

ZOMATO

```
In [83]: import pandas as pd
import numpy as np
import matplotlib.pyplot as plt
import seaborn as sns
```

```
In [84]: df=pd.read_csv('zomato.csv')
```

```
In [85]: df.head()
```

Out[85]:

		url	address	name	online_order	book_table	rate
0	https://www.zomato.com/bangalore/jalsa-banasha...	942, 21st Main Road, 2nd Stage, Banashankari, ...	Jalsa	Yes	Yes	4.1/5	
1	https://www.zomato.com/bangalore/spice-elephant...	2nd Floor, 80 Feet Road, Near Big Bazaar, 6th ...	Spice Elephant	Yes	No	4.1/5	
2	https://www.zomato.com/SanchurroBangalore?cont...	1112, Next to KIMS Medical College, 17th Cross...	San Churro Cafe	Yes	No	3.8/5	
3	https://www.zomato.com/bangalore/addhuri-udipi...	1st Floor, Annakuteera, 3rd Stage, Banashankar...	Addhuri Udupi Bhojana	No	No	3.7/5	
4	https://www.zomato.com/bangalore/grand-village...	10, 3rd Floor, Lakshmi Associates, Gandhi Baza...	Grand Village	No	No	3.8/5	

```
In [86]: df.shape
```

Out[86]: (51717, 17)

```
In [87]: df.columns
```

```
Out[87]: Index(['url', 'address', 'name', 'online_order', 'book_table', 'rate', 'votes',  
    'phone', 'location', 'rest_type', 'dish_liked', 'cuisines',  
    'approx_cost(for two people)', 'reviews_list', 'menu_item',  
    'listed_in(type)', 'listed_in(city)'],  
   dtype='object')
```

```
In [88]: df=df.drop(['url','address','reviews_list','menu_item','phone','listed_in(city')],axis=1)
```

```
In [89]: df
```

Out[89]:

	name	online_order	book_table	rate	votes	location	rest_type	dish_liked	cui
0	Jalsa	Yes	Yes	4.1/5	775	Banashankari	Casual Dining	Pasta, Lunch Buffet, Masala Papad, Paneer Laja...	Ir Ch Mu
1	Spice Elephant	Yes	No	4.1/5	787	Banashankari	Casual Dining	Momos, Lunch Buffet, Chocolate Nirvana, Thai G...	Chi Indian
2	San Churro Cafe	Yes	No	3.8/5	918	Banashankari	Cafe, Casual Dining	Churros, Cannelloni, Minestrone Soup, Hot Choc...	Me I
3	Addhuri Udupi Bhojana	No	No	3.7/5	88	Banashankari	Quick Bites	Masala Dosa	S Ir Ili
4	Grand Village	No	No	3.8/5	166	Basavanagudi	Casual Dining	Panipuri, Gol Gappe	I Rajas
...
51712	Best Brews - Four Points by Sheraton Bengaluru...	No	No	3.6 /5	27	Whitefield	Bar	NaN	Contin
51713	Vinod Bar And Restaurant	No	No	Nan	0	Whitefield	Bar	NaN	F
51714	Plunge - Sheraton Grand Bengaluru Whitefield H...	No	No	Nan	0	Whitefield	Bar	NaN	F
51715	Chime - Sheraton Grand Bengaluru Whitefield Ho...	No	Yes	4.3 /5	236	ITPL Main Road, Whitefield	Bar	Cocktails, Pizza, Buttermilk	F
51716	The Nest - The Den Bengaluru	No	No	3.4 /5	13	ITPL Main Road, Whitefield	Bar, Casual Dining	NaN	F I

name	online_order	book_table	rate	votes	location	rest_type	dish_liked	cui
Ir Contin								

```
In [90]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 51717 entries, 0 to 51716
Data columns (total 11 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   name             51717 non-null   object  
 1   online_order     51717 non-null   object  
 2   book_table       51717 non-null   object  
 3   rate             43942 non-null   object  
 4   votes            51717 non-null   int64  
 5   location          51696 non-null   object  
 6   rest_type         51490 non-null   object  
 7   dish_liked        23639 non-null   object  
 8   cuisines          51672 non-null   object  
 9   approx_cost(for two people) 51371 non-null   object  
 10  listed_in(type)  51717 non-null   object  
dtypes: int64(1), object(10)
memory usage: 4.3+ MB
```

Removing Duplicates

```
In [91]: df.drop_duplicates(inplace=True)
df
```

Out[91]:

	name	online_order	book_table	rate	votes	location	rest_type	dish_liked	cui
0	Jalsa	Yes	Yes	4.1/5	775	Banashankari	Casual Dining	Pasta, Lunch Buffet, Masala Papad, Paneer Laja...	Ir Ch Mu
1	Spice Elephant	Yes	No	4.1/5	787	Banashankari	Casual Dining	Momos, Lunch Buffet, Chocolate Nirvana, Thai G...	Chi Indian
2	San Churro Cafe	Yes	No	3.8/5	918	Banashankari	Cafe, Casual Dining	Churros, Cannelloni, Minestrone Soup, Hot Choc...	Me I
3	Addhuri Udupi Bhojana	No	No	3.7/5	88	Banashankari	Quick Bites	Masala Dosa	S Ir Ili
4	Grand Village	No	No	3.8/5	166	Basavanagudi	Casual Dining	Panipuri, Gol Gappe	I Rajas
...
51712	Best Brews - Four Points by Sheraton Bengaluru...	No	No	3.6 /5	27	Whitefield	Bar	NaN	Contin
51713	Vinod Bar And Restaurant	No	No	Nan	0	Whitefield	Bar	NaN	F
51714	Plunge - Sheraton Grand Bengaluru Whitefield H...	No	No	Nan	0	Whitefield	Bar	NaN	F
51715	Chime - Sheraton Grand Bengaluru Whitefield Ho...	No	Yes	4.3 /5	236	ITPL Main Road, Whitefield	Bar	Cocktails, Pizza, Buttermilk	F
51716	The Nest - The Den Bengaluru	No	No	3.4 /5	13	ITPL Main Road, Whitefield	Bar, Casual Dining	NaN	F I

name	online_order	book_table	rate	votes	location	rest_type	dish_liked	cui
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lr
Contin

```
In [92]: df['rate'].unique()
```

```
Out[92]: array(['4.1/5', '3.8/5', '3.7/5', '3.6/5', '4.6/5', '4.0/5', '4.2/5',
   '3.9/5', '3.1/5', '3.0/5', '3.2/5', '3.3/5', '2.8/5', '4.4/5',
   '4.3/5', 'NEW', '2.9/5', '3.5/5', nan, '2.6/5', '3.8 /5', '3.4/5',
   '4.5/5', '2.5/5', '2.7/5', '4.7/5', '2.4/5', '2.2/5', '2.3/5',
   '3.4 /5', '-', '3.6 /5', '4.8/5', '3.9 /5', '4.2 /5', '4.0 /5',
   '4.1 /5', '3.7 /5', '3.1 /5', '2.9 /5', '3.3 /5', '2.8 /5',
   '3.5 /5', '2.7 /5', '2.5 /5', '3.2 /5', '2.6 /5', '4.5 /5',
   '4.3 /5', '4.4 /5', '4.9/5', '2.1/5', '2.0/5', '1.8/5', '4.6 /5',
   '4.9 /5', '3.0 /5', '4.8 /5', '2.3 /5', '4.7 /5', '2.4 /5',
   '2.1 /5', '2.2 /5', '2.0 /5', '1.8 /5'], dtype=object)
```

```
In [93]: def null_val(value):
    if(value=='NEW' or value == '-'):
        return np.nan
    else:
        value= str(value).split('/')
        value=value[0]
        return float(value)

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

```
Out[93]: 0      4.1
1      4.1
2      3.8
3      3.7
4      3.8
...
51712    3.6
51713    NaN
51714    NaN
51715    4.3
51716    3.4
Name: rate, Length: 35109, dtype: float64
```

```
In [94]: df['rate'].isnull().sum()
```

```
Out[94]: 5124
```

```
In [95]: df['rate'].fillna(df['rate'].mean(), inplace=True)
```

```
In [96]: df['rate']
```

```
Out[96]: 0      4.100000
         1      4.100000
         2      3.800000
         3      3.700000
         4      3.800000
         ...
        51712   3.600000
        51713   3.731079
        51714   3.731079
        51715   4.300000
        51716   3.400000
Name: rate, Length: 35109, dtype: float64
```

```
In [97]: df['rate'].isnull().sum()
```

```
Out[97]: 0
```

```
In [98]: df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 35109 entries, 0 to 51716
Data columns (total 11 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   name             35109 non-null   object 
 1   online_order     35109 non-null   object 
 2   book_table       35109 non-null   object 
 3   rate             35109 non-null   float64
 4   votes            35109 non-null   int64  
 5   location          35095 non-null   object 
 6   rest_type         34953 non-null   object 
 7   dish_liked        18102 non-null   object 
 8   cuisines          35076 non-null   object 
 9   approx_cost(for two people) 34888 non-null   object 
 10  listed_in(type)  35109 non-null   object 
dtypes: float64(1), int64(1), object(9)
memory usage: 3.2+ MB
```

```
In [99]: df=df.drop('dish_liked',axis=1)
```

```
In [100... df
```

Out[100]:

	name	online_order	book_table	rate	votes	location	rest_type	cuisines	af
0	Jalsa	Yes	Yes	4.100000	775	Banashankari	Casual Dining	North Indian, Mughlai, Chinese	
1	Spice Elephant	Yes	No	4.100000	787	Banashankari	Casual Dining	Chinese, North Indian, Thai	
2	San Churro Cafe	Yes	No	3.800000	918	Banashankari	Cafe, Casual Dining	Cafe, Mexican, Italian	
3	Addhuri Udupi Bhojana	No	No	3.700000	88	Banashankari	Quick Bites	South Indian, North Indian	
4	Grand Village	No	No	3.800000	166	Basavanagudi	Casual Dining	North Indian, Rajasthani	
...
51712	Best Brews - Four Points by Sheraton Bengaluru...	No	No	3.600000	27	Whitefield	Bar	Continental	
51713	Vinod Bar And Restaurant	No	No	3.731079	0	Whitefield	Bar	Finger Food	
51714	Plunge - Sheraton Grand Bengaluru Whitefield H...	No	No	3.731079	0	Whitefield	Bar	Finger Food	
51715	Chime - Sheraton Grand Bengaluru Whitefield Ho...	No	Yes	4.300000	236	ITPL Main Road, Whitefield	Bar	Finger Food	
51716	The Nest - The Den Bengaluru	No	No	3.400000	13	ITPL Main Road, Whitefield	Bar, Casual Dining	Finger Food, North Indian, Continental	

35109 rows × 10 columns

In [101...]

df.info()

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 35109 entries, 0 to 51716
Data columns (total 10 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   name             35109 non-null   object  
 1   online_order     35109 non-null   object  
 2   book_table       35109 non-null   object  
 3   rate             35109 non-null   float64 
 4   votes            35109 non-null   int64   
 5   location          35095 non-null   object  
 6   rest_type         34953 non-null   object  
 7   cuisines          35076 non-null   object  
 8   approx_cost(for two people) 34888 non-null   object  
 9   listed_in(type)   35109 non-null   object  
dtypes: float64(1), int64(1), object(8)
memory usage: 2.9+ MB
```

```
In [102...]: df.dropna(inplace=True)
df
```

Out[102]:

	name	online_order	book_table	rate	votes	location	rest_type	cuisines	af
0	Jalsa	Yes	Yes	4.100000	775	Banashankari	Casual Dining	North Indian, Mughlai, Chinese	
1	Spice Elephant	Yes	No	4.100000	787	Banashankari	Casual Dining	Chinese, North Indian, Thai	
2	San Churro Cafe	Yes	No	3.800000	918	Banashankari	Cafe, Casual Dining	Cafe, Mexican, Italian	
3	Addhuri Udupi Bhojana	No	No	3.700000	88	Banashankari	Quick Bites	South Indian, North Indian	
4	Grand Village	No	No	3.800000	166	Basavanagudi	Casual Dining	North Indian, Rajasthani	
...
51712	Best Brews - Four Points by Sheraton Bengaluru...	No	No	3.600000	27	Whitefield	Bar	Continental	
51713	Vinod Bar And Restaurant	No	No	3.731079	0	Whitefield	Bar	Finger Food	
51714	Plunge - Sheraton Grand Bengaluru Whitefield H...	No	No	3.731079	0	Whitefield	Bar	Finger Food	
51715	Chime - Sheraton Grand Bengaluru Whitefield Ho...	No	Yes	4.300000	236	ITPL Main Road, Whitefield	Bar	Finger Food	
51716	The Nest - The Den Bengaluru	No	No	3.400000	13	ITPL Main Road, Whitefield	Bar, Casual Dining	Finger Food, North Indian, Continental	

34734 rows × 10 columns

In [103...]

df.info()

```
<class 'pandas.core.frame.DataFrame'>
Int64Index: 34734 entries, 0 to 51716
Data columns (total 10 columns):
 #   Column           Non-Null Count  Dtype  
--- 
 0   name             34734 non-null   object  
 1   online_order     34734 non-null   object  
 2   book_table       34734 non-null   object  
 3   rate             34734 non-null   float64 
 4   votes            34734 non-null   int64   
 5   location          34734 non-null   object  
 6   rest_type         34734 non-null   object  
 7   cuisines          34734 non-null   object  
 8   approx_cost(for two people) 34734 non-null   object  
 9   listed_in(type)   34734 non-null   object  
dtypes: float64(1), int64(1), object(8)
memory usage: 2.9+ MB
```

In [104... df.rename(columns={'approx_cost(for two people)':'2_plates_cost','listed_in(type)':'T

In [105... df

Out[105]:

	name	online_order	book_table	rate	votes	location	rest_type	cuisines	2_
0	Jalsa	Yes	Yes	4.100000	775	Banashankari	Casual Dining	North Indian, Mughlai, Chinese	
1	Spice Elephant	Yes	No	4.100000	787	Banashankari	Casual Dining	Chinese, North Indian, Thai	
2	San Churro Cafe	Yes	No	3.800000	918	Banashankari	Cafe, Casual Dining	Cafe, Mexican, Italian	
3	Addhuri Udupi Bhojana	No	No	3.700000	88	Banashankari	Quick Bites	South Indian, North Indian	
4	Grand Village	No	No	3.800000	166	Basavanagudi	Casual Dining	North Indian, Rajasthani	
...
51712	Best Brews - Four Points by Sheraton Bengaluru...	No	No	3.600000	27	Whitefield	Bar	Continental	
51713	Vinod Bar And Restaurant	No	No	3.731079	0	Whitefield	Bar	Finger Food	
51714	Plunge - Sheraton Grand Bengaluru Whitefield H...	No	No	3.731079	0	Whitefield	Bar	Finger Food	
51715	Chime - Sheraton Grand Bengaluru Whitefield Ho...	No	Yes	4.300000	236	ITPL Main Road, Whitefield	Bar	Finger Food	
51716	The Nest - The Den Bengaluru	No	No	3.400000	13	ITPL Main Road, Whitefield	Bar, Casual Dining	Finger Food, North Indian, Continental	

34734 rows × 10 columns

In [106...]

df['location'].unique()

```
Out[106]: array(['Banashankari', 'Basavanagudi', 'Mysore Road', 'Jayanagar',
   'Kumaraswamy Layout', 'Rajarajeshwari Nagar', 'Vijay Nagar',
   'Uttarahalli', 'JP Nagar', 'South Bangalore', 'City Market',
   'Nagarbhavi', 'Bannerghatta Road', 'BTM', 'Kanakapura Road',
   'Bommanahalli', 'CV Raman Nagar', 'Electronic City', 'HSR',
   'Marathahalli', 'Wilson Garden', 'Shanti Nagar',
   'Koramangala 5th Block', 'Koramangala 8th Block', 'Richmond Road',
   'Koramangala 7th Block', 'Jalahalli', 'Koramangala 4th Block',
   'Bellandur', 'Sarjapur Road', 'Whitefield', 'East Bangalore',
   'Old Airport Road', 'Indiranagar', 'Koramangala 1st Block',
   'Frazer Town', 'RT Nagar', 'MG Road', 'Brigade Road',
   'Lavelle Road', 'Church Street', 'Ulsoor', 'Residency Road',
   'Shivajinagar', 'Infantry Road', 'St. Marks Road',
   'Cunningham Road', 'Race Course Road', 'Commercial Street',
   'Vasanth Nagar', 'HBR Layout', 'Domlur', 'Ejipura',
   'Jeevan Bhima Nagar', 'Old Madras Road', 'Malleshwaram',
   'Seshadripuram', 'Kammanahalli', 'Koramangala 6th Block',
   'Majestic', 'Langford Town', 'Central Bangalore', 'Sanjay Nagar',
   'Brookefield', 'ITPL Main Road, Whitefield',
   'Varthur Main Road, Whitefield', 'KR Puram',
   'Koramangala 2nd Block', 'Koramangala 3rd Block', 'Koramangala',
   'Hosur Road', 'Rajajinagar', 'Banaswadi', 'North Bangalore',
   'Nagawara', 'Hennur', 'Kalyan Nagar', 'New BEL Road', 'Jakkur',
   'Rammurthy Nagar', 'Thippasandra', 'Kaggadasapura', 'Hebbal',
   'Kengeri', 'Sankey Road', 'Sadashiv Nagar', 'Basaveshwara Nagar',
   'Yeshwantpur', 'West Bangalore', 'Magadi Road', 'Yelahanka',
   'Sahakara Nagar', 'Peenya'], dtype=object)
```

```
In [107... df['2_plates_cost'].unique()
```

```
Out[107]: array(['800', '300', '600', '700', '550', '500', '450', '650', '400',
   '900', '200', '750', '150', '850', '100', '1,200', '350', '250',
   '950', '1,000', '1,500', '1,300', '199', '80', '1,100', '160',
   '1,600', '230', '130', '50', '190', '1,700', '1,400', '180',
   '1,350', '2,200', '2,000', '1,800', '1,900', '330', '2,500',
   '2,100', '3,000', '2,800', '3,400', '40', '1,250', '3,500',
   '4,000', '2,400', '2,600', '120', '1,450', '469', '70', '3,200',
   '60', '560', '240', '360', '6,000', '1,050', '2,300', '4,100',
   '5,000', '3,700', '1,650', '2,700', '4,500', '140'], dtype=object)
```

```
In [108... def coma_val(value):
    value=str(value)
    if ',' in value:
        value=value.replace(',', '')
    return float(value)
else:
    return float(value)
```

```
df['2_plates_cost']=df['2_plates_cost'].apply(coma_val)
df['2_plates_cost'].unique()
```

```
Out[108]: array([ 800.,  300.,  600.,  700.,  550.,  500.,  450.,  650.,  400.,
   900.,  200.,  750.,  150.,  850.,  100., 1200.,  350.,  250.,
   950., 1000., 1500., 1300., 199.,   80., 1100., 160., 1600.,
   230., 130.,   50., 190., 1700., 1400., 180., 1350., 2200.,
 2000., 1800., 1900., 330., 2500., 2100., 3000., 2800., 3400.,
   40., 1250., 3500., 4000., 2400., 2600., 120., 1450., 469.,
   70., 3200.,   60., 560., 240., 360., 6000., 1050., 2300.,
 4100., 5000., 3700., 1650., 2700., 4500., 140.])
```

In [109]: `df['rest_type'].unique()`

```
Out[109]: array(['Casual Dining', 'Cafe, Casual Dining', 'Quick Bites',
       'Casual Dining, Cafe', 'Cafe', 'Quick Bites, Cafe',
       'Cafe, Quick Bites', 'Delivery', 'Mess', 'Dessert Parlor',
       'Bakery, Dessert Parlor', 'Pub', 'Bakery', 'Takeaway, Delivery',
       'Fine Dining', 'Beverage Shop', 'Sweet Shop', 'Bar',
       'Beverage Shop, Quick Bites', 'Confectionery',
       'Quick Bites, Beverage Shop', 'Dessert Parlor, Sweet Shop',
       'Bakery, Quick Bites', 'Sweet Shop, Quick Bites', 'Kiosk',
       'Food Truck', 'Quick Bites, Dessert Parlor',
       'Beverage Shop, Dessert Parlor', 'Takeaway', 'Pub, Casual Dining',
       'Casual Dining, Bar', 'Dessert Parlor, Beverage Shop',
       'Quick Bites, Bakery', 'Dessert Parlor, Quick Bites',
       'Microbrewery, Casual Dining', 'Lounge', 'Bar, Casual Dining',
       'Food Court', 'Cafe, Bakery', 'Dhaba', 'Quick Bites, Sweet Shop',
       'Microbrewery', 'Food Court, Quick Bites', 'Pub, Bar',
       'Casual Dining, Pub', 'Lounge, Bar', 'Food Court, Dessert Parlor',
       'Casual Dining, Sweet Shop', 'Food Court, Casual Dining',
       'Casual Dining, Microbrewery', 'Sweet Shop, Dessert Parlor',
       'Bakery, Beverage Shop', 'Lounge, Casual Dining',
       'Cafe, Food Court', 'Beverage Shop, Cafe', 'Cafe, Dessert Parlor',
       'Dessert Parlor, Cafe', 'Dessert Parlor, Bakery',
       'Microbrewery, Pub', 'Bakery, Food Court', 'Club',
       'Quick Bites, Food Court', 'Bakery, Cafe', 'Bar, Cafe',
       'Pub, Cafe', 'Casual Dining, Irani Cafee', 'Fine Dining, Lounge',
       'Bar, Quick Bites', 'Bakery, Kiosk', 'Pub, Microbrewery',
       'Microbrewery, Lounge', 'Fine Dining, Microbrewery',
       'Fine Dining, Bar', 'Mess, Quick Bites', 'Dessert Parlor, Kiosk',
       'Bhojanalya', 'Casual Dining, Quick Bites', 'Pop Up', 'Cafe, Bar',
       'Casual Dining, Lounge', 'Bakery, Sweet Shop', 'Microbrewery, Bar',
       'Cafe, Lounge', 'Bar, Pub', 'Lounge, Cafe', 'Club, Casual Dining',
       'Quick Bites, Mess', 'Quick Bites, Meat Shop',
       'Quick Bites, Kiosk', 'Lounge, Microbrewery',
       'Food Court, Beverage Shop', 'Dessert Parlor, Food Court',
       'Bar, Lounge'], dtype=object)
```

In [110]: `df['rest_type'].value_counts()`

```
Out[110]: Quick Bites           12140
          Casual Dining        7570
          Cafe                  2592
          Delivery              1505
          Dessert Parlor        1491
          ...
          Pop Up                1
          Quick Bites, Kiosk     1
          Mess, Quick Bites      1
          Dessert Parlor, Food Court 1
          Sweet Shop, Dessert Parlor 1
          Name: rest_type, Length: 93, dtype: int64
```

In [111]: `R_type=df['rest_type'].value_counts(ascending=False)`
`R_type`

```
Out[111]:    Quick Bites      12140
              Casual Dining     7570
              Cafe                 2592
              Delivery               1505
              Dessert Parlor        1491
              ...
              Pop Up                  1
              Quick Bites, Kiosk      1
              Mess, Quick Bites       1
              Dessert Parlor, Food Court 1
              Sweet Shop, Dessert Parlor 1
              Name: rest_type, Length: 93, dtype: int64
```

```
In [112... R_type_lessthan_1000=R_type[R_type <1000]
R_type_lessthan_1000
```

```
Out[112]:    Casual Dining, Bar      950
              Bakery                736
              Beverage Shop            489
              Bar                     474
              Food Court               424
              ...
              Pop Up                  1
              Quick Bites, Kiosk      1
              Mess, Quick Bites       1
              Dessert Parlor, Food Court 1
              Sweet Shop, Dessert Parlor 1
              Name: rest_type, Length: 87, dtype: int64
```

```
In [113... def r_type(value):
    if value in R_type_lessthan_1000:
        return "others"
    else:
        return value

df['rest_type']=df['rest_type'].apply(r_type)
df['rest_type'].value_counts()
```

```
Out[113]:    Quick Bites      12140
              others             8219
              Casual Dining     7570
              Cafe                 2592
              Delivery               1505
              Dessert Parlor        1491
              Takeaway, Delivery    1217
              Name: rest_type, dtype: int64
```

```
In [114... df.head()
```

Out[114]:

	name	online_order	book_table	rate	votes	location	rest_type	cuisines	2_plates_cost
0	Jalsa	Yes	Yes	4.1	775	Banashankari	Casual Dining	North Indian, Mughlai, Chinese	800.0
1	Spice Elephant	Yes	No	4.1	787	Banashankari	Casual Dining	Chinese, North Indian, Thai	800.0
2	San Churro Cafe	Yes	No	3.8	918	Banashankari	others	Cafe, Mexican, Italian	800.0
3	Addhuri Udupi Bhojana	No	No	3.7	88	Banashankari	Quick Bites	South Indian, North Indian	300.0
4	Grand Village	No	No	3.8	166	Basavanagudi	Casual Dining	North Indian, Rajasthani	600.0

In [115...]

df['location'].unique()

Out[115]:

```
array(['Banashankari', 'Basavanagudi', 'Mysore Road', 'Jayanagar',
       'Kumaraswamy Layout', 'Rajarajeshwari Nagar', 'Vijay Nagar',
       'Uttarahalli', 'JP Nagar', 'South Bangalore', 'City Market',
       'Nagarbhavi', 'Bannerghatta Road', 'BTM', 'Kanakapura Road',
       'Bommanahalli', 'CV Raman Nagar', 'Electronic City', 'HSR',
       'Marathahalli', 'Wilson Garden', 'Shanti Nagar',
       'Koramangala 5th Block', 'Koramangala 8th Block', 'Richmond Road',
       'Koramangala 7th Block', 'Jalahalli', 'Koramangala 4th Block',
       'Bellandur', 'Sarjapur Road', 'Whitefield', 'East Bangalore',
       'Old Airport Road', 'Indiranagar', 'Koramangala 1st Block',
       'Frazer Town', 'RT Nagar', 'MG Road', 'Brigade Road',
       'Lavelle Road', 'Church Street', 'Ulsoor', 'Residency Road',
       'Shivajinagar', 'Infantry Road', 'St. Marks Road',
       'Cunningham Road', 'Race Course Road', 'Commercial Street',
       'Vasanth Nagar', 'HBR Layout', 'Domlur', 'Ejipura',
       'Jeevan Bhima Nagar', 'Old Madras Road', 'Malleshwaram',
       'Seshadripuram', 'Kammanahalli', 'Koramangala 6th Block',
       'Majestic', 'Langford Town', 'Central Bangalore', 'Sanjay Nagar',
       'Brookefield', 'ITPL Main Road, Whitefield',
       'Varthur Main Road, Whitefield', 'KR Puram',
       'Koramangala 2nd Block', 'Koramangala 3rd Block', 'Koramangala',
       'Hosur Road', 'Rajajinagar', 'Banaswadi', 'North Bangalore',
       'Nagawara', 'Hennur', 'Kalyan Nagar', 'New BEL Road', 'Jakkur',
       'Rammurthy Nagar', 'Thippasandra', 'Kaggadasapura', 'Hebbal',
       'Kengeri', 'Sankey Road', 'Sadashiv Nagar', 'Basaveshwara Nagar',
       'Yeshwantpur', 'West Bangalore', 'Magadi Road', 'Yelahanka',
       'Sahakara Nagar', 'Peenya'], dtype=object)
```

In [116...]

location=df['location'].value_counts(ascending=False)

In [117...]:

```
location_lessthan500=location[location<500]
location_lessthan500
```

Out[117]:

Frazer Town	470
Basavanagudi	463
Rajajinagar	462
Church Street	447
Banaswadi	429
...	
Yelahanka	5
Nagarbhavi	4
Rajarajeshwari Nagar	2
Jakkur	1
Peenya	1

Name: location, Length: 69, dtype: int64

In [118...]:

```
def location_val(value):
    if value in location_lessthan500:
        return "Others"
    else:
        return value
```

```
df['location']=df['location'].apply(location_val)
df['location'].value_counts(ascending= True)
```

Out[118]:

Koramangala 1st Block	541
Ulsoor	551
Malleshwaram	556
MG Road	561
Banashankari	572
New BEL Road	582
Kalyan Nagar	585
Koramangala 4th Block	589
Brookefield	598
Koramangala 6th Block	598
Koramangala 7th Block	626
Brigade Road	690
Sarjapur Road	936
Bannerghatta Road	1056
Bellandur	1124
Electronic City	1212
Jayanagar	1247
JP Nagar	1415
Koramangala 5th Block	1613
Marathahalli	1649
Indiranagar	1750
HSR	1758
Whitefield	1945
BTM	2490
Others	9490

Name: location, dtype: int64

In [119...]:

```
df.head()
```

	name	online_order	book_table	rate	votes	location	rest_type	cuisines	2_plates_cost
0	Jalsa	Yes	Yes	4.1	775	Banashankari	Casual Dining	North Indian, Mughlai, Chinese	800.0 E
1	Spice Elephant	Yes	No	4.1	787	Banashankari	Casual Dining	Chinese, North Indian, Thai	800.0 E
2	San Churro Cafe	Yes	No	3.8	918	Banashankari	others	Cafe, Mexican, Italian	800.0 E
3	Addhuri Udupi Bhojana	No	No	3.7	88	Banashankari	Quick Bites	South Indian, North Indian	300.0 E
4	Grand Village	No	No	3.8	166	Others	Casual Dining	North Indian, Rajasthani	600.0 E

In [120]: `cuisines=df['cuisines'].value_counts(ascending=True)`
`cuisines`

Out[120]:

North Indian, Chinese, Arabian, Momos	1
Arabian, South Indian	1
Arabian, North Indian, Biryani, Kebab	1
South Indian, Fast Food, Chinese, North Indian	1
BBQ, Seafood, Fast Food	1
...	
Biryani	557
Bakery, Desserts	591
South Indian	1172
North Indian, Chinese	1563
North Indian	1899
Name: cuisines, Length: 2704, dtype: int64	

In [121]: `cuisines_lessthan150=cuisines[cuisines<150]`
`cuisines_lessthan150`

Out[121]:

North Indian, Chinese, Arabian, Momos	1
Arabian, South Indian	1
Arabian, North Indian, Biryani, Kebab	1
South Indian, Fast Food, Chinese, North Indian	1
BBQ, Seafood, Fast Food	1
...	
Desserts, Bakery	139
South Indian, North Indian, Chinese, Street Food	142
North Indian, Mughlai	144
South Indian, Chinese	145
Burger, Fast Food	147
Name: cuisines, Length: 2674, dtype: int64	

In [122]: `def cuise_val(value):`
`if value in cuisines_lessthan150:`

```
        return "Others"
    else:
        return value

df['cuisines']=df['cuisines'].apply(cuise_val)
df['cuisines'].value_counts()
```

Out[122]:

Others	22564
North Indian	1899
North Indian, Chinese	1563
South Indian	1172
Bakery, Desserts	591
Biryani	557
Fast Food	485
South Indian, North Indian, Chinese	475
Cafe	449
Desserts	447
Bakery	385
Chinese	341
Ice Cream, Desserts	304
Mithai, Street Food	257
Chinese, North Indian	249
North Indian, Chinese, Biryani	236
Desserts, Ice Cream	226
North Indian, South Indian	222
North Indian, South Indian, Chinese	212
South Indian, North Indian	207
Finger Food	200
North Indian, Biryani	191
Desserts, Beverages	184
Biryani, North Indian	178
Street Food	177
Biryani, Kebab	173
Cafe, Fast Food	164
Chinese, Momos	163
Beverages, Fast Food	159
South Indian, Biryani	154
Beverages	150

Name: cuisines, dtype: int64

In [123... df.head()

	name	online_order	book_table	rate	votes	location	rest_type	cuisines	2_plates_cost	Ty
0	Jalsa	Yes	Yes	4.1	775	Banashankari	Casual Dining	Others	800.0	Bu
1	Spice Elephant	Yes	No	4.1	787	Banashankari	Casual Dining	Others	800.0	Bu
2	San Churro Cafe	Yes	No	3.8	918	Banashankari	others	Others	800.0	Bu
3	Addhuri Udupi Bhojana	No	No	3.7	88	Banashankari	Quick Bites	South Indian, North Indian	300.0	Bu
4	Grand Village	No	No	3.8	166	Others	Casual Dining	Others	600.0	Bu

In [124...]: `df['Type'].value_counts(ascending=True)`

Out[124]:

Pubs and bars	597
Buffet	671
Drinks & nightlife	906
Cafes	1241
Desserts	2454
Dine-out	12819
Delivery	16046

Name: Type, dtype: int64

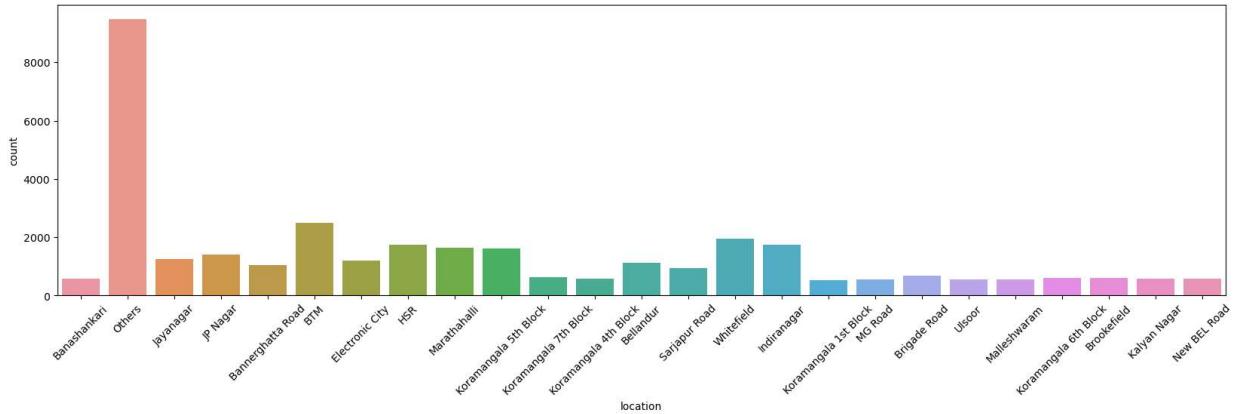
Visualization

In [125...]: `plt.figure(figsize=(20,5))
ax=sns.countplot(df['location'])
plt.xticks(rotation=45)`

C:\Users\HP\Anaconda3\lib\site-packages\seaborn_decorators.py:36: FutureWarning: Pass the following variable as a keyword arg: x. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.
warnings.warn(

```
Out[125]: (array([ 0,  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14, 15, 16,
       17, 18, 19, 20, 21, 22, 23, 24]),

 [Text(0, 0, 'Bananashankari'),
  Text(1, 0, 'Others'),
  Text(2, 0, 'Jayanagar'),
  Text(3, 0, 'JP Nagar'),
  Text(4, 0, 'Bannerghatta Road'),
  Text(5, 0, 'BTM'),
  Text(6, 0, 'Electronic City'),
  Text(7, 0, 'HSR'),
  Text(8, 0, 'Marathahalli'),
  Text(9, 0, 'Koramangala 5th Block'),
  Text(10, 0, 'Koramangala 7th Block'),
  Text(11, 0, 'Koramangala 4th Block'),
  Text(12, 0, 'Bellandur'),
  Text(13, 0, 'Sarjapur Road'),
  Text(14, 0, 'Whitefield'),
  Text(15, 0, 'Indiranagar'),
  Text(16, 0, 'Koramangala 1st Block'),
  Text(17, 0, 'MG Road'),
  Text(18, 0, 'Brigade Road'),
  Text(19, 0, 'Ulsoor'),
  Text(20, 0, 'Malleshwaram'),
  Text(21, 0, 'Koramangala 6th Block'),
  Text(22, 0, 'Brookefield'),
  Text(23, 0, 'Kalyan Nagar'),
  Text(24, 0, 'New BEL Road'))]
```



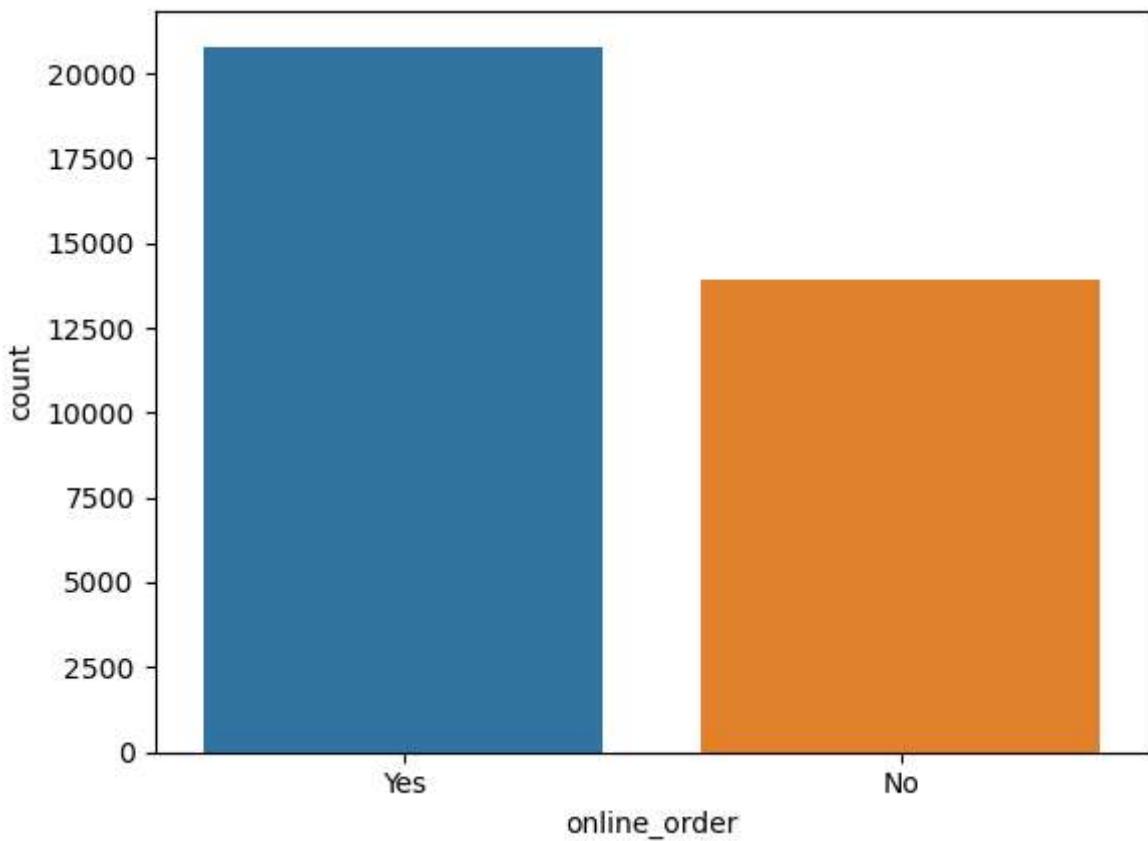
In [126...]

```
plt.figure
sns.countplot(df['online_order'])
```

C:\Users\HP\Anaconda3\lib\site-packages\seaborn_decorators.py:36: FutureWarning: Pass the following variable as a keyword arg: x. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

```
    warnings.warn(
```

```
Out[126]: <AxesSubplot:xlabel='online_order', ylabel='count'>
```

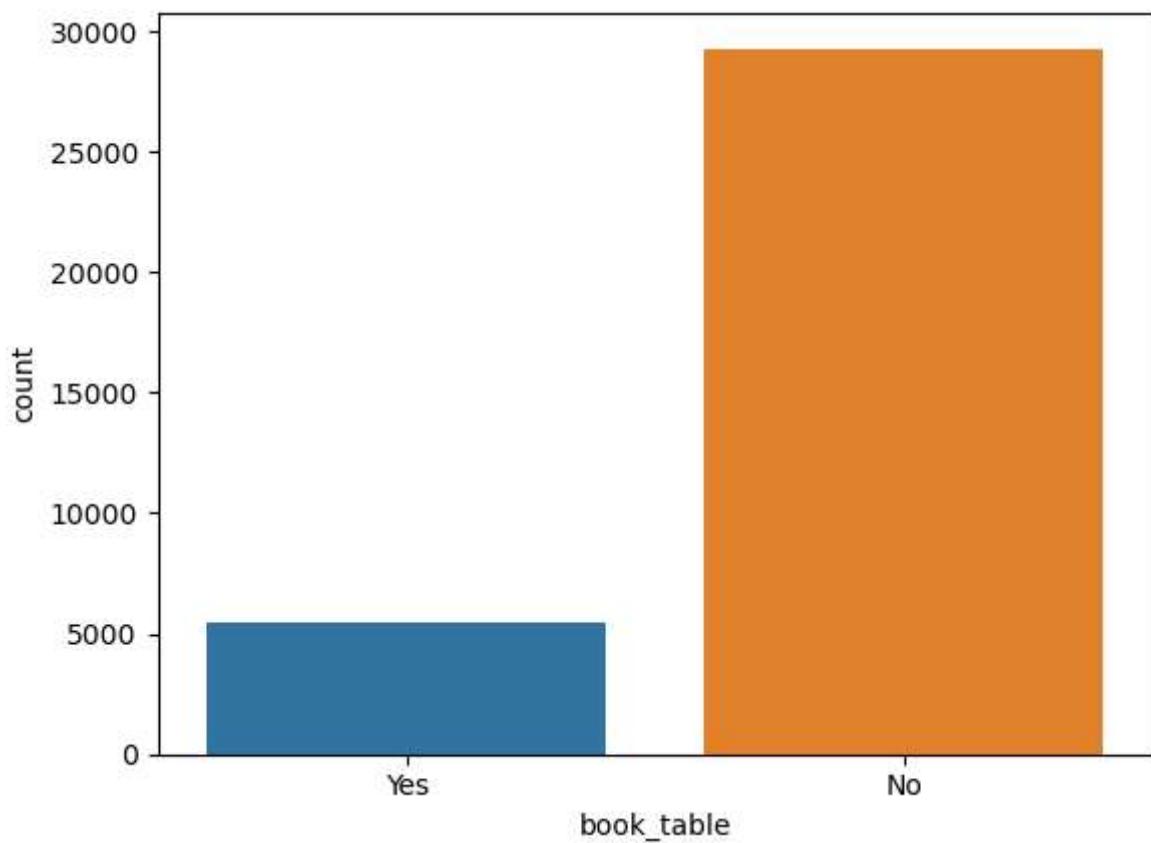


```
In [127]: plt.figure  
sns.countplot(df['book_table'])
```

C:\Users\HP\Anaconda3\lib\site-packages\seaborn_decorators.py:36: FutureWarning: Pass the following variable as a keyword arg: x. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

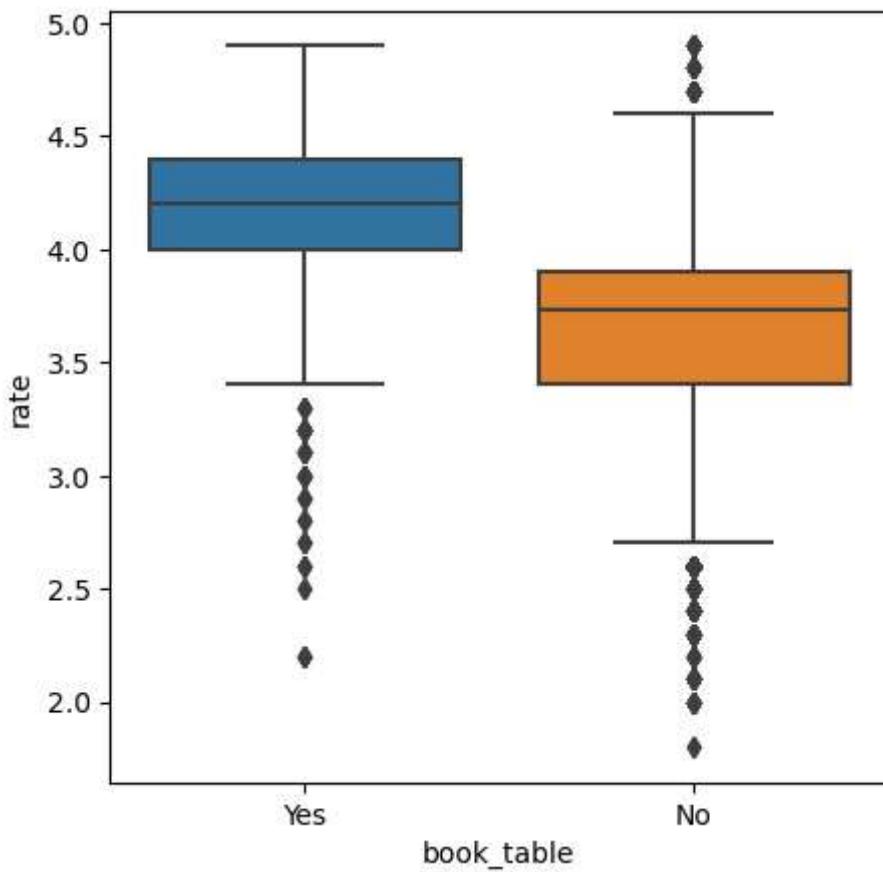
```
    warnings.warn(
```

```
Out[127]: <AxesSubplot:xlabel='book_table', ylabel='count'>
```



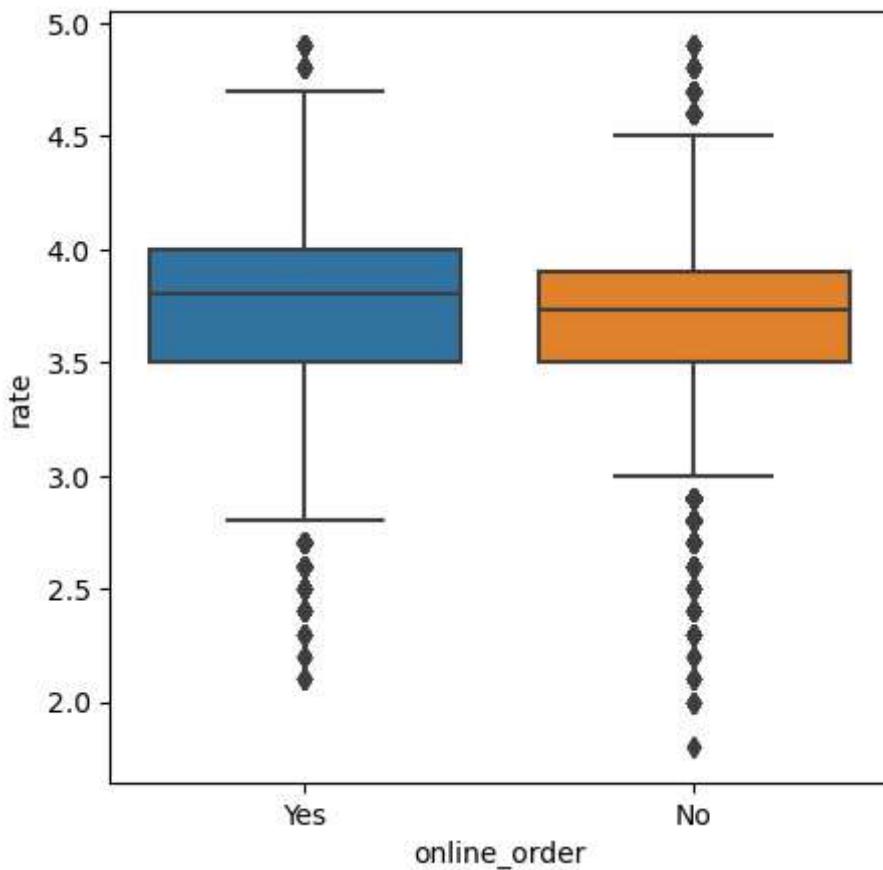
```
In [128]: plt.figure(figsize=(5,5))
sns.boxplot(x='book_table',y='rate',data=df)
```

```
Out[128]: <AxesSubplot:xlabel='book_table', ylabel='rate'>
```



```
In [129]: plt.figure(figsize=(5,5))
sns.boxplot(x='online_order',y='rate',data=df)
```

```
Out[129]: <AxesSubplot:xlabel='online_order', ylabel='rate'>
```



```
In [130... df1=df.groupby(['location','online_order'])['name'].count()  
df1.to_csv('online_location.csv')
```

```
In [131... df1=pd.read_csv('online_location.csv')
```

```
In [132... df1=pd.pivot_table(df1,index=['location'],columns=['online_order'],fill_value=0,aggfunc='sum')  
df1
```

Out[132]:

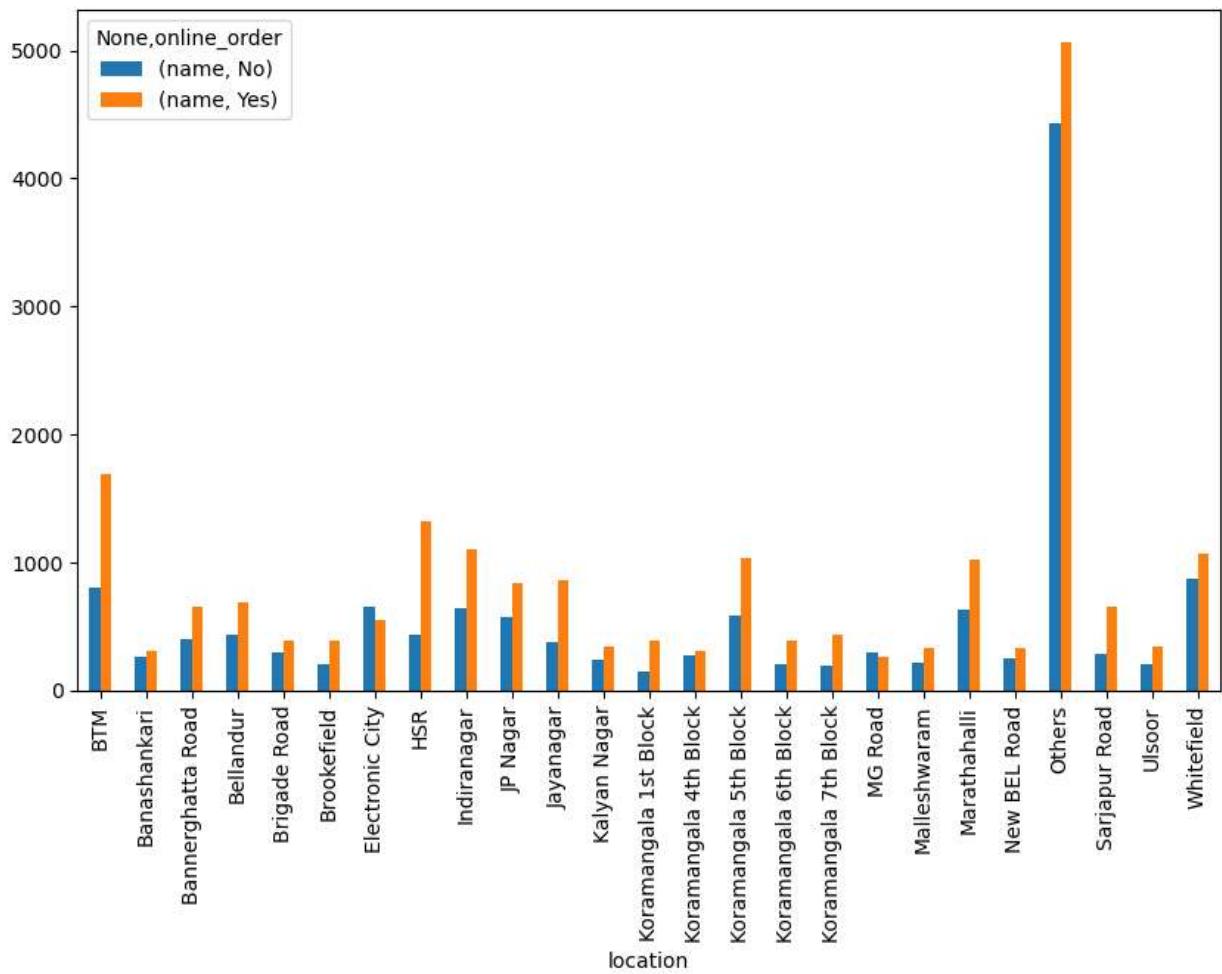
		name	
online_order	No	Yes	
location			
BTM	803	1687	
Banashankari	260	312	
Bannerghatta Road	399	657	
Bellandur	437	687	
Brigade Road	294	396	
Brookefield	206	392	
Electronic City	657	555	
HSR	438	1320	
Indiranagar	647	1103	
JP Nagar	571	844	
Jayanagar	380	867	
Kalyan Nagar	241	344	
Koramangala 1st Block	148	393	
Koramangala 4th Block	281	308	
Koramangala 5th Block	582	1031	
Koramangala 6th Block	212	386	
Koramangala 7th Block	191	435	
MG Road	300	261	
Malleleshwaram	224	332	
Marathahalli	628	1021	
New BEL Road	250	332	
Others	4426	5064	
Sarjapur Road	282	654	
Ulsoor	203	348	
Whitefield	880	1065	

In [133...]

df1.plot(kind='bar', figsize=(10,6))

Out[133]:

<AxesSubplot:xlabel='location'>



In [134...]

```
df2=df.groupby(['location','book_table'])['name'].count()
df2.to_csv('Booktable_location.csv')
```

In [135...]

```
df2=pd.read_csv('Booktable_location.csv')
df2=pd.pivot_table(df2,index='location',columns='book_table',fill_value=0,aggfunc=np.sum)
```

In [136...]

```
df2
```

Out[136]:

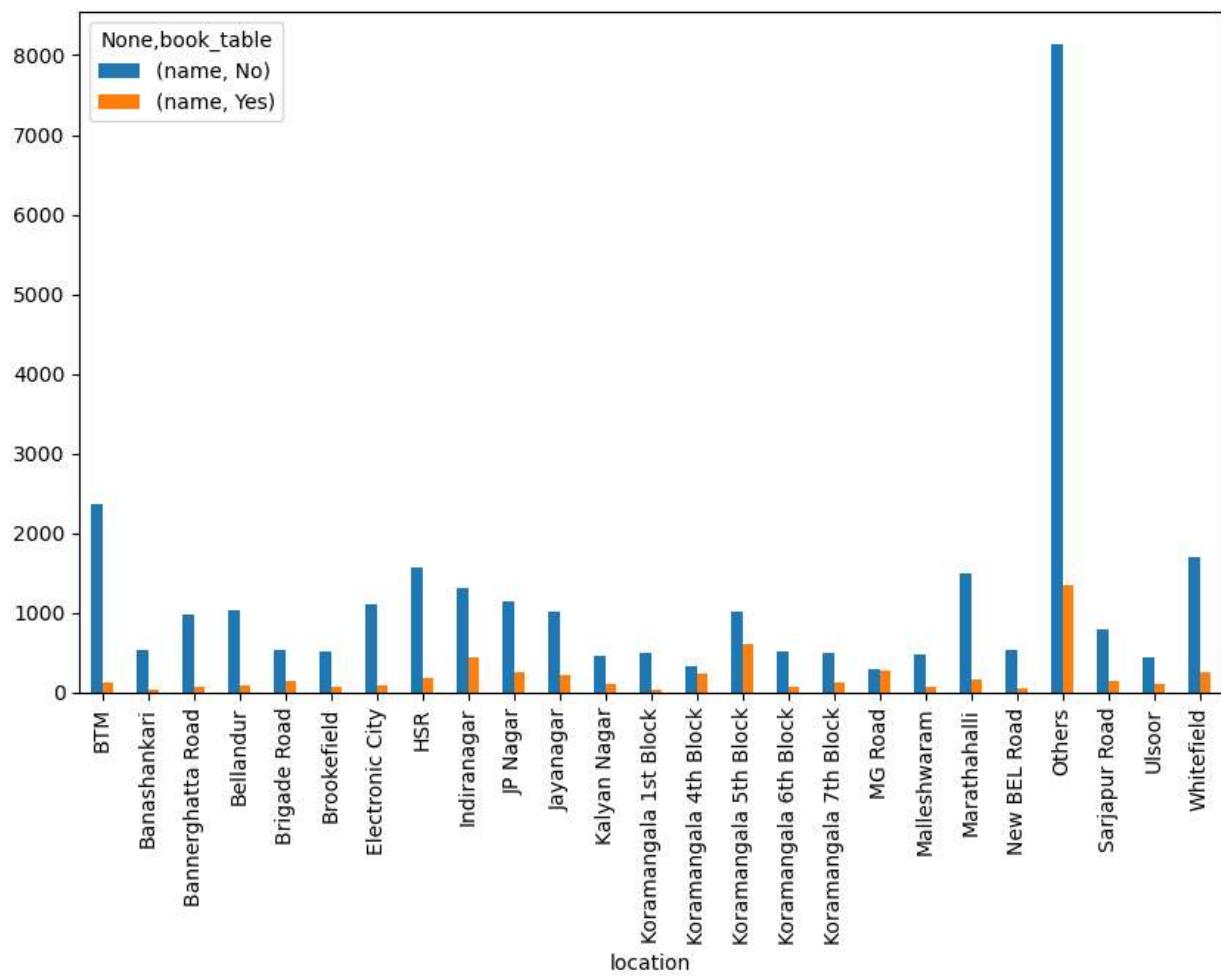
	name	
book_table	No	Yes
location		
BTM	2363	127
Banashankari	528	44
Bannerghatta Road	976	80
Bellandur	1027	97
Brigade Road	543	147
Brookefield	525	73
Electronic City	1116	96
HSR	1569	189
Indiranagar	1310	440
JP Nagar	1152	263
Jayanagar	1020	227
Kalyan Nagar	467	118
Koramangala 1st Block	499	42
Koramangala 4th Block	340	249
Koramangala 5th Block	1010	603
Koramangala 6th Block	517	81
Koramangala 7th Block	496	130
MG Road	291	270
Malleshwaram	475	81
Marathahalli	1492	157
New BEL Road	527	55
Others	8139	1351
Sarjapur Road	789	147
Ulsoor	436	115
Whitefield	1693	252

In [137...]

df2.plot(kind='bar', figsize=(10,6))

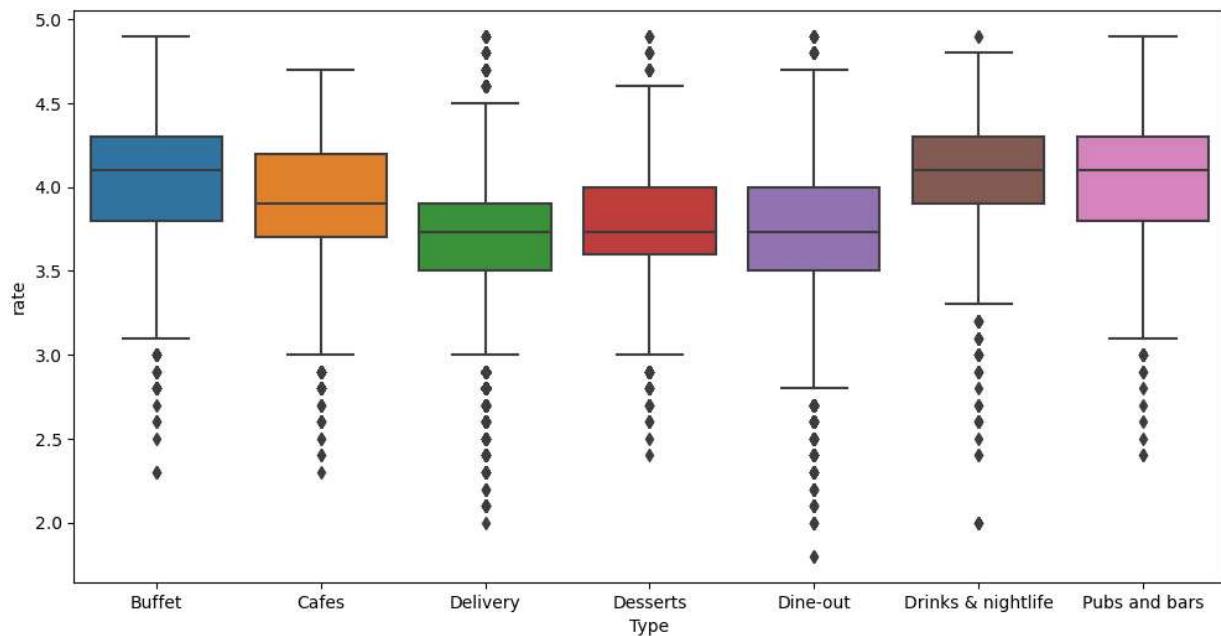
Out[137]:

<AxesSubplot:xlabel='location'>



```
In [138]: plt.figure(figsize=(12,6))
sns.boxplot(x='Type',y='rate',data=df)
```

```
Out[138]: <AxesSubplot:xlabel='Type', ylabel='rate'>
```



```
In [139]: df3=df.groupby(['location','Type'])['name'].count()
df3.to_csv('Type.csv')
```

In [140...]

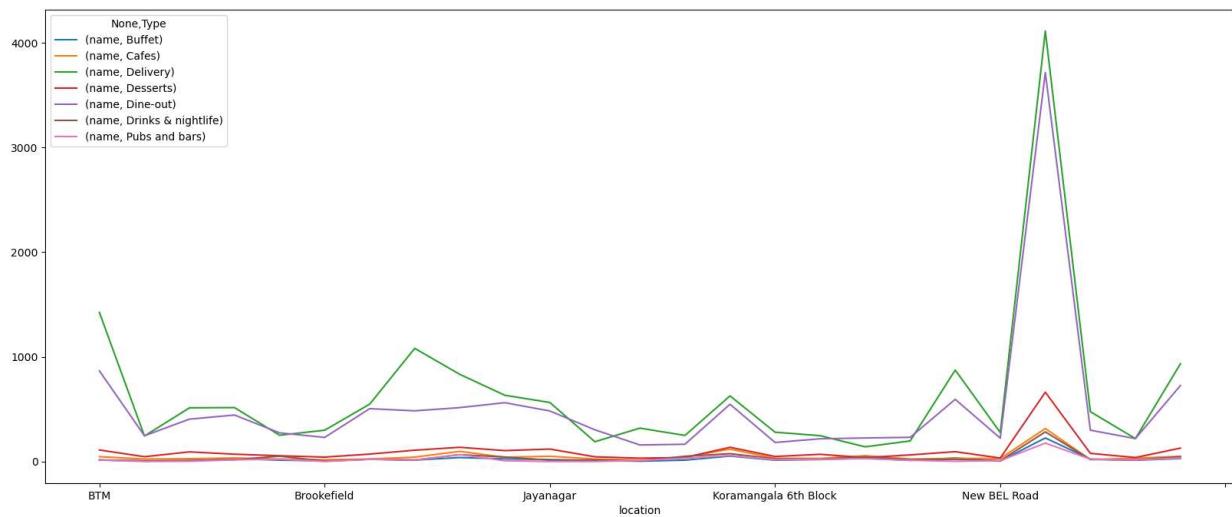
```
df3=pd.read_csv('Type.csv')
df3=pd.pivot_table(df3,index=['location'],columns=['Type'],fill_value=0,aggfunc=np.sum)
df3
```

Out[140]:

	Type	Buffet	Cafes	Delivery	Desserts	Dine-out	Drinks & nightlife	Pubs and bars	name
location									
	BTM	15	46	1424	110	866	15	14	
	Banashankari	5	24	244	46	246	7	0	
	Bannerghatta Road	8	27	513	92	405	9	2	
	Bellandur	28	34	515	70	444	17	16	
	Brigade Road	13	24	251	55	274	51	22	
	Brookefield	6	17	299	42	230	4	0	
	Electronic City	22	24	548	71	505	21	21	
	HSR	14	42	1081	108	484	14	15	
	Indiranagar	38	97	833	136	515	65	66	
	JP Nagar	25	41	633	104	562	43	7	
	Jayanagar	19	50	564	119	483	12	0	
	Kalyan Nagar	9	24	189	45	303	15	0	
	Koramangala 1st Block	3	14	319	32	158	5	10	
	Koramangala 4th Block	13	43	249	38	165	50	31	
	Koramangala 5th Block	52	118	627	136	547	75	58	
	Koramangala 6th Block	13	31	280	48	182	26	18	
	Koramangala 7th Block	19	30	247	69	217	22	22	
	MG Road	32	56	140	37	225	44	27	
	Malleshwaram	11	24	197	63	231	18	12	
	Marathahalli	34	30	874	94	594	21	2	
	New BEL Road	4	29	277	33	223	8	8	
	Others	225	315	4113	662	3716	283	176	
	Sarjapur Road	23	19	476	78	299	19	22	
	Ulsoor	12	32	219	38	219	16	15	
	Whitefield	28	50	934	128	726	46	33	

In [141]: `df3.plot(kind='line', figsize=(20,8))`

Out[141]: <AxesSubplot:xlabel='location'>



In [142]: `df4=df[['location','votes']]
df4.drop_duplicates()`

Out[142]:

	location	votes
0	Banashankari	775
1	Banashankari	787
2	Banashankari	918
3	Banashankari	88
4	Others	166
...
51328	Whitefield	152
51547	Whitefield	203
51606	Others	848
51628	Bellandur	411
51677	Whitefield	81

8049 rows × 2 columns

In [143]: `df5=df4.groupby(['location'])['votes'].sum()
df5=df5.to_frame()`

In []:

In [144]: `df5=df5.sort_values('votes', ascending=True)
df5`

Out[144]:

votes

location	
Banashankari	108998
Electronic City	109394
Brookefield	116995
Ulsoor	123617
Kalyan Nagar	131313
New BEL Road	167797
Koramangala 1st Block	173733
Bannerghatta Road	184717
Bellandur	202341
Malleeshwaram	228424
Koramangala 6th Block	328492
MG Road	364379
Brigade Road	375680
Sarjapur Road	391779
Jayanagar	397793
BTM	404655
Koramangala 7th Block	405235
Marathahalli	427315
HSR	430987
Whitefield	464012
JP Nagar	490769
Koramangala 4th Block	591404
Indiranagar	1129994
Koramangala 5th Block	1986897
Others	2918010

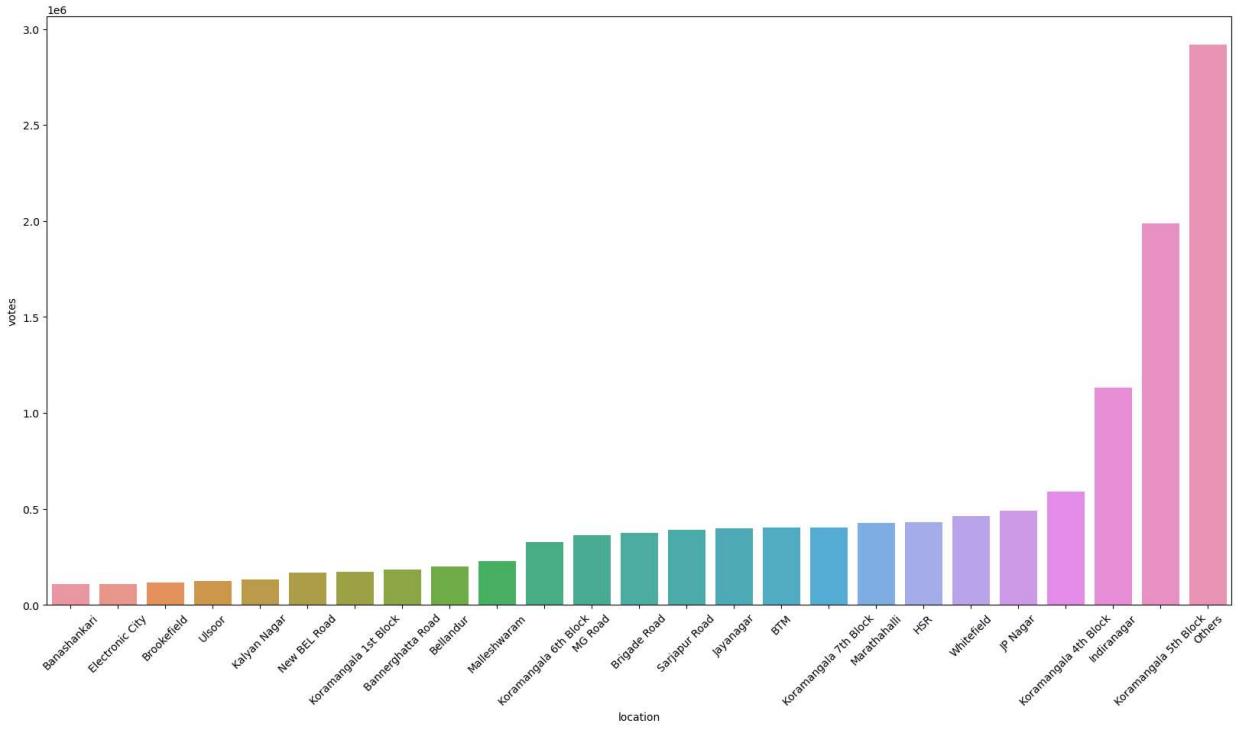
In [145...]

```
plt.figure(figsize=(20,10))
sns.barplot(df5.index,df5['votes'])
plt.xticks(rotation=45)
```

C:\Users\HP\Anaconda3\lib\site-packages\seaborn_decorators.py:36: FutureWarning: Pass the following variables as keyword args: x, y. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

```
warnings.warn(
```

```
Out[145]: (array([ 0,  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14, 15, 16,
       17, 18, 19, 20, 21, 22, 23, 24]),
 [Text(0, 0, 'Bananashankari'),
  Text(1, 0, 'Electronic City'),
  Text(2, 0, 'Brookefield'),
  Text(3, 0, 'Ulsoor'),
  Text(4, 0, 'Kalyan Nagar'),
  Text(5, 0, 'New BEL Road'),
  Text(6, 0, 'Koramangala 1st Block'),
  Text(7, 0, 'Bannerghatta Road'),
  Text(8, 0, 'Bellandur'),
  Text(9, 0, 'Malleeshwaram'),
  Text(10, 0, 'Koramangala 6th Block'),
  Text(11, 0, 'MG Road'),
  Text(12, 0, 'Brigade Road'),
  Text(13, 0, 'Sarjapur Road'),
  Text(14, 0, 'Jayanagar'),
  Text(15, 0, 'BTM'),
  Text(16, 0, 'Koramangala 7th Block'),
  Text(17, 0, 'Marathahalli'),
  Text(18, 0, 'HSR'),
  Text(19, 0, 'Whitefield'),
  Text(20, 0, 'JP Nagar'),
  Text(21, 0, 'Koramangala 4th Block'),
  Text(22, 0, 'Indiranagar'),
  Text(23, 0, 'Koramangala 5th Block'),
  Text(24, 0, 'Others')])
```



In [146...]

```
df6=df[['cuisines','votes']]
df6.drop_duplicates()
df7=df6.groupby(['cuisines'])['votes'].sum()
df7=df7.to_frame()
df7=df7.sort_values('votes',ascending=False)
df7.head()
```

Out[146]:

votes**cuisines****Others** 11045576**North Indian** 439592**North Indian, Chinese** 188820**South Indian** 130350**Chinese** 80989

In [149...]

```
df7 = df7.iloc[1:, :]
df7.head()
```

Out[149]:

votes**cuisines****North Indian** 439592**North Indian, Chinese** 188820**South Indian** 130350**Chinese** 80989**North Indian, South Indian** 75337

In [150...]

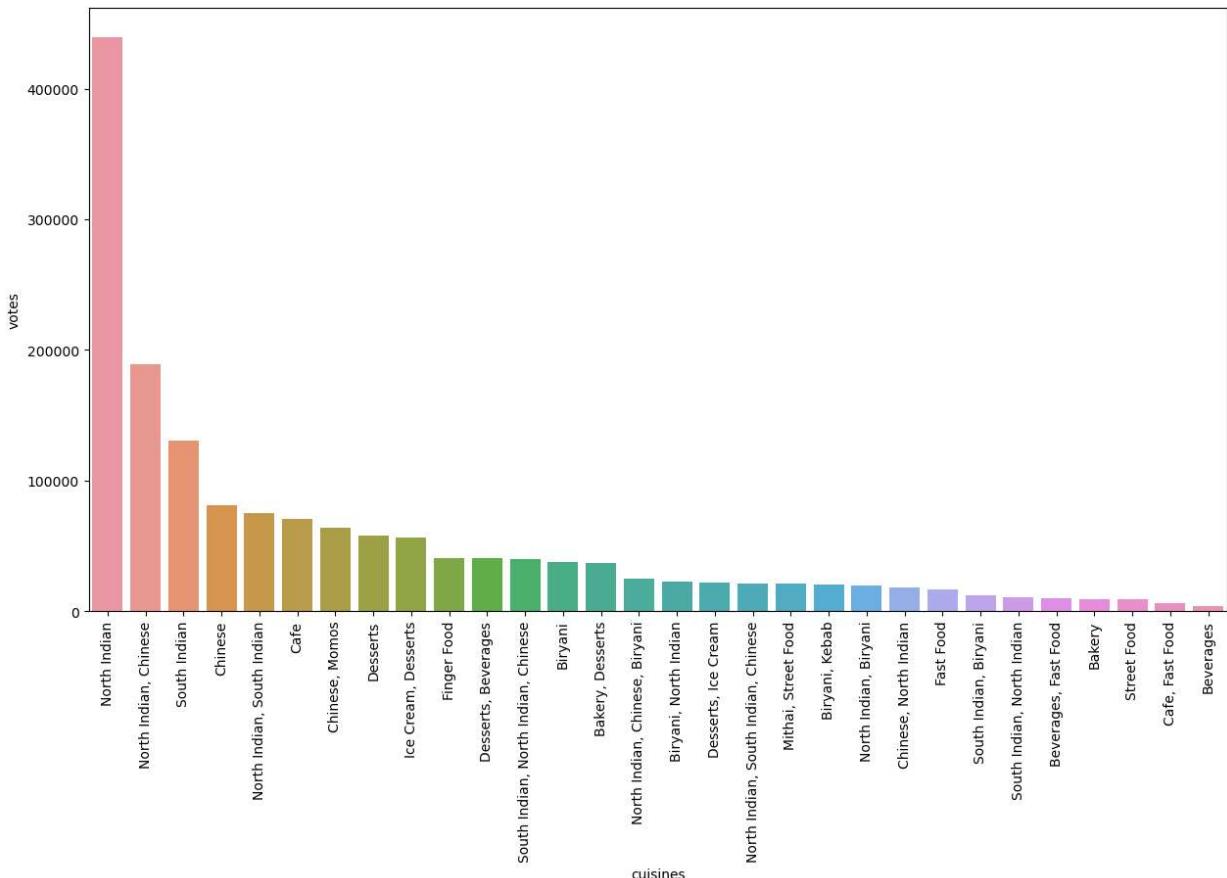
```
plt.figure(figsize=(15,8))
sns.barplot(df7.index,df7['votes'])
plt.xticks(rotation=90)
```

C:\Users\HP\Anaconda3\lib\site-packages\seaborn_decorators.py:36: FutureWarning: Pass the following variables as keyword args: x, y. From version 0.12, the only valid positional argument will be `data`, and passing other arguments without an explicit keyword will result in an error or misinterpretation.

```
warnings.warn(
```

```
Out[150]: (array([ 0,  1,  2,  3,  4,  5,  6,  7,  8,  9, 10, 11, 12, 13, 14, 15, 16,
   17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29]),

[Text(0, 0, 'North Indian'),
 Text(1, 0, 'North Indian, Chinese'),
 Text(2, 0, 'South Indian'),
 Text(3, 0, 'Chinese'),
 Text(4, 0, 'North Indian, South Indian'),
 Text(5, 0, 'Cafe'),
 Text(6, 0, 'Chinese, Momos'),
 Text(7, 0, 'Desserts'),
 Text(8, 0, 'Ice Cream, Desserts'),
 Text(9, 0, 'Finger Food'),
 Text(10, 0, 'Desserts, Beverages'),
 Text(11, 0, 'South Indian, North Indian, Chinese'),
 Text(12, 0, 'Biryani'),
 Text(13, 0, 'Bakery, Desserts'),
 Text(14, 0, 'North Indian, Chinese, Biryani'),
 Text(15, 0, 'Biryani, North Indian'),
 Text(16, 0, 'Desserts, Ice Cream'),
 Text(17, 0, 'North Indian, South Indian, Chinese'),
 Text(18, 0, 'Mithai, Street Food'),
 Text(19, 0, 'Biryani, Kebab'),
 Text(20, 0, 'North Indian, Biryani'),
 Text(21, 0, 'Chinese, North Indian'),
 Text(22, 0, 'Fast Food'),
 Text(23, 0, 'South Indian, Biryani'),
 Text(24, 0, 'South Indian, North Indian'),
 Text(25, 0, 'Beverages, Fast Food'),
 Text(26, 0, 'Bakery'),
 Text(27, 0, 'Street Food'),
 Text(28, 0, 'Cafe, Fast Food'),
 Text(29, 0, 'Beverages')])
```



In []:

In []: