Zomato Data Analysis Project STEP 1 - IMPORTING LIBRARIES pandas is used for data manuplation and analysis numpy is used for mathematical operation matplotlib pyolot and seaborn is used for Data visualization

In [2]:
```
import numpy as np
import pandas as pd
import seaborn as sns
import matplotlib.pyplot as plt
```

STEP 2 - CREATE THE DATA FRAME

In [5]:
```
dataframe = pd.read_csv("Zomato data .csv")
```

In [6]:
```
dataframe
```

Out[6]:

	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

In [6]:
```
dataframe.head()
```

Out[6]:

	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

In [7]:
```
# Convert 'rate' column: Remove '/5' and convert to float
dataframe['rate'] = dataframe['rate'].str.replace('/5', '', regex=False).astype(float)
```

In [8]:
```
dataframe.head()
```

Out[8]:

	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

In [9]:
```
# Rename the column
dataframe = dataframe.rename(columns={'listed_in(type)': 'Restaurant_Type'})

# Display the first few rows to verify
dataframe.head()
```

Out[9]:

	name	online_order	book_table	rate	votes	approx_cost(for two people)	Restaurant_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

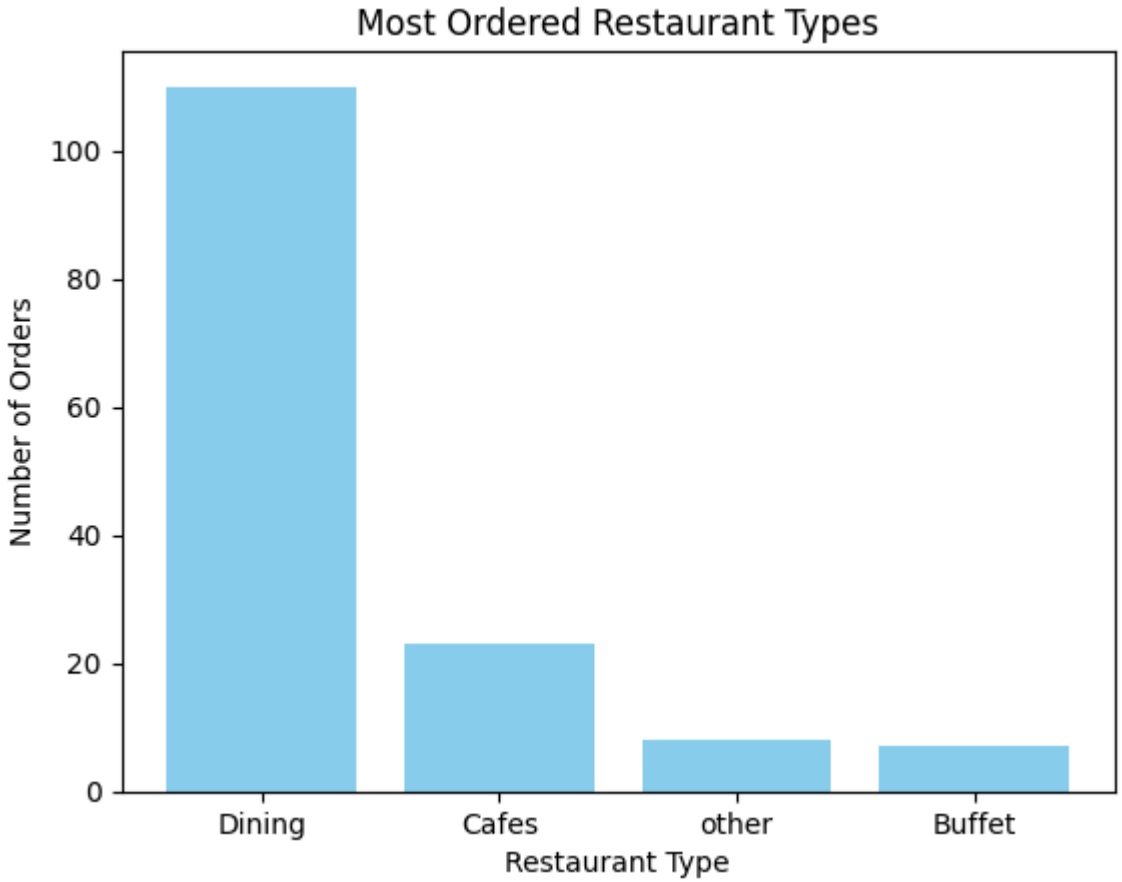
In [11]:
```
dataframe.info()
```

```
<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   Restaurant_Type              148 non-null    object 
dtypes: float64(1), int64(2), object(4)
memory usage: 8.2+ KB
```

Q1) WHAT TYPE OF RESTAURANT DOT THE MAJORITY OF CUSTOMERE ORDER FROM?

In [10]:
```
# Count restaurant orders
restaurant_counts = dataframe['Restaurant_Type'].value_counts()

# Plot bar chart
plt.bar(restaurant_counts.index, restaurant_counts.values, color="skyblue")
plt.xlabel("Restaurant Type")
plt.ylabel("Number of Orders")
plt.title("Most Ordered Restaurant Types")
plt.show()
```



CONCLUSION :THE MAJORITY OF CUSTOMER ORDER FOOD FROM THE DINNING TYPE OF RESTAURANT .Q2) HOW MANY VOTES EACH TYPE OF RESTAURANT RECIEVED FROM CUSTOMERS?

In [11]:
```
VOTE_BY_RESTAURANT_TYPE = dataframe.groupby('Restaurant_Type')['votes'].sum().reset_index()
```

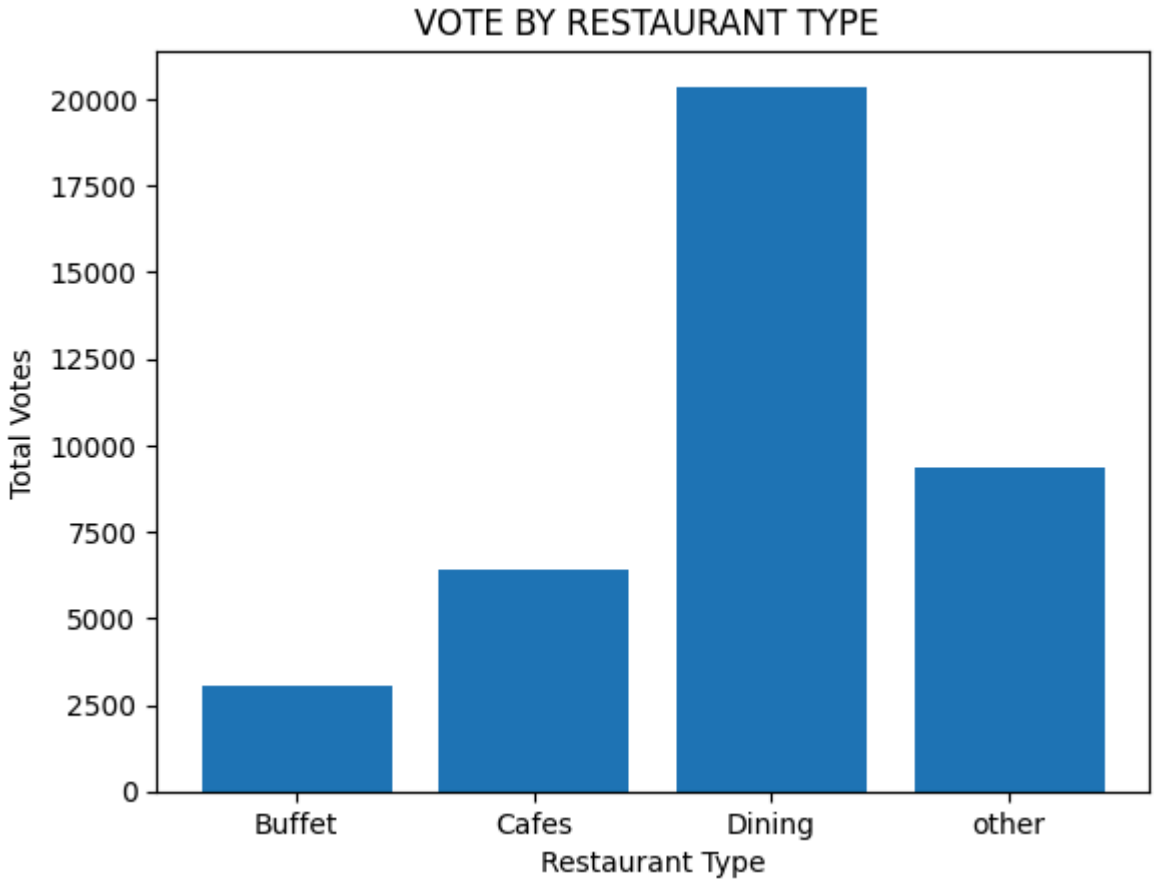
In [15]:
```
VOTE_BY_RESTAURANT_TYPE
```

Out[15]:

	Restaurant_Type	votes
0	Buffet	3028
1	Cafes	6434
2	Dining	20363
3	other	9367

In [ ]:
```
# show the visualization VOTE_BY_RESTAURANT_TYPE .
```

In [12]:
```
plt.bar(VOTE_BY_RESTAURANT_TYPE['Restaurant_Type'],VOTE_BY_RESTAURANT_TYPE['votes'])
plt.xlabel('Restaurant Type')
plt.ylabel('Total Votes')
plt.title('VOTE BY RESTAURANT TYPE ')
plt.show()
```



CONCLUSION - DINNING RESTAURANT HAS RECEIVED MAXIMUM VOTES .Q3) WHAT ARE THE RATINGS THAT THE MAJORITY OF RESTAURANT HAS RECIEVED?

In [16]:
```
RESTAURANT_RATINGS = dataframe.groupby('name')['rate'].mean().reset_index()
```

In [17]:
```
RESTAURANT_RATINGS
```

Out[17]:

	name	rate
0	360 Atoms Restaurant And Cafe	3.1
1	Aarush's Food Plaza	3.4
2	Addhuri Udupi Bhojana	3.7
3	Amma - Manae	3.1
4	Anna Kuteera	4.0
...	...	...
140	Village Café	4.1
141	Wamama	4.2
142	Wood Stove	3.4
143	Woodee Pizza	3.7
144	XO Belgian Waffle	3.7

145 rows × 2 columns

show the visualization of RATINGS THAT THE MAJORITY OF RESTAURANT HAS RECIEVED.

In [18]:
```
plt.hist(RESTAURANT_RATINGS['rate'],bins = 10 , color = 'pink')
plt.xlabel("Ratings")
plt.ylabel("Number of Restaurants")
plt.title("Distribution of Restaurant Ratings")
plt.show()
```

CONCLUSION - THE MAJORITY OF RESTAURANT RECIEVE THE RATINGS FROM 3.5 TO 4.0 Q4) ZOMATO HAS OBSERVED THAT MOST OF THERE COUPLES ORDERS THERE FOOD ONLINE . WHAT IS THE AVERAGE SPENDING OF EACH ORDER .

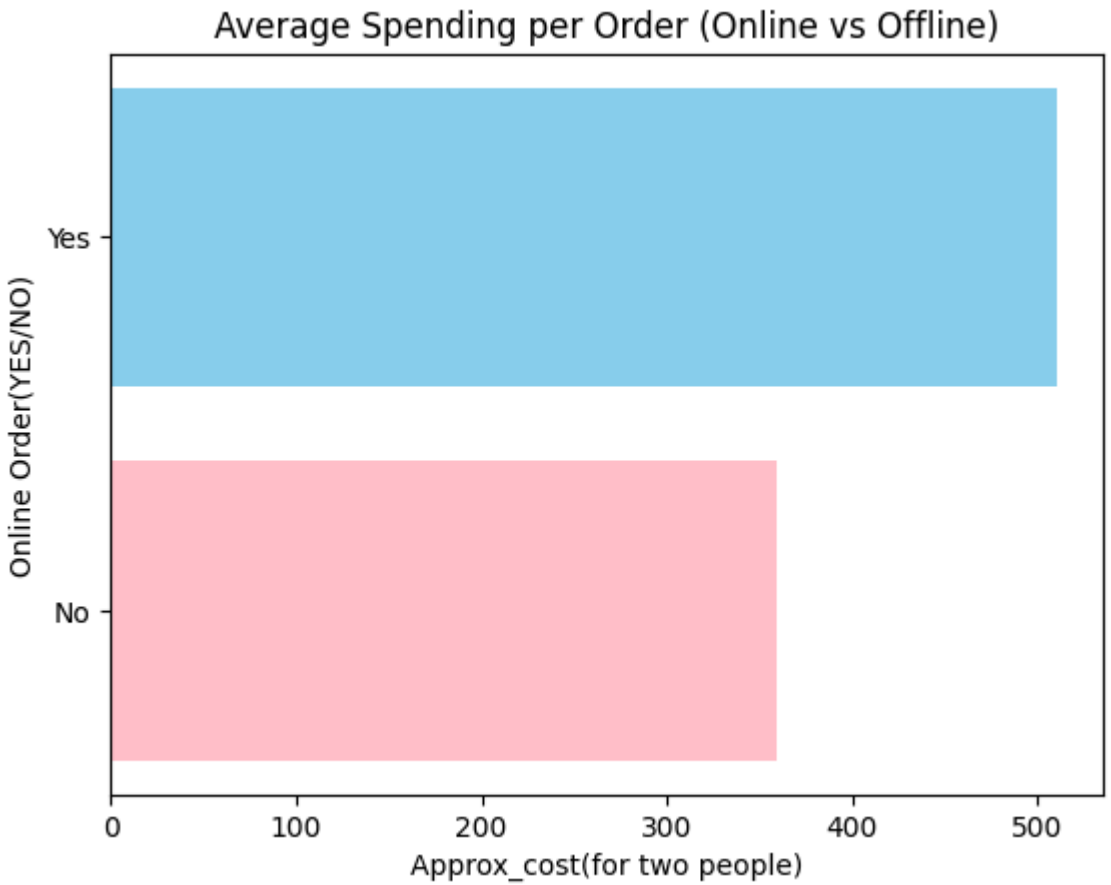
In [36]:
```
COUPLE_ORDER = dataframe.groupby('online_order')['approx_cost(for two people)'].mean().reset_index()
```

In [37]:
```
COUPLE_ORDER
```

Out[37]:

	online_order	approx_cost(for two people)
0	No	358.888889
1	Yes	510.344828

In [39]:
```
plt.barh(COUPLE_ORDER['online_order'],COUPLE_ORDER['approx_cost(for two people)'],color = ['pink','skyblue'])
plt.ylabel('Online Order(YES/NO)')
plt.xlabel('Approx_cost(for two people)')
plt.title('Average Spending per Order (Online vs Offline)')
plt.show()
```



CONCLUSION - Couples spend more when ordering online. Zomato should focus on online discounts and promotions to attract more couples.Q5) WHICH MODE (ONLINE/OFFILINE) RECEIVED THE HIGHEST RATINGS.

In [28]:
```
Highest_Ratings = dataframe.groupby('online_order')['rate'].mean().reset_index()
```

In [29]:
```
Highest_Ratings
```

Out[29]:

	online_order	rate
0	No	3.487778
1	Yes	3.858621

In [ ]:
```
#FOR VISUALIZATION MODE (ONLINE/OFFILINE) RECEIVED THE HIGHEST RATINGS.
```

In [32]:
```
sns.barplot(data=Highest_Ratings, x='online_order', y='rate', palette='Blues',hue='online_order')

plt.title("Average Ratings: Online vs. Offline Orders")
plt.xlabel("Online Order (Yes/No)")
plt.ylabel("Average Rating")
plt.show()
```

CONCLUSION - OFFLINE ORDERS HAS LOWER RATINGS COMPARED TO ONLINE RATINGS.Q6) WHAT TYPE OF RESATAURANT RECIEVED MORE OFFLINE ORDERS,SO THAT ZOMATO CAN REWARD CUSTOMERS WITH SOME GOOD OFFERS.

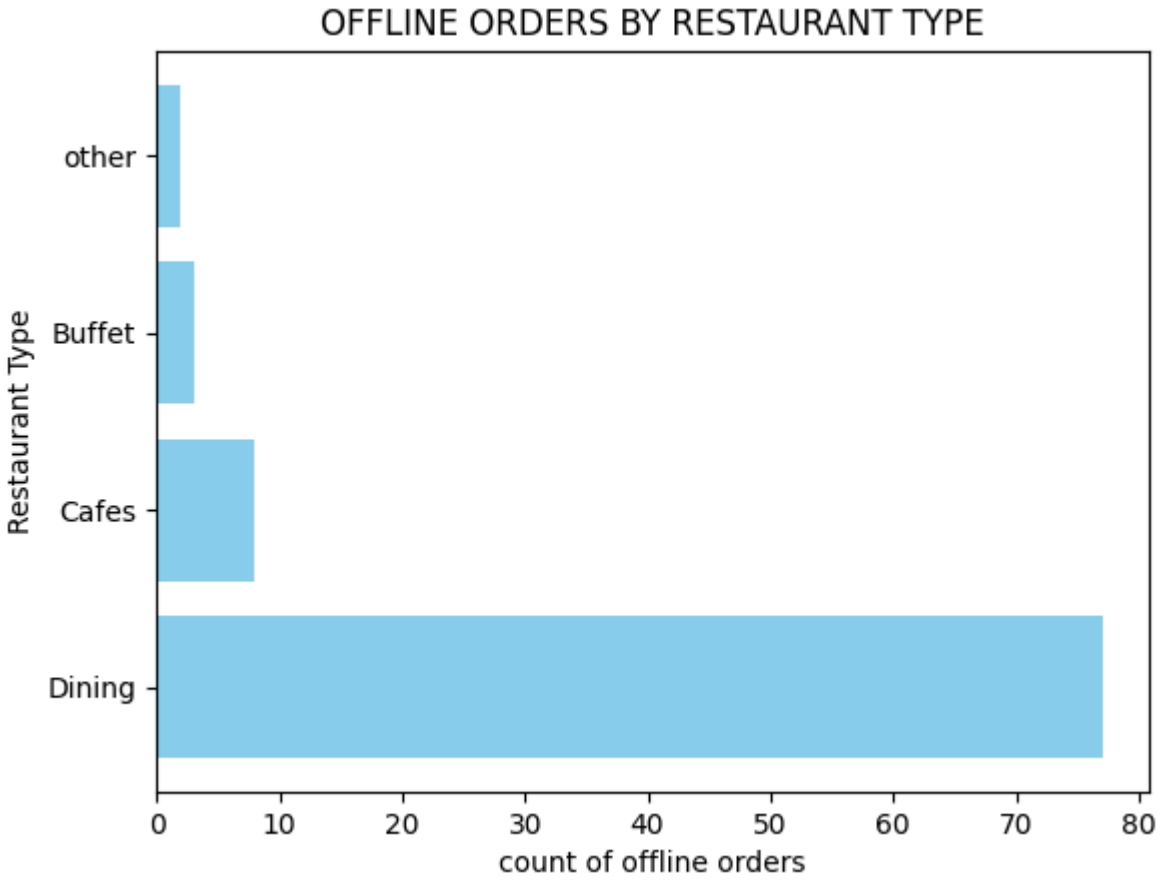
In [28]:
```
Offline_Orders = dataframe[dataframe['online_order'] == 'No']['Restaurant_Type'].value_counts().reset_index()
```

In [29]:
```
Offline_Orders
```

Out[29]:

	Restaurant_Type	count
0	Dining	77
1	Cafes	8
2	Buffet	3
3	other	2

In [34]:
```
plt.barh(Offline_Orders['Restaurant_Type'],Offline_Orders['count'],color = "skyblue")
plt.xlabel("count of offline orders")
plt.ylabel("Restaurant Type")
plt.title("OFFLINE ORDERS BY RESTAURANT TYPE")
plt.show()
```



CONCLUSION - HERE, WE CAN CLEARLY SEE THE DINNING TYPE OF RESTAURANT HAS RECEIVED MORE ORDERS COMPARED TO OTHERS TYPE OF RESTAURANT.