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

Create the dataframe

```
dataframe = pd.read_csv("Zomato data .csv")
print(dataframe)
```

```
                        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
..                     ...          ...        ...    ...    ...
143       Melting Melodies           No         No  3.3/5      0
144        New Indraprasta           No         No  3.3/5      0
145           Anna Kuteera          Yes         No  4.0/5    771
146                 Darbar           No         No  3.0/5     98
147          Vijayalakshmi          Yes         No  3.9/5     47

     approx_cost(for two people) listed_in(type)
0                            800          Buffet
1                            800          Buffet
2                            800          Buffet
3                            300          Buffet
4                            600          Buffet
..                           ...             ...
143                          100          Dining
144                          150          Dining
145                          450          Dining
146                          800          Dining
147                          200          Dining

[148 rows x 7 columns]
```

```
dataframe
```

```
                        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
..                     ...          ...        ...    ...    ...
143       Melting Melodies           No         No  3.3/5      0
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144        New Indraprasta           No         No  3.3/5      0
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147          Vijayalakshmi          Yes         No  3.9/5     47
```

```
     approx_cost(for two people) listed_in(type)
0                            800          Buffet
1                            800          Buffet
2                            800          Buffet
3                            300          Buffet
4                            600          Buffet
..                           ...             ...
143                          100          Dining
144                          150          Dining
145                          450          Dining
146                          800          Dining
147                          200          Dining

[148 rows x 7 columns]
```

Convert the data type of column - rate

```
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
```

```
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
```

Type of resturant

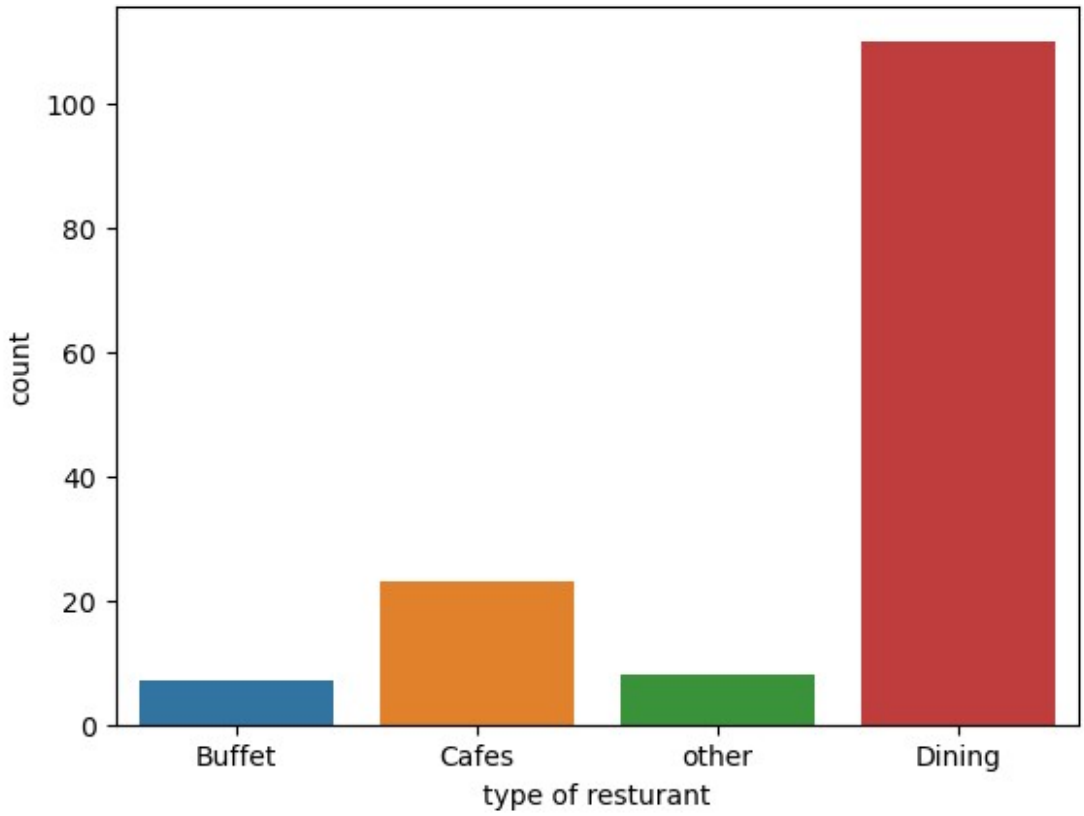
```
dataframe.head()
```

```
                    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
```

```
sns.countplot(x=dataframe['listed_in(type)'])
plt.xlabel("type of resturant")
```

```
Text(0.5, 0, 'type of resturant')
```



Conclusion - Majority o the resturant falls in dinning category

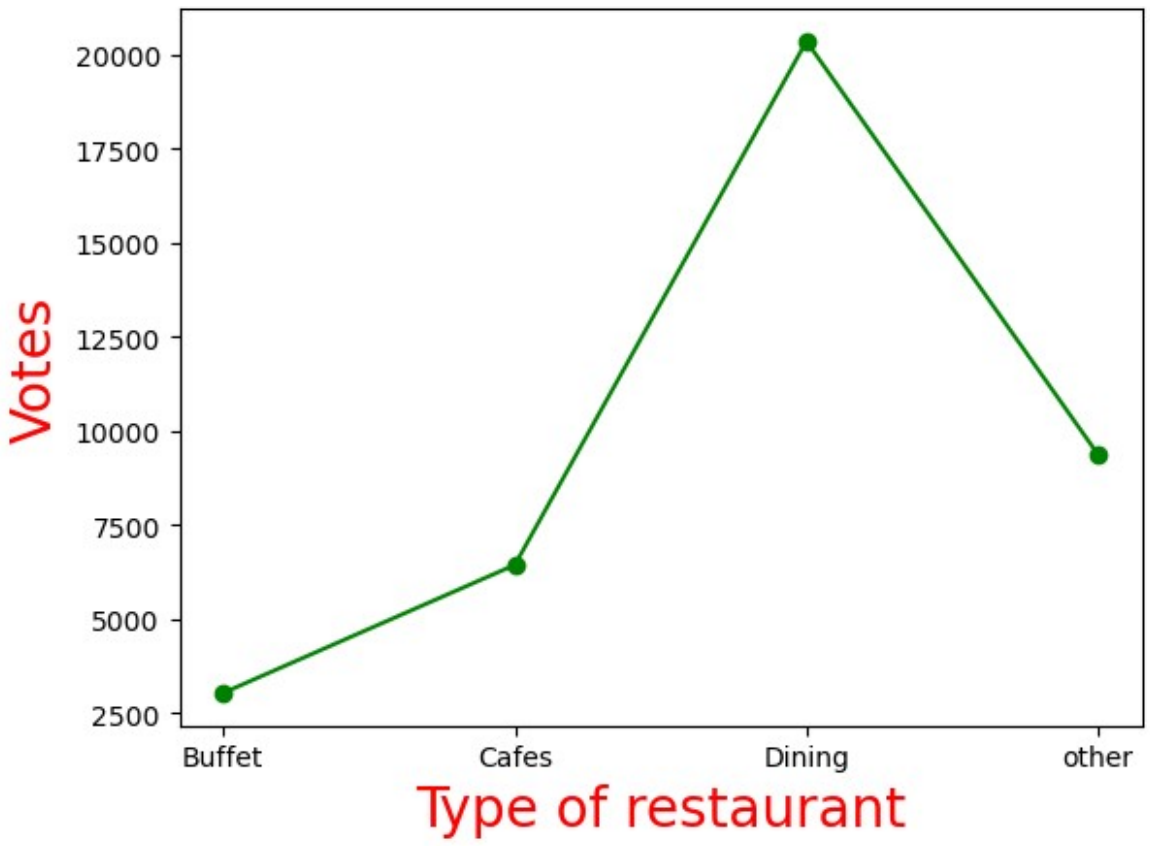
```
dataframe.head()
```

```
                    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
```

```
grouped_data = dataframe.groupby('listed_in(type)')['votes'].sum()
result = pd.DataFrame({'votes': grouped_data})
```

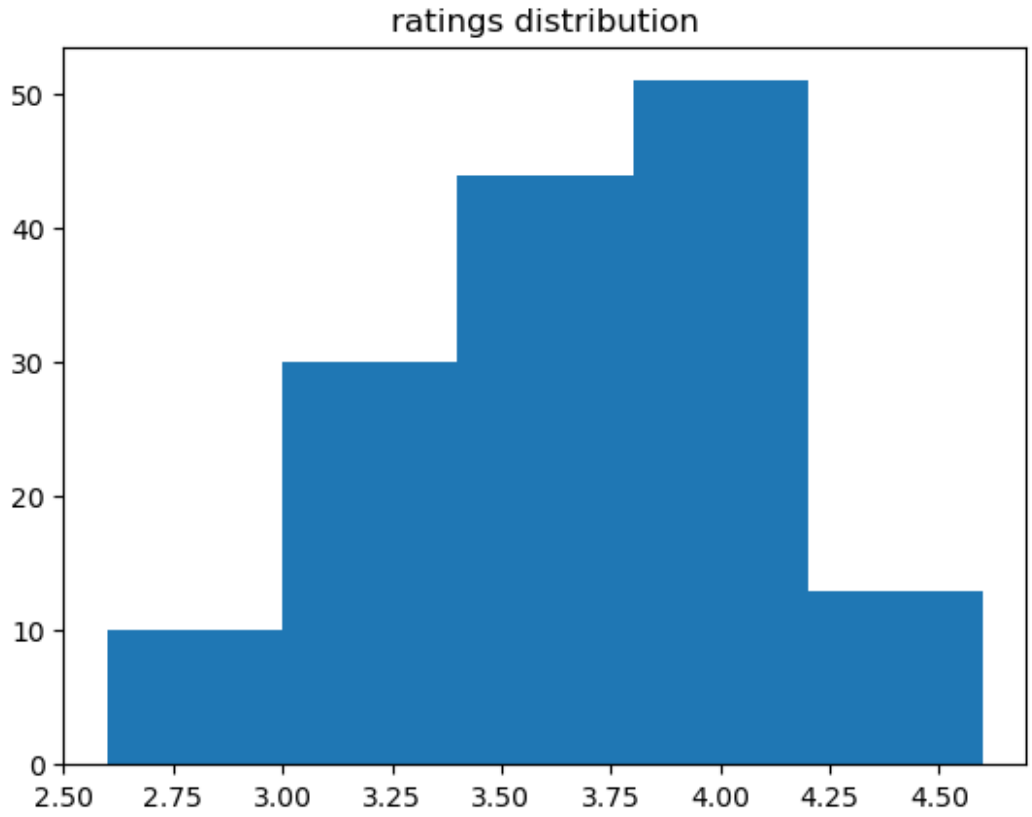
```
plt.plot(result, c="green", marker="o")
plt.xlabel("Type of restaurant", c="red", size=20)
plt.ylabel("Votes", c="red", size=20)
plt.show()
```




```
dataframe.head()
```

	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

```
plt.hist(dataframe['rate'], bins = 5)
plt.title("ratings distribution")
plt.show()
```

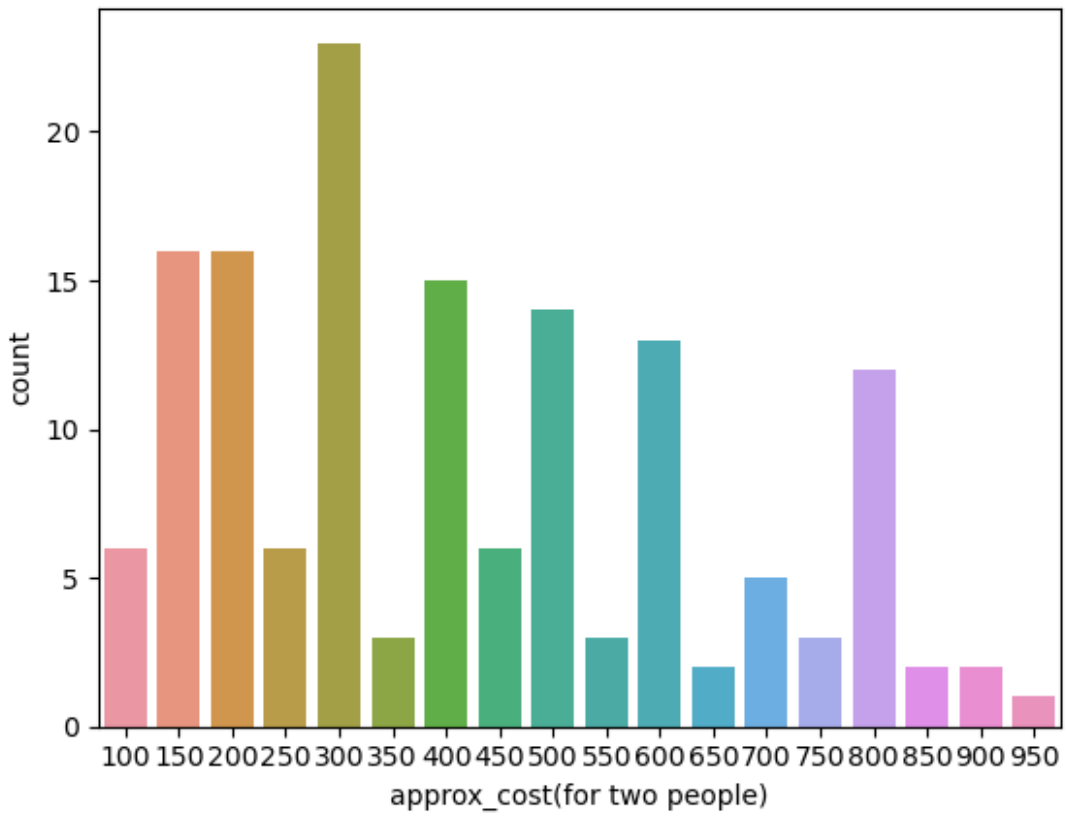


conclusion - the majority restaurants recieved ratings from 3.5 to 4

Average order spending by couples

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

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



conclusion- the majority of couples prefer restaurants with an approximate cost of 300 rupees

Q. Online mode or offline mode

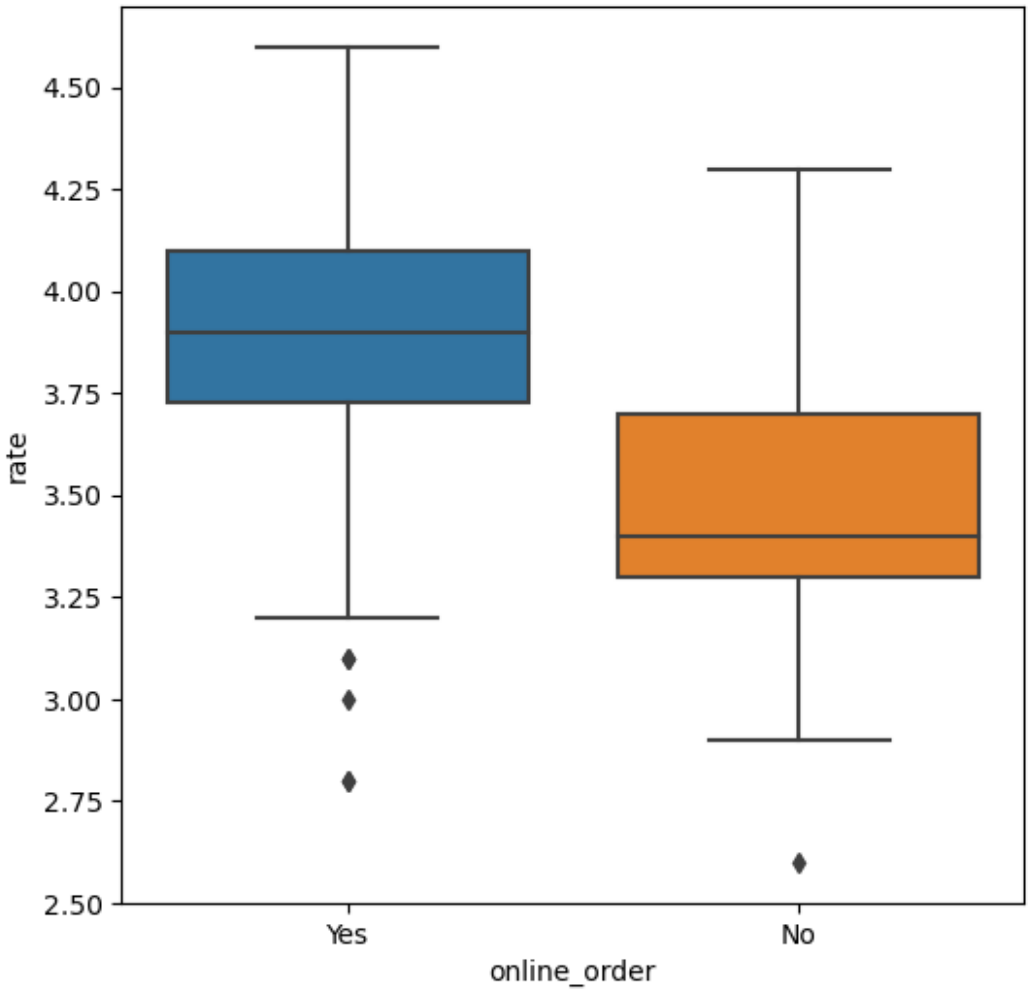
```
dataframe.head()
```

	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		
4	Grand Village	No	No	3.8	166		

```
3                              300          Buffet
4                              600          Buffet
```

```
plt.figure(figsize = (6,6))
sns.boxplot(x = 'online_order', y = 'rate', data = dataframe)
```

```
<AxesSubplot:xlabel='online_order', ylabel='rate'>
```

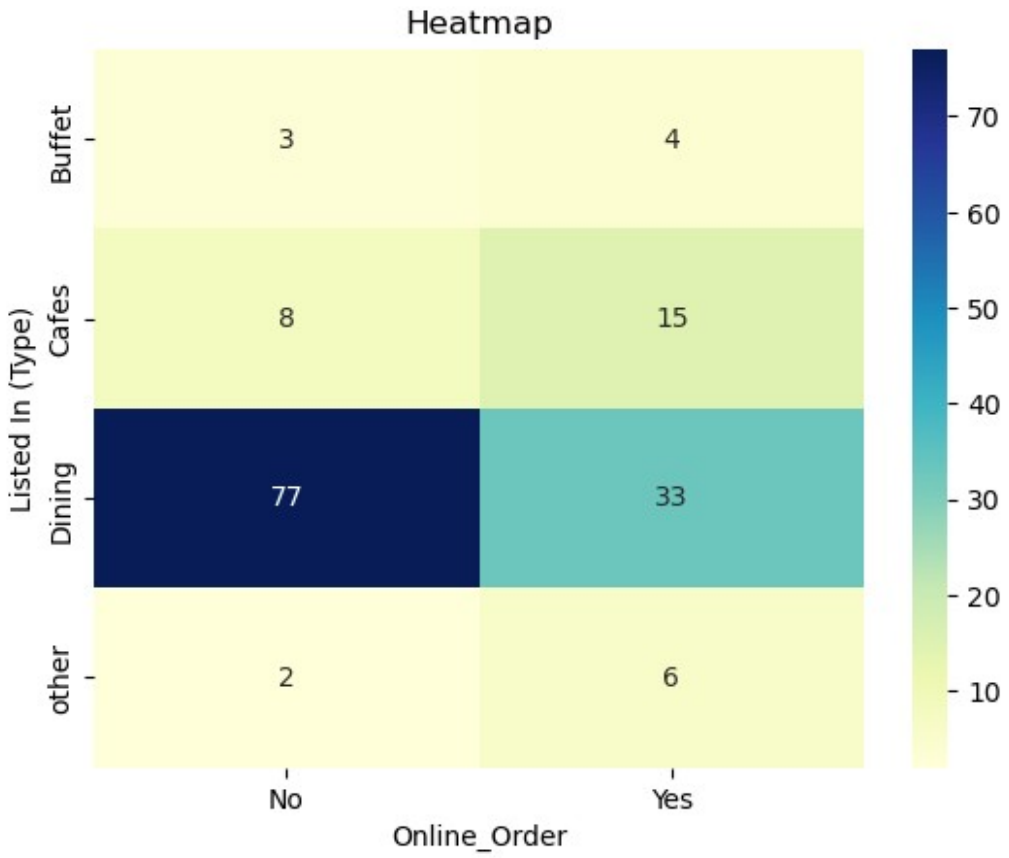


conclusion - offline recieved lower rating in comparison to online

Q. Which type of restaurant recived more offline orders so that Zomato can predict customers with some good offers?

```
pivot_table = dataframe.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.title("Heatmap")
plt.xlabel("Online_Order")
plt.ylabel("Listed In (Type)")
plt.show()
```


Heatmap
Buffet
Cafes
Dining
other
Listed In (Type)
3
4
8
15
77
33
2
6
No
Yes
Online_Order
70
60
50
40
30
20
10