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Project: Zomato API-2

```
In [2]: # importing libraries
import numpy as np
import pandas as pd
import csv
import matplotlib.pyplot as plt
import requests
import json
```

Question 1.1

```
In [3]: df = pd.read_csv('zomato.csv', encoding='ISO-8859-1')
df.dropna(inplace=True)
df.reset_index(inplace=True)
del df['index']
data_india = df[df['Country Code']==1]

def getcount(data):
    data_new_delhi=data[data['City']=='New Delhi']['City'].count()
    data_ghaziabad=data[data['City']=='Ghaziabad']['City'].count()
    data_noida=data[data['City']=='Noida']['City'].count()
    data_gurgaon=data[data['City']=='Gurgaon']['City'].count()
    data_faridabad=data[data['City']=='Faridabad']['City'].count()
    ncr_count=data_new_delhi+data_ghaziabad+data_noida+data_gurgaon+data_faridabad
    total_india=data['City'].count()
    return ncr_count, total_india-ncr_count

ncr_count,rest_count=getcount(data_india)

print('NRC Count:', ncr_count, '\nRest Count(India-NRC):', rest_count)

y=[ncr_count,rest_count]
x=['NCR-COUNT', 'REST-OF-INDIA']
x=[x.strip() for x in ele.split(',') for ele in ncr_cuisines]
for i in li:
    NCR_CUISINES.append(i)

NCR_CUISINES=list(set(NCR_CUISINES))

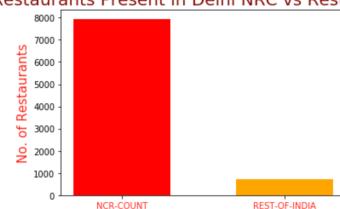
rest_cuisines=list(data_india[(data_india['City']!='New Delhi') | (data_india['City']!='Noida') | (data_india['City']!='Ghaziabad') | (data_india['City']!='Faridabad')])
NCR_CUISINES=[]
for ele in ncr_cuisines:
    li=[x.strip() for x in ele.split(',') for ele in rest_cuisines]
    for i in li:
        NCR_CUISINES.append(i)

NCR_CUISINES=list(set(NCR_CUISINES))

rest_cuisines=list(data_india[(data_india['City']!='New Delhi') | (data_india['City']!='Noida') | (data_india['City']!='Ghaziabad') | (data_india['City']!='Faridabad')])
REST_CUISINES_NOT_NCR=[]
for ele in rest_cuisines:
    li=[x.strip() for x in ele.split(',') for ele in REST_CUISINES_NOT_NCR]
    for y in li:
        if y not in NCR_CUISINES:
            REST_CUISINES_NOT_NCR.append(y)

print("-----")
print()
print("Cuisines that are NOT in NCR but are in rest of india are as follows : -")
print()
for ele in REST_CUISINES_NOT_NCR:
    print(ele)
print()
print("-----")
```

Restaurants Present in Delhi NRC vs Rest of India



Question 1.2

```
In [4]: target=['New Delhi','Ghaziabad','Faridabad','Noida','Gurgaon']
ncr_cuisines=list(data_india[(data_india['City']=='New Delhi') | (data_india['City']=='Noida') | (data_india['City']=='Ghaziabad') | (data_india['City']=='Faridabad')])
NCR_CUISINES=[]
for ele in ncr_cuisines:
    li=[x.strip() for x in ele.split(',') for ele in rest_cuisines]
    for i in li:
        NCR_CUISINES.append(i)

NCR_CUISINES=list(set(NCR_CUISINES))

rest_cuisines=list(data_india[(data_india['City']!='New Delhi') | (data_india['City']!='Noida') | (data_india['City']!='Ghaziabad') | (data.india['City']!='Faridabad')])
REST_CUISINES_NOT_NCR=[]
for ele in rest_cuisines:
    li=[x.strip() for x in ele.split(',') for ele in REST_CUISINES_NOT_NCR]
    for y in li:
        if y not in NCR_CUISINES:
            REST_CUISINES_NOT_NCR.append(y)

print("-----")
print()
print("Cuisines that are NOT in NCR but are in rest of india are as follows : -")
print()
for ele in REST_CUISINES_NOT_NCR:
    print(ele)
print()
print("-----")
```

Cuisines that are NOT in NCR but are in rest of india are as follows : -

German
Malvani
German
BBQ
Cajun

```
In [5]: data_india[data_india['City']=='New Delhi']
```

Out[5]:

Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude	Latitude	Cuisines	... Currency	Has Table booking	Has Online delivery	Is delivering now	St
2551	18287358	Food Cloud	1	New Delhi	Aya Nagar, New Delhi	Aya Nagar, New Delhi	0.000000	0.000000	Cuisine Varies	... Indian Rupees(Rs.)	No	No	No	
2552	18216944	Burger.in	1	New Delhi	84, Near Honda Showroom, Adchini, New Delhi	Adchini, New Delhi	77.196923	28.535382	Fast Food	... Indian Rupees(Rs.)	No	Yes	No	
2553	313333	Days of the Raj	1	New Delhi	81/3, 1st Floor, Qutub Residency, Adchini, ...	Adchini, New Delhi	77.197475	28.535493	North Indian, Seafood, Continental	... Indian Rupees(Rs.)	Yes	Yes	No	

New...														
2554	18384127	Dilli Ka Dhaba	1	New Delhi	66 A, Ground Floor, Sri Adchini Marg, Adchini...	Adchini, New Delhi	77.198033	28.537547	South Indian, North Indian	... Indian Rupees(Rs.)	No	No	No	
2555	582	Govardhan	1	New Delhi	84, Adjacent Hero Motor Bike Showroom, Main Me...	Adchini, New Delhi	77.196924	28.535523	South Indian, North Indian, Chinese	... Indian Rupees(Rs.)	No	Yes	No	
...
8019	18445274	Motu N Patlu	1	New Delhi	Batla House Chowk, Near Jamia Millia Islamia, Q...	Zakir Nagar, New Delhi	77.285065	28.566246	Lebanese, North Indian, Fast Food	... Indian Rupees(Rs.)	No	No	No	
8020	18168147	S.K. Fast Food	1	New Delhi	161/32, Shop 3 Joga Bari, Main Road, Zakir Nagar...	Zakir Nagar, New Delhi	77.283827	28.566189	Chinese	... Indian Rupees(Rs.)	No	No	No	
8021	18428375	Sufyan Restaurant	1	New Delhi	57/12, Main Road, Zakir Nagar, New Delhi	Zakir Nagar, New Delhi	77.279779	28.567321	Mughlai	... Indian Rupees(Rs.)	No	No	No	
8022	310479	The Relax Point	1	New Delhi	92/17, Zakir Nagar, New Delhi	Zakir Nagar, New Delhi	77.278543	28.566849	North Indian	... Indian Rupees(Rs.)	No	No	No	
8023	18212160	Zareen's Dastarkhwan	1	New Delhi	Jasheed Nagar, Zakir Nagar, New Delhi	Zakir Nagar, New Delhi	77.285696	28.565194	Awadhi	... Indian Rupees(Rs.)	No	No	No	

5473 rows x 21 columns

```
In [6]: header={'Accept':'application/json','user-key':'b09fb2d583affae07celc729b12dc531'}
response=requests.get('https://api.zomato.com/v2.1/cities',params={'q':'delhi'},headers=header)
response=response.json()
city_id=response['location_suggestions'][0]['id']
response=requests.get('https://api.zomato.com/v2.1/cuisines',params={'city_id':city_id},headers=header)
response=response.json()
li=[]
for i in range(len(response['cuisines'])):
    li.append(response['cuisines'][i]['cuisine']['cuisine_name'])
lis=set(li)
l=set(REST_CUISINES_NOT_NCR).difference(lis)
print('-----')
print('Cuisines which are NOT in Delhi NCR but are in rest in india by dataset through ZOMATO API are')
for ele in list(l):
    print(ele)
print('-----')
```

Cuisines which are NOT in Delhi NCR but are in rest in india by dataset through ZOMATO API are
German
Cajun

```
In [7]: data_india.head()
```

```
Out[7]:
```

Restaurant ID	Restaurant Name	Country Code	City	Address	Locality	Locality Verbose	Longitude	Latitude	Cuisines	...	Currency	Has Table booking	Has Online delivery	Is delivering now	Switch to order menu
615	3400025 Jahanpanah	1	Agra	E 23, Shopping Arcade, Sadar Bazaar, Agra Cantt...	Agra Cantt	Agra Cantt, Agra	78.011544	27.161661	North Indian, Mughlai	... Indian Rupees(Rs.)	No	No	No	No	
616	3400341 Rangrezz Restaurant	1	Agra	E-20, Shopping Arcade, Sadar Bazaar, Agra Cantt...	Agra Cantt	Agra Cantt, Agra	0.000000	0.000000	North Indian, Mughlai	... Indian Rupees(Rs.)	No	No	No	No	
617	3400005 Time2Eat - Mama Chicken	1	Agra	Main Market, Sadar Bazaar, Agra Cantt, Agra	Agra Cantt	Agra Cantt, Agra	78.011608	27.160832	North Indian	... Indian Rupees(Rs.)	No	No	No	No	
618	3400021 Chokho Jeemjan Marwari Jain Bhajanalya	1	Agra	1/48, Delhi Gate, Station Road, Pura Mandi, Ci...	Civil Lines	Civil Lines, Agra	77.998092	27.195928	Rajasthani	... Indian Rupees(Rs.)	No	No	No	No	
619	3400017 Pinch Of Spice	1	Agra	29/45, Opposite Sanjay Cinema, Wazipura Road...	Civil Lines	Civil Lines, Agra	78.007553	27.201725	North Indian, Chinese, Mughlai	... Indian Rupees(Rs.)	No	No	No	No	

5 rows x 21 columns

Question 1.3

```
In [8]: l=list(zip(data_india['City'],data_india['Cuisines']))
target=['New Delhi','Noida','Gurgaon','Faridabad','Ghaziabad']
d={}
for i in range(len(l)):
    if l[i][0] in target:
        for x in l[i][1].split(','):
            x=x.strip()
            d[x].d.get(x,0)+1
d=dict(sorted(d.items(),key= lambda kv : (kv[1],kv[0]),reverse=True))
print('-----')
print('Top 10 cuisines present in DELHI NCR are as follows ')
i=0
x_ncr=[]
y_ncr=[]
for key,val in d.items():
    if i==10:
        break
    x_ncr.append(key)
    y_ncr.append(val)
    print(key,val)
    i+=1
print('-----')
d={}
x_rest=[]
y_rest=[]
for i in range(len(l)):
    if l[i][0] not in target:
```

```

for x in l[i][1].split(','):
    x=x.strip()
    d[x]=d.get(x,0)+1
d=dict(sorted(d.items(),key= lambda kv :(kv[1],kv[0]),reverse=True))
print('-----')
print('Top 10 cuisines present in REST IN INDIA are as follows ')
i=0
for key,val in d.items():
    if i==10:
        break
    x_rest.append(key)
    y_rest.append(val)
    print(key,val)
    i+=1
print('-----')

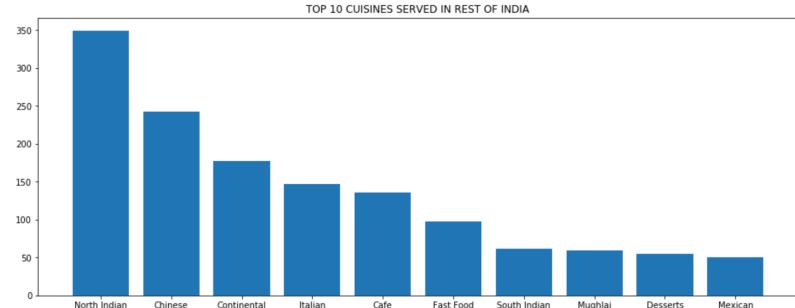
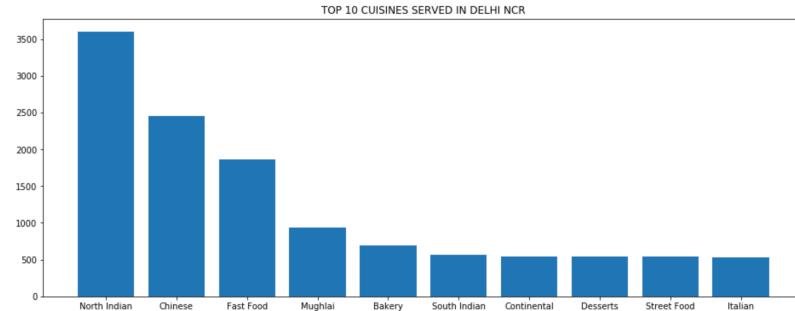
plt.subplots(figsize=(16,6))
plt.title('TOP 10 CUISINES SERVED IN DELHI NCR')
plt.bar(x_ncr,y_ncr)
plt.show()

plt.subplots(figsize=(16,6))
plt.title('TOP 10 CUISINES SERVED IN REST OF INDIA')
plt.bar(x_rest,y_rest)
plt.show()

```

Top 10 cuisines present in DELHI NCR are as follows
North Indian 3597
Chinese 2448
Fast Food 1866
Mughlai 933
Bakery 697
South Indian 569
Continental 547
Desserts 542
Street Food 538
Italian 535

Top 10 cuisines present in REST IN INDIA are as follows
North Indian 349
Chinese 242
Continental 177
Italian 147
Cafe 136
Fast Food 97
South Indian 62
Mughlai 59
Desserts 55
Mexican 50

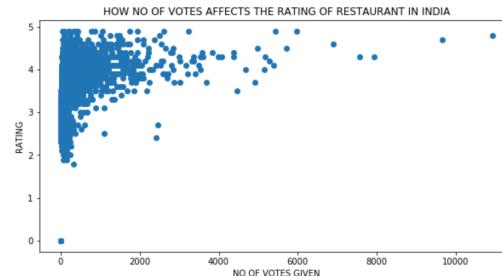


Question 2.1.1

```

In [9]: l=list(zip(data_india['Aggregate rating'],data_india['Votes']))
y=[ele[0] for ele in l]
x=[ele[1] for ele in l]
plt.subplots(figsize=(10,5))
plt.ylabel('RATING')
plt.xlabel('NO OF VOTES GIVEN')
plt.title('HOW NO OF VOTES AFFECTS THE RATING OF RESTAURANT IN INDIA')
plt.scatter(x,y)
plt.show()

```



Question 2.1.2

```
In [13]: def f(data):
    li=data.split(',')
    return(len(li))

data_india['count']=data_india['Cuisines'].apply(f)
get_count=data_india['count'].value_counts()

li=list(zip(data_india['Aggregate rating'],data_india['count']))

d={}
x=[]
y=[]

for ele in li:
    if ele[1] not in d:
        d[ele[1]]=ele[0]
    else:
        d[ele[1]].append(ele[0])

for key in d:
    d[key]=sum(d[key])/len(d[key])

for key in d:
    x.append(key)
    y.append(d[key])

plt.subplots(figsize=(12,8))
plt.xlabel('No of cuisines delivered', fontsize=20)
plt.ylabel('Average Rating for no. of cuisines', fontsize=20)
plt.bar(x,y)
plt.show()

C:\Users\gurpri\anaconda3\lib\site-packages\ipykernel_launcher.py:6: SettingWithCopyWarning:
A value is trying to be set on a copy of a slice from a DataFrame.
Try using .loc[row_indexer,col_indexer] = value instead

See the caveats in the documentation: https://pandas.pydata.org/pandas-docs/stable/user\_guide/indexing.html#returning-a-view-versus-a-copy
```



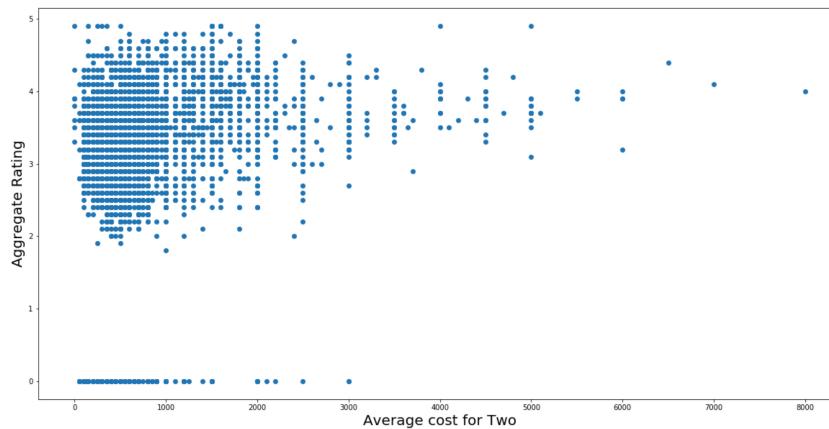
Question 2.1.3

```
In [15]: l=list(zip(data_india['Aggregate rating'],data_india['Average Cost for two']))

x=[]
y=[]

for i in range(len(l)):
    x.append(l[i][0])
    y.append(l[i][1])

plt.subplots(figsize=(20,10))
plt.xlabel('Average cost for Two', fontsize=20)
plt.ylabel('Aggregate Rating', fontsize=20)
plt.scatter(y,x)
plt.show()
```



Question 2.1.4

```
In [17]: data_india['Cuisines'].value_counts()
d={}
for ele in data_india['Cuisines']:
    li=[x.strip() for x in ele.split(',')]
    for v in li:
        d[v]=d.get(v,0)+1

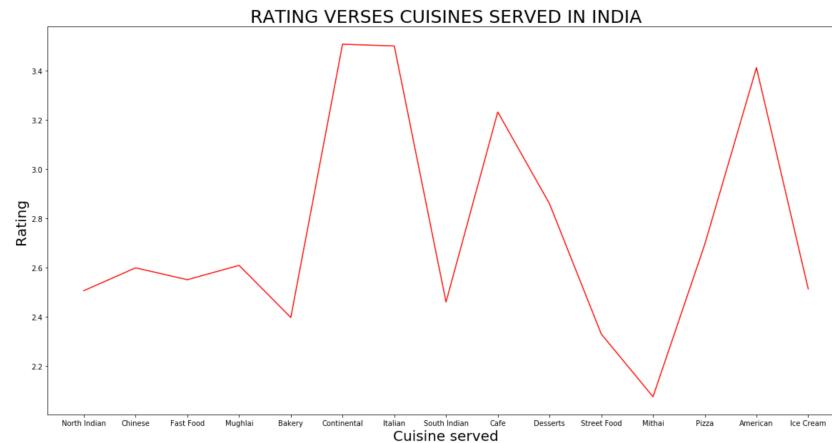
d=dict(sorted(d.items(),key=lambda kv:(kv[1],kv[0]),reverse=True))
i=0
cuisines=[]

print('-----')
print('TOP 15 CUISINES SERVED IN MOST RESTAURANTS OF INDIA ')
print('-----')

for ele in d:
    if i==15:
        break
    cuisines.append(ele)
    print('{:<16s}|{:>11d}'.format(ele,d[ele]))
    i+=1
print('-----')
```

TOP 15 CUISINES SERVED IN MOST RESTAURANTS OF INDIA	
North Indian	3946
Chinese	2690
Fast Food	1963
Mughlai	992
Bakery	726
Continental	724
Italian	682
South Indian	631
Cafe	627
Desserts	597
Street Food	554
Mithai	380
Pizza	313
American	225
Ice Cream	216

```
In [18]: l=list(zip(data_india['Cuisines'],data_india['Aggregate rating']))
d={}
for curr in cuisines:
    sum=0
    count=0
    for i in range(len(l)):
        if curr in l[i][0]:
            sum+=l[i][1]
            count+=1
    d[curr]=(sum/count)
x=[]
y=[]
for curr in d:
    x.append(curr)
    y.append(d[curr])
plt.subplots(figsize=(20,10))
plt.title('RATING VERSES CUISINES SERVED IN INDIA', fontsize=25)
plt.xlabel('Cuisine served', fontsize=20)
plt.ylabel('Rating', fontsize=20)
plt.plot(x,y,color='red')
plt.show()
```



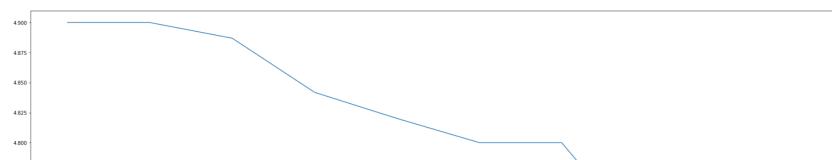
Question 2.2.1

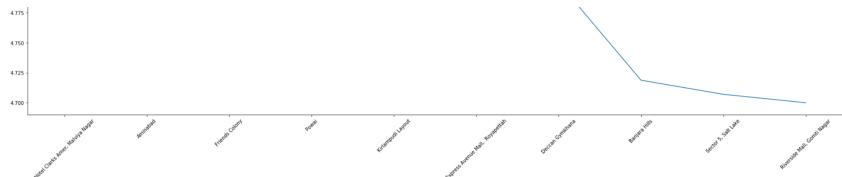
```
In [27]: data_india=data_india.copy()
data_india['weighted_average']=data_india['Votes']*data_india['Aggregate rating']
l=list(zip(data_india['Locality'],data_india['weighted_average']))
s=data_india['Votes'].sum()
d={}
ind=[ele[0] for ele in l]
for val in ind:
    key=data_india[data_india['Locality']==val]['weighted_average'].sum()
    v=data_india[data_india['Locality']==val]['Votes'].sum()
    if v==0:
        continue
    d[val]=(key/v)

d=dict(sorted(d.items(),key= lambda kv:(kv[1],kv[0]),reverse=True))
i=0
print('-----')
print('          TOP 10 LOCALITIES HAVING BEST RATING          ')
print('-----')
x=[]
y=[]
for key in d:
    if i==10:
        break
    x.append(key)
    y.append(d[key])
    print('{:<40s}|{:>16s}'.format(key,'{:.2f}'.format(d[key])))
    i+=1
print('-----')

plt.subplots(figsize=(30,10))
plt.plot(x,y)
plt.xticks(rotation=45)
plt.show()
```

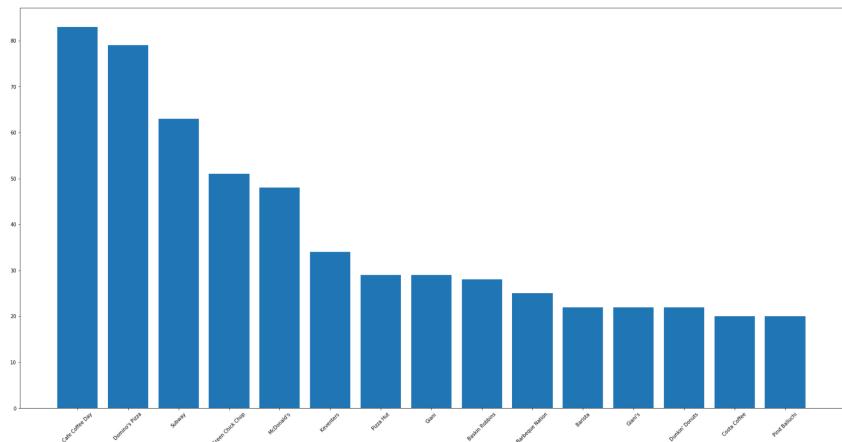
TOP 10 LOCALITIES HAVING BEST RATING	
Hotel Clarks Amer, Malviya Nagar	4.90
Aminabad	4.90
Friends Colony	4.89
Powai	4.84
Kurlampudi Layout	4.82
Express Avenue Mall, Royapettah	4.80
Deccan Gymkhana	4.80
Banjara Hills	4.72
Sector 5, Salt Lake	4.71
Riverside Mall, Gomti Nagar	4.70





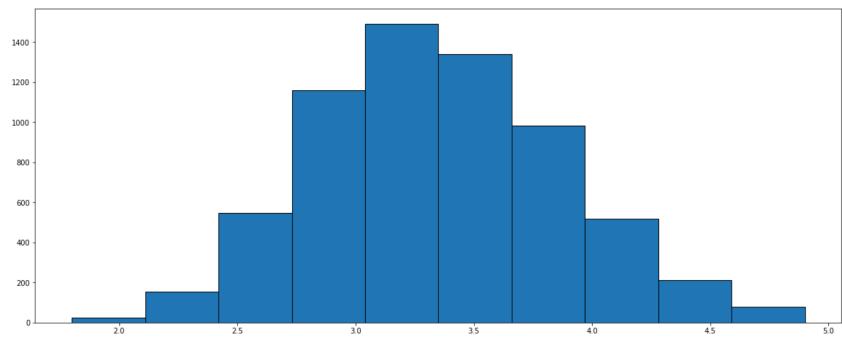
Question 3.1

```
In [19]: d=data_india['Restaurant Name'].value_counts()
x=list(d.index[0:15])
y=list(d.values[0:15])
plt.subplots(figsize=(30,15))
plt.bar(x,y)
plt.xticks(rotation=45)
plt.show()
```



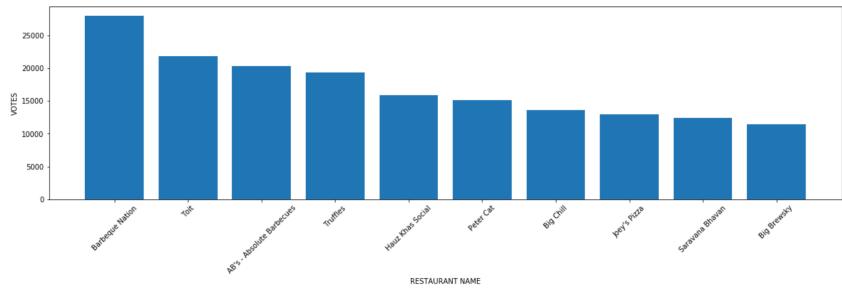
Question 3.2

```
In [20]: data=data_india[data_india['Aggregate rating']!=0]
x=list(data['Aggregate rating'])
plt.subplots(figsize=(20,8))
plt.hist(x,edgecolor='black')
plt.show()
```



Question 3.3

```
In [21]: l=list(zip(data_india['Restaurant Name'],data_india['Votes']))
d={}
for i in range(len(l)):
    d[l[i][0]]=d.get(l[i][0],l[i][1])+l[i][1]
d=dict(sorted(d.items(),key=lambda kv:(kv[1],kv[0]),reverse=True))
x=list(d.values())[0:10]
y=list(d.keys())[0:10]
plt.subplots(figsize=(20,5))
plt.title('VOTES')
plt.xlabel('RESTAURANT NAME')
plt.ylabel('VOTES')
plt.xticks(rotation=45)
plt.show()
```



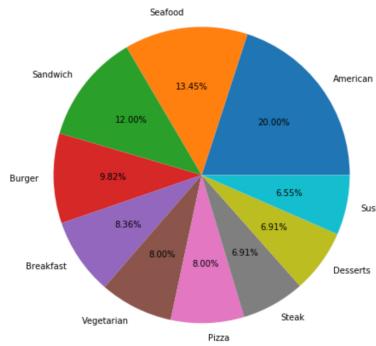
Question 3.4

```
In [23]: d=df[df['Country Code']==216]
x=d['Cuisines'].value_counts()
dic={}
for ele in list(x.index):
    li=[y.strip() for y in ele.split(',')]
```

```

for y in li:
    dic[y]=dic.get(y,0)+1
dic=dict(sorted(dic.items(),key=lambda kv:(kv[1],kv[0]),reverse=True))
y=list(dic.values())[0:10]
x=list(dic.keys())[0:10]
plt.subplots(figsize=(20,8))
plt.pie(y,labels=x,autopct='%.2f%%')
plt.show()

```

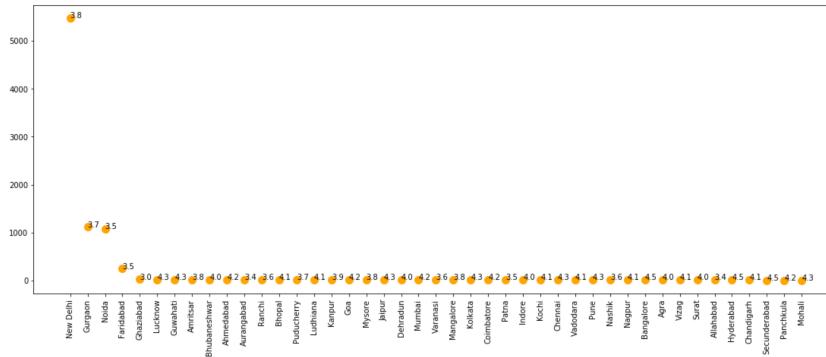


Question 3.5

```

In [28]: li=data_india['City'].value_counts()
x=list(li.index)
y=list(li.values)
z=[]
d={}
for ele in x:
    a=data_india[data_india['City']==ele]['weighted_average'].sum()
    b=data_india[data_india['City']==ele]['Votes'].sum()
    val=(a/b)
    z.append(val)
    d[ele]=d.get(ele,val)+val
for ele in x:
    d[ele]=round(d[ele],1)
plt.subplots(figsize=(19,7))
plt.scatter(x,y,s=100,color='orange')
plt.xticks(rotation=90)
for i in range(len(x)):
    plt.text(x[i],y[i],round(z[i],1))
plt.show()

```



In []: