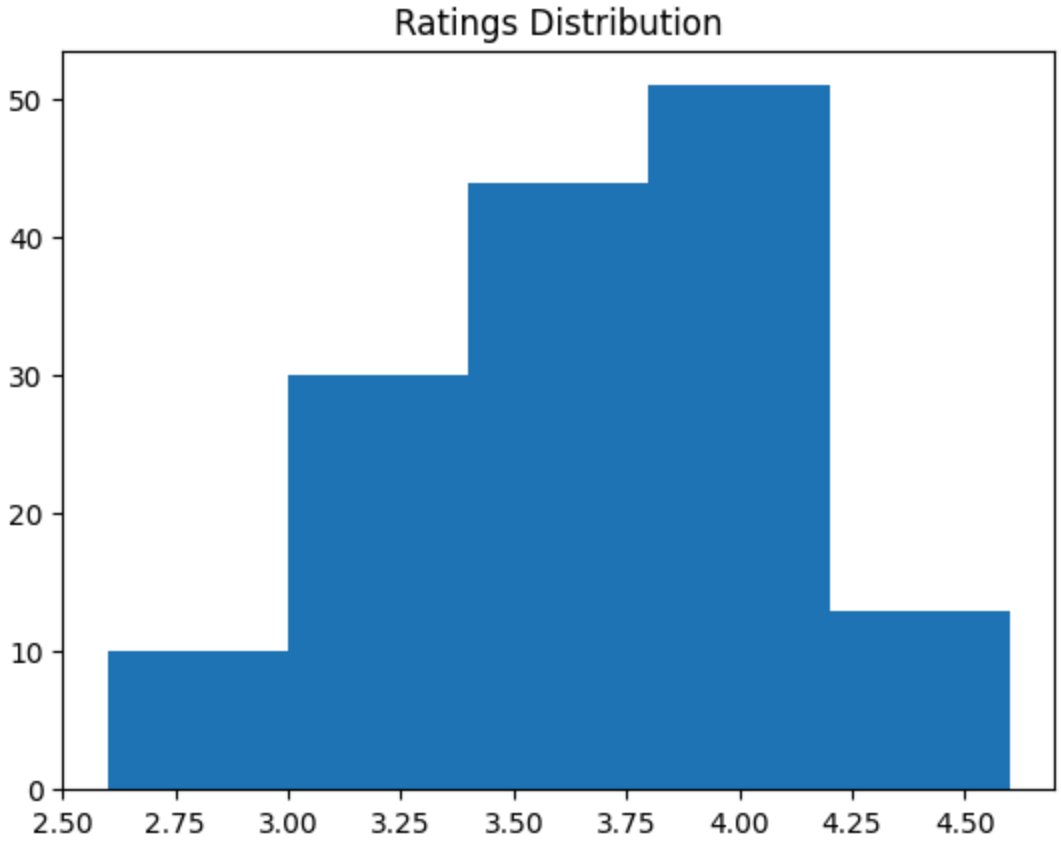
In [8]:
```
grouped_data=dataframe.groupby('listed_in(type)')['votes'].sum()
result=pd.DataFrame({'votes': grouped_data})
plt.plot(result, c="green", marker="o")
plt.xlabel("Type of restaurant", c="red", size=20)
plt.ylabel("Votes", c="red", size=20)
```

Out[8]:
```
Text(0, 0.5, 'Votes')
```



Q3. The majority of restaurants received ratings

In [13]:
```
plt.hist(dataframe['rate'], bins=5)
plt.title("Ratings Distribution")
plt.show()
```

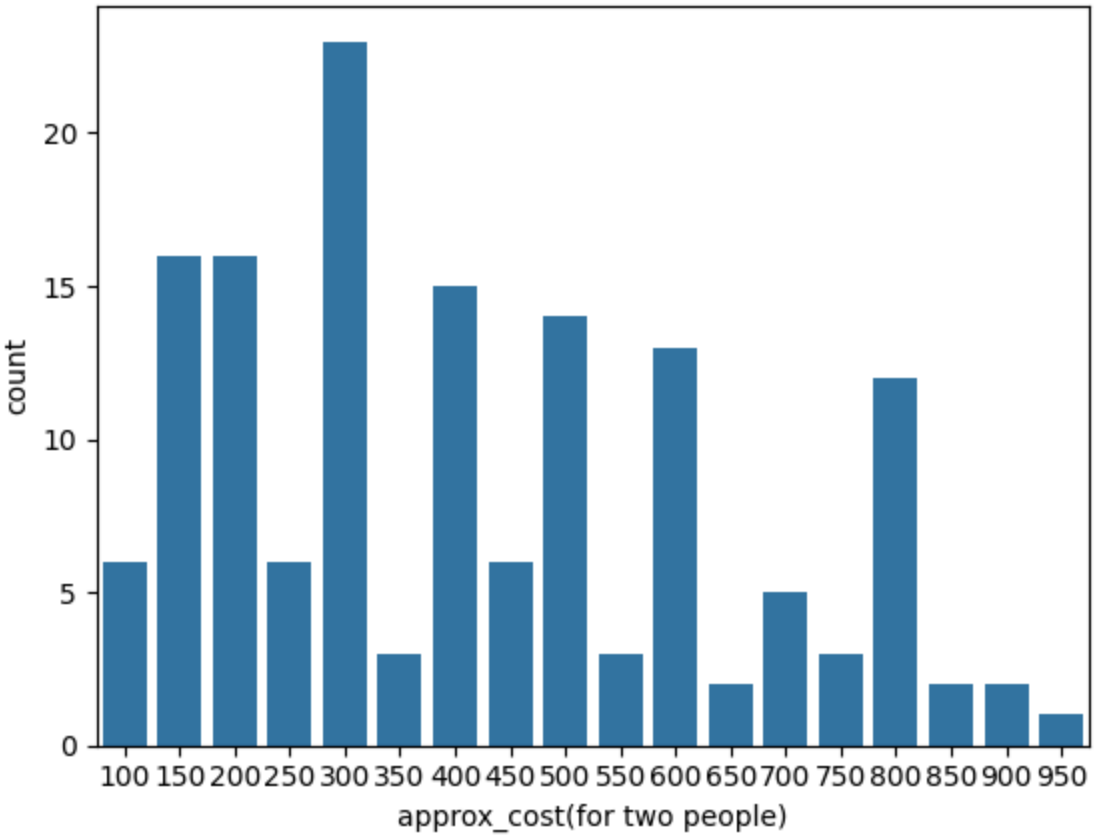


Conclusion- The majority of restaurants received ratings from 3.5 to 4.

Q4.The majority of couples prefer restaurants with an approximate cost of 300 rupees.

In [14]:
```
couple_data=dataframe['approx_cost(for two people)']
sns.countplot(x=couple_data)
```

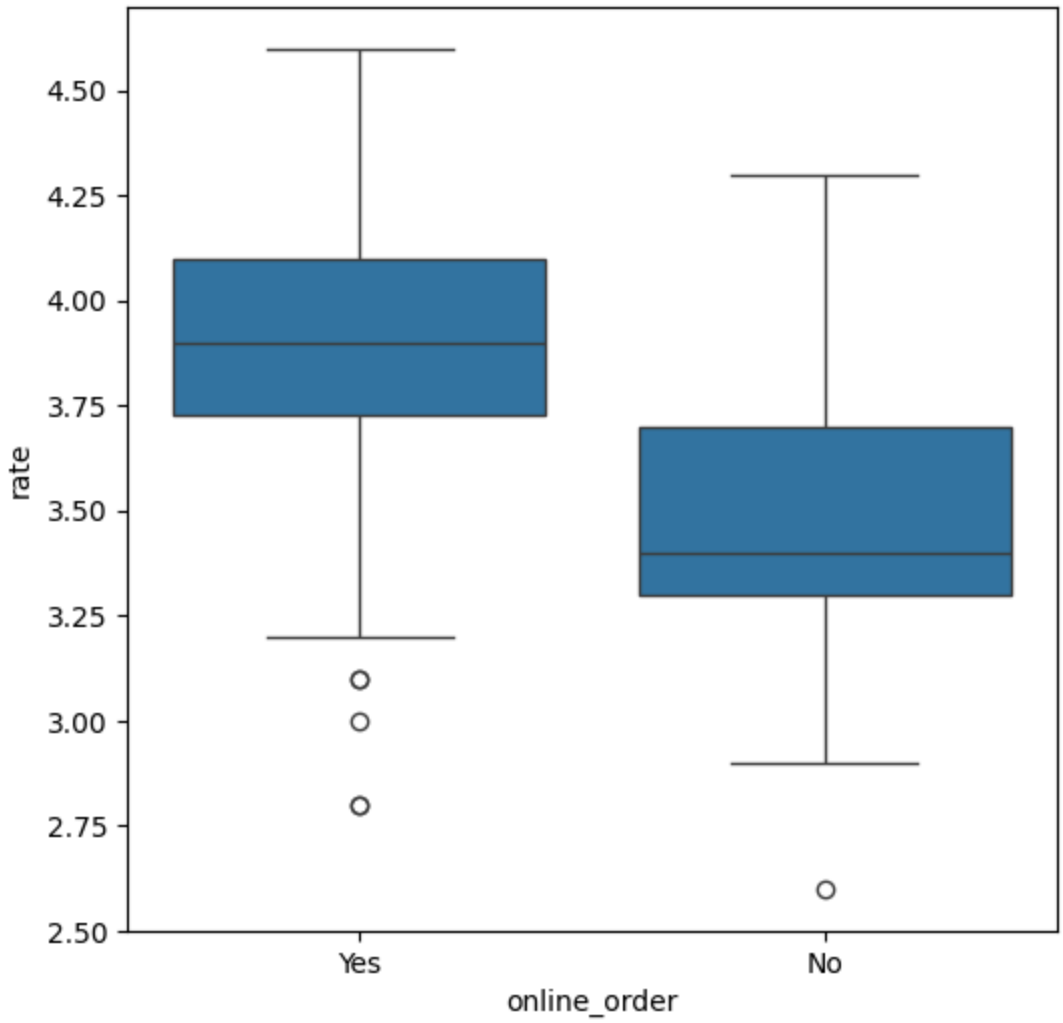
Out[14]:
```
<AxesSubplot: xlabel='approx_cost(for two people)', ylabel='count'>
```



Q5. whether online orders receive higher ratings than offline orders

In [15]:
```
plt.figure(figsize=(6,6))
sns.boxplot(x='online_order', y='rate', data=dataframe )
```

Out[15]:
```
<AxesSubplot: xlabel='online_order', ylabel='rate'>
```

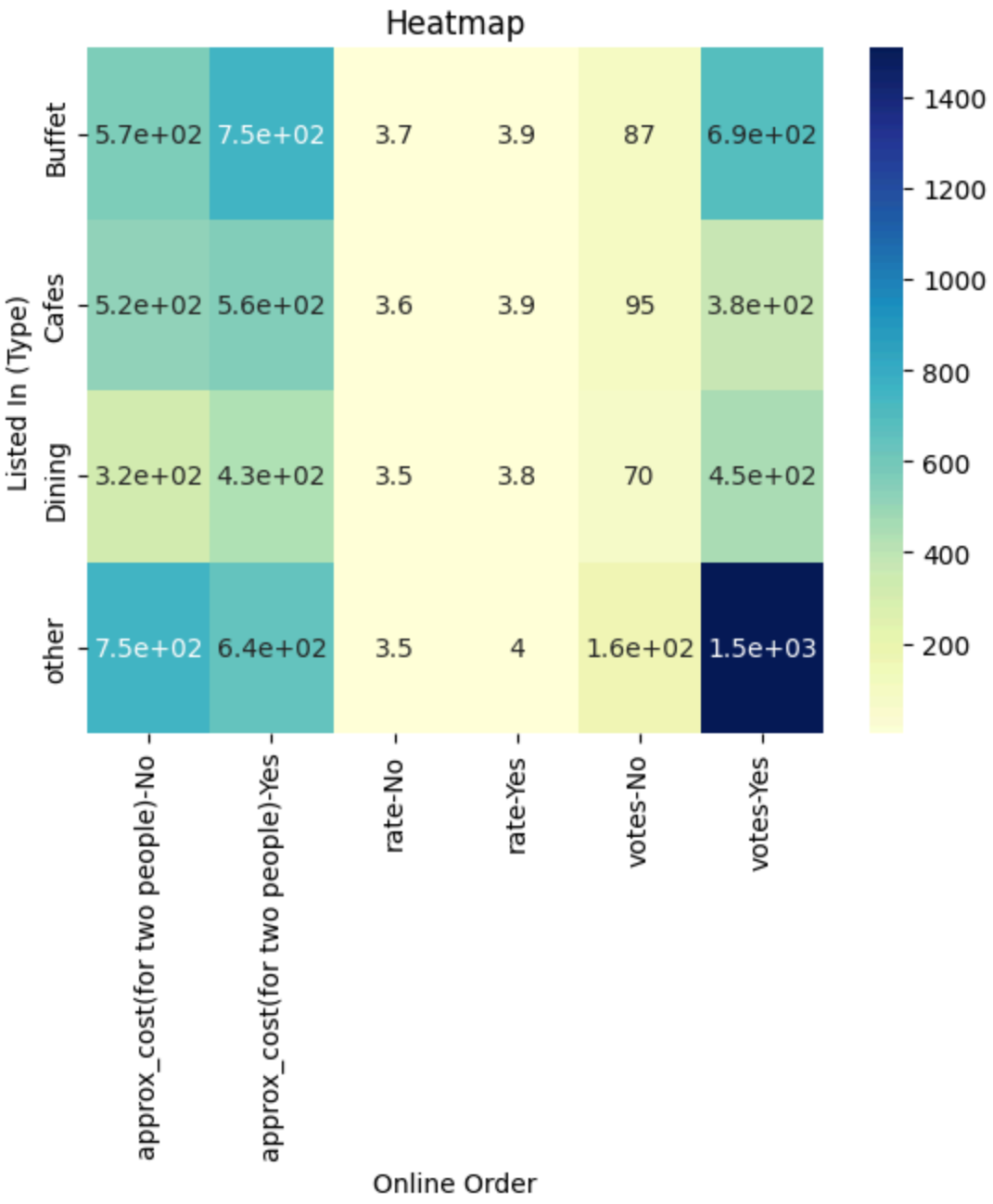


Conclusion: Offline orders received lower ratings in comparison to online orders, which obtained excellent ratings.

Q6. Which type of restaurants received more offline orders,so that zomato can provide those customers with some good offers

In [10]:
```
import warnings
warnings.filterwarnings('ignore')


pivot_table=dataframe.pivot_table(index='listed_in(type)', columns='online_orde
sns.heatmap(pivot_table, annot=True, cmap="YlGnBu")
plt.title("Heatmap")
plt.xlabel("Online Order")
plt.ylabel("Listed In (Type)")
plt.show()
```



Conclusion: Dining restaurants primarily accept offline orders,where as cafes primarily receive online orders.This suggests that clients prefer to place orders in person at restaurants, but prefer online ordering at cafes.

In [ ]: