Data Analysis Project Using Python

ZOMATO

Zomato has an average of 17.5 million monthly transacting customers for its food delivery business.e average monthly active food delivery restaurant partners on Zomato's platform have also increased by 8.7% year-on-year, from 208,000 to 226,000.You are working in a data-driven role at Zomato. You have a dataset of customers. As a data professional, you need to analyze the data, perform EDA (Exploratory Data Analysis) and visualization, and answer the following questions:

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	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

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1) What type of restaurant do the majority of customers order from?

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

3) What are the ratings that the majority of restaurants have received?

4) Zomato has observed that most couples order most of their food online. What is their average spending on each order?

5) Which mode (online or offline) has received the maximum rating?

6) Which type of restaurant received more offline orders, so that Zomato can provide those customers with some good offers?

Zomato Data Analysis Using Python

Step 1: Import necessary Python libraries.

In [10]:
```
import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
pandas is used for data manipulation and analysis.
numpy is used for numerical operations.
matplotlib.pyplot and seaborn are used for data visualization.
```

Step 2: Create the data frame.

In [2]:
```
dataframe = pd.read_csv("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("Zomato data .csv")
```

In [4]:
```
dataframe
```

Out[4]:

	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 [6]:
```
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 [7]:
```
dataframe.info()
```

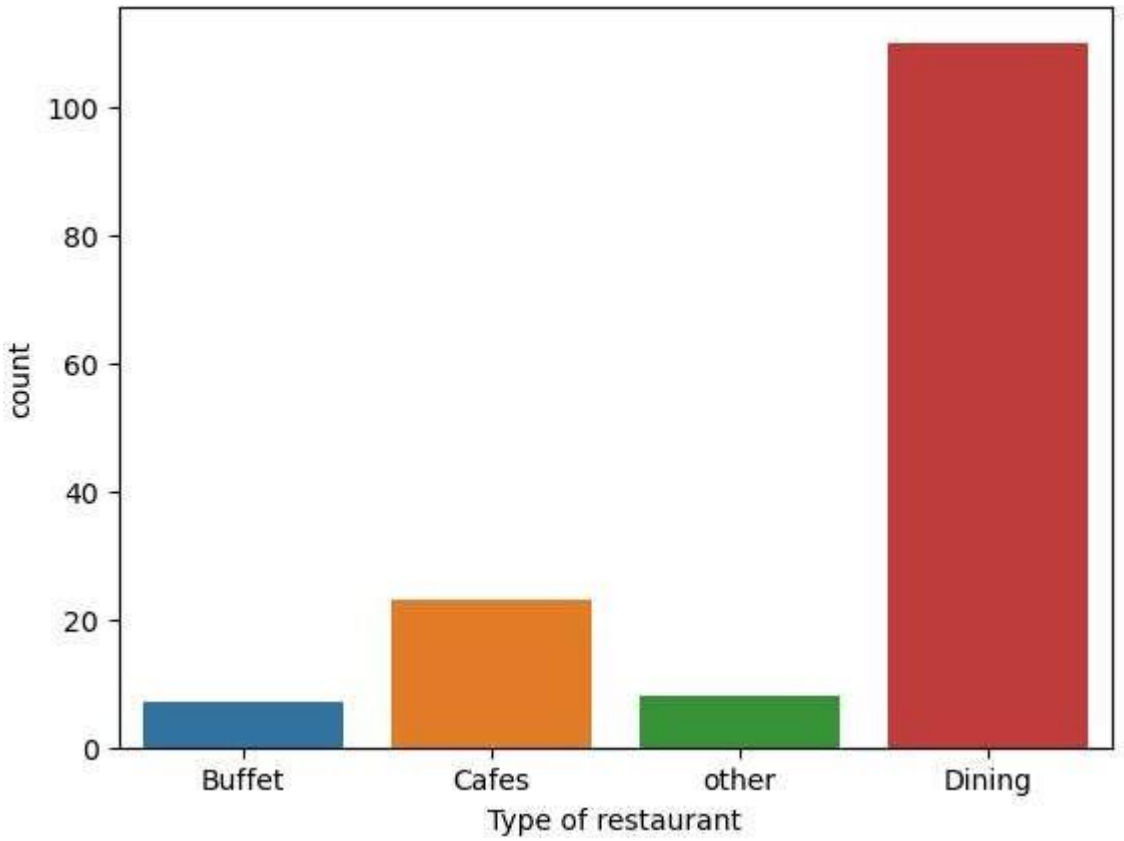
```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 148 entries, 0 to 147
Data columns (total 7 columns):
 #   Column                       Non-Null Count  Dtype  
---  ------                       --------------  -----  
 0   name                         148 non-null    object 
 1   online_order                 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
```

Conclusion - There is no NULL value in dataframe.

Type of Resturant

In [8]:
```
sns.countplot(x=dataframe['listed_in(type)'])
plt.xlabel("Type of restaurant")
```

Out[8]:
```
Text(0.5, 0, 'Type of restaurant')
```

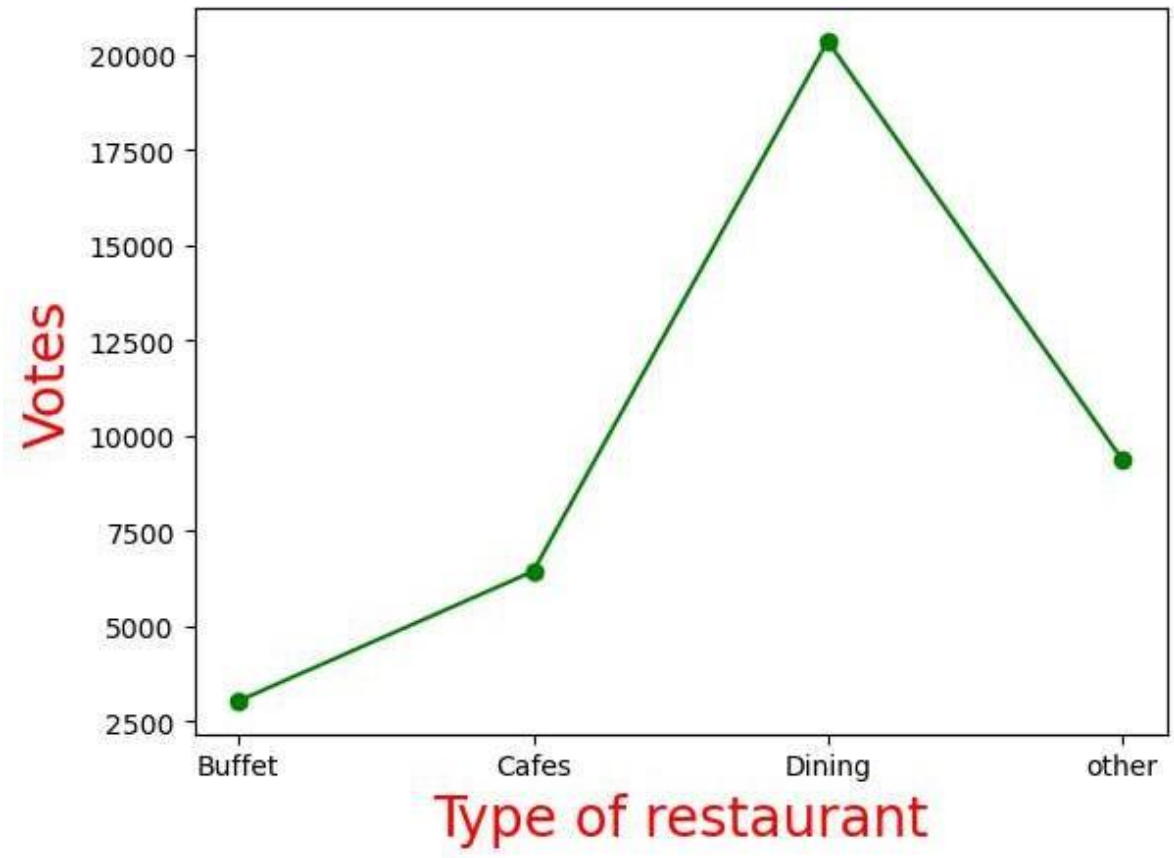


Conclusion: The majority of the restaurants fall into the dining category.

Dining restaurants are preferred by a larger number of individuals.

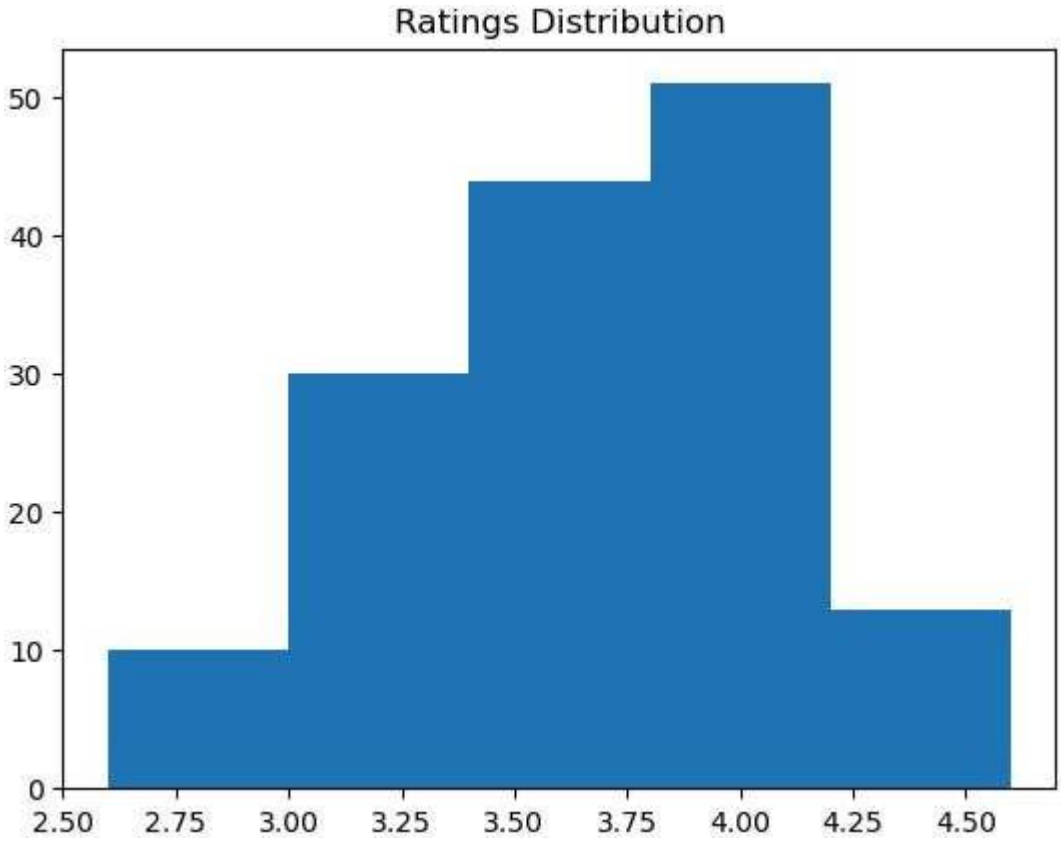
In [9]:
```
grouped_data = dataframe.groupby('listed_in(type)')['votes'].sum()
result = pd.DataFrame({'votes': grouped_data})
plt.plot(result, c="green", marker="o")
plt.xlabel("Type of restaurant", c="red", size=20)
plt.ylabel("Votes", c="red", size=20)
```

Out[9]: Text(0, 0.5, 'Votes')



The majority of restaurants received ratings

In [11]:
```
plt.hist(dataframe['rate'],bins=5)
plt.title("Ratings Distribution")
plt.show()
```

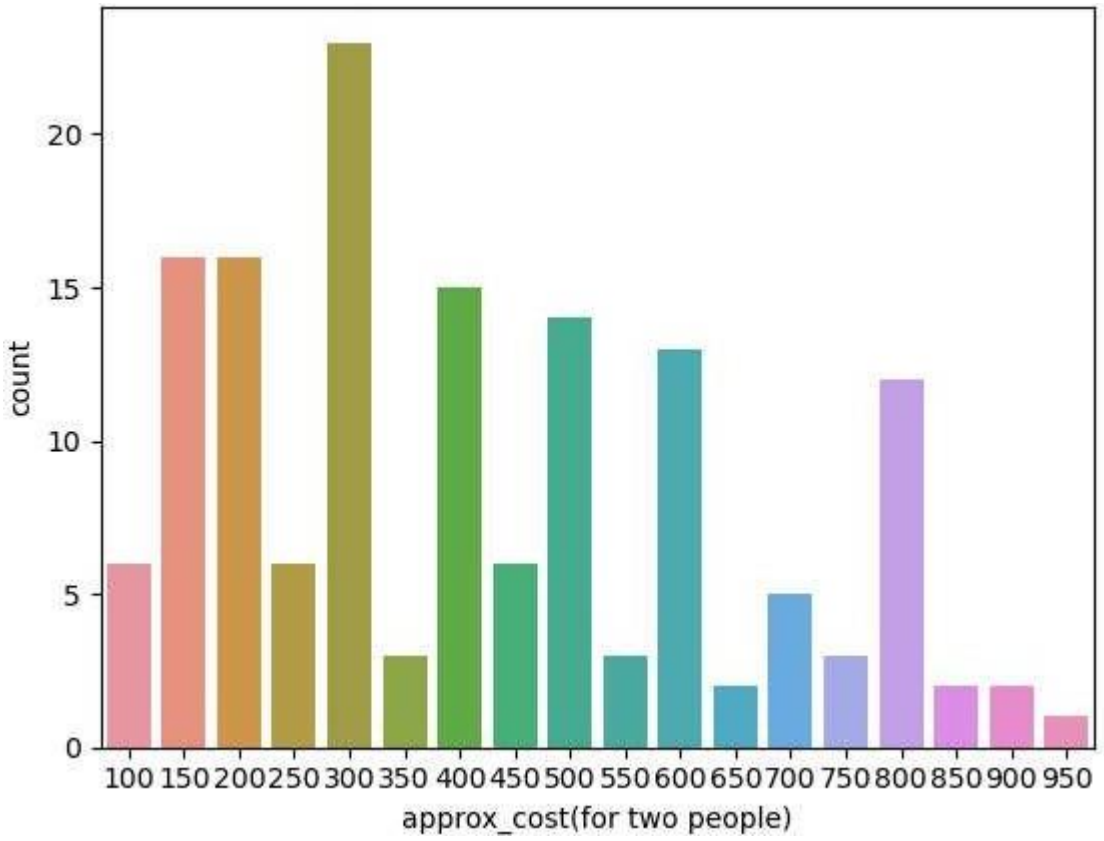


Conclusion: The majority of restaurants received ratings ranging from 3.5 to 4.

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

In [15]:
```
couple_data=dataframe['approx_cost(for two people)']
sns.countplot(x=couple_data)
```

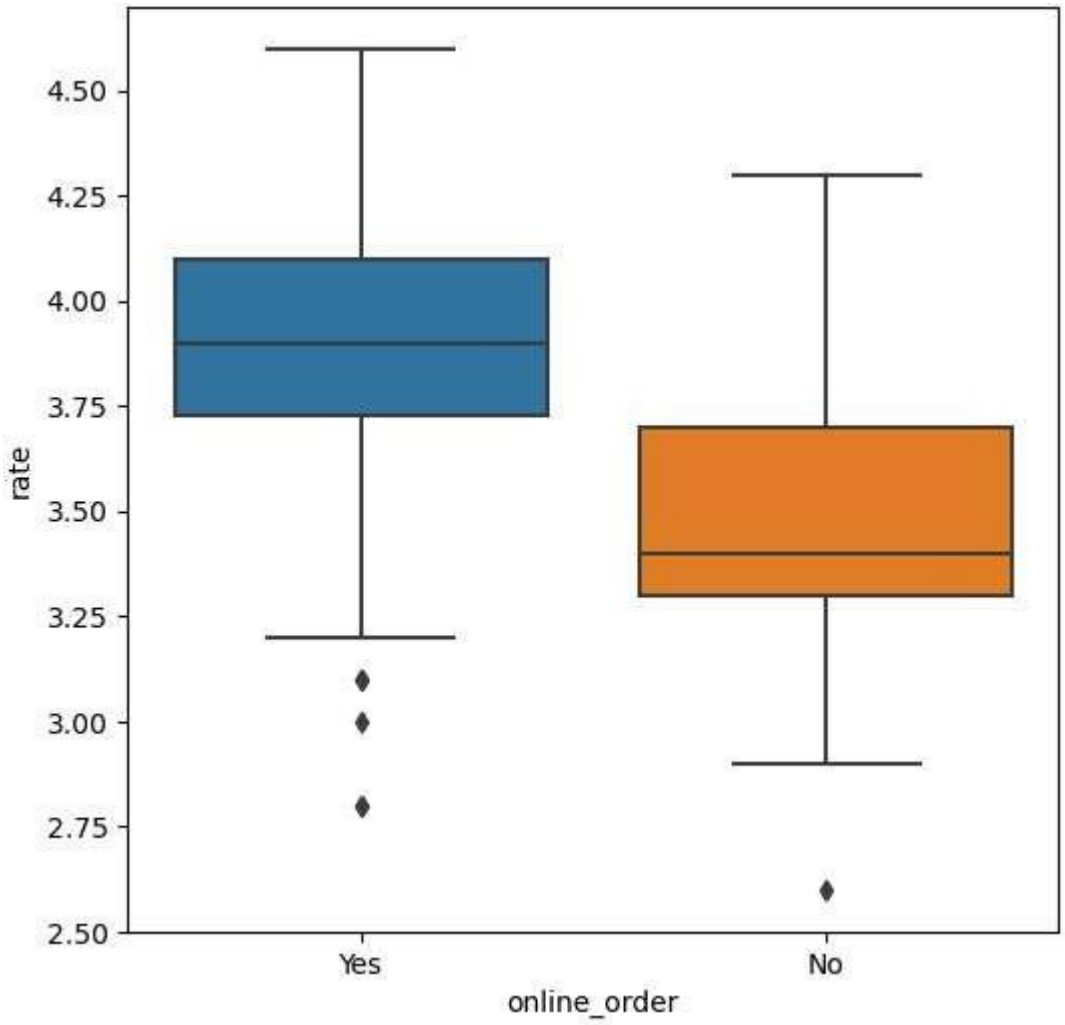
Out[15]: <Axes: xlabel='approx_cost(for two people)', ylabel='count'>



whether online orders receive higher ratings than offline orders.

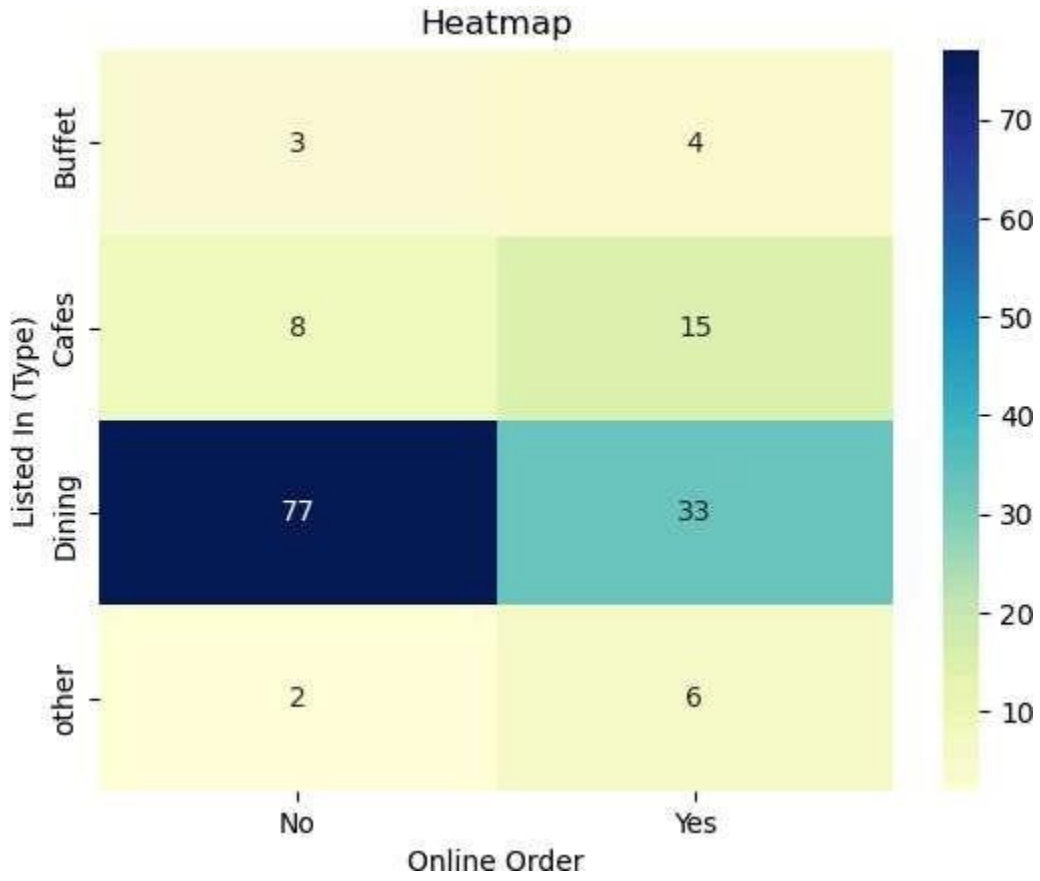
In [16]:
```
plt.figure(figsize = (6,6))
sns.boxplot(x = 'online_order', y = 'rate', data = dataframe)
```

Out[16]: <Axes: xlabel='online_order', ylabel='rate'>



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

In [17]:
```
pivot_table = dataframe.pivot_table(index='listed_in(type)', columns='online_o
sns.heatmap(pivot_table, annot=True, cmap="YlGnBu", fmt='d')
plt.title("Heatmap")
plt.xlabel("Online Order")
plt.ylabel("Listed In (Type)")
plt.show()
```



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

In [ ]:
```
```