In [1]:
```
import numpy as np
import pandas as pd
import os
from json  import loads , dumps

for dirname, _, filenames in os.walk('/kaggle/input'):
    for filename in filenames:
        print(os.path.join(dirname, filename))
```

```
/kaggle/input/swiggy-restaurants-dataset/data.json
/kaggle/input/swiggy-restaurants-dataset/swiggy.csv
```

1. Loading the swiggy dataset (JSON file)

In [2]:
```
file = open('/kaggle/input/swiggy-restaurants-dataset/data.json','r')
data = file.read()
file.close()
js = loads(data)
```

2. Dataset walkthrough

2.1) how many cities are present in the given dataset

In [3]:
```
print(len(js.keys()))
```

```
623
```

2.2) how many restaurants are present in a particular city

In [4]:
```
print(len(js['Abohar']['restaurants'].keys()))
```

```
63
```

2.3) All restaurant is serving how many number of different menu products category in Abohar?

In [5]:
```
for i in js['Abohar']['restaurants'].keys():
    print(js['Abohar']['restaurants'][i]['name'],'|',len(js['Abohar']
```

```
AB FOODS POINT | 17
Janta Sweet House | 21
theka coffee desi | 29
Singh Hut | 11
GRILL MASTERS | 16
Sam Uncle | 8
shere punjab veg | 8
Shri Balaji Vaishno Dhaba | 3
Hinglaj Kachori Bhandhar | 2
yummy hub | 2
CHAWLA SAAB THE JUICE MASTER | 17
Sethi Milk Badam | 2
Swastik Dhaba | 7
Jodhpuri Kachori | 1
Bharawan Da Dhaba | 7
Tandoori Nights | 8
Rahul Food | 0
Roll Express | 2
wah ji waah veg and non veg corner | 8
Shri Balaji fast food and Variety store | 15
FOODY MOOD | 7
PUNJABI TADKA | 3
PUNJABI TADKA CHICKEN HUB | 3
Royal Chicken | 7
Just Baked | 10
Picado International Food | 23
PubG Cafe | 20
Verma Dhaba | 4
Fresh Food Cafe | 23
NAVU PIZZA HOUSE | 6
Domino's Pizza | 10
Joker Cafe | 15
Deepak Dhaba | 4
FUN TIME (SHARMA DAIRY) | 3
Pari Healthy Food | 4
Bhatti Ki Rasoi | 2
SETHI PUNJABI RASOI | 6
Kurda Ram Desi Ghee Dhaba(Original & Famous) | 7
Paratha 24x7 | 3
NIKKU VEG THALI | 8
PARJAPATI FAST FOOD | 1
Ganesh Fast Food | 5
Mitran Da dhaba | 1
The Super Cafe | 2
chacha sweets house | 17
Cafe M | 2
Frankie roll junction | 1
G.K Dhaba | 4
DAYA RAJ VEG VAISHNO DHABA AND  CATERS | 2
JUICY BAR N RESTO | 21
FresHub | 6
The Food Factory | 9
MUNNA PUNJABI RASOI | 8
Grill Master By Sharda Anita Enterprises | 17
Maruti Plaza | 9
Nikku Chaap Cafe | 13
```

```
DK Food Point | 1
TUMMY CLINIK FAST FOOD CORNER | 8
Sagar Fast Food | 9
SUDESH FAST FOOD | 6
Sonu Tandoori Paties | 1
Bihari da vaishno dhaba | 5
SHRI GANESH SWEET HOUSE | 2
```

2.4) Find the Restaurants with no Menu in Abohar?

In [6]:
```
for i in js['Abohar']['restaurants'].keys():
    if len(js['Abohar']['restaurants'][i]['menu']) == 0:
        print(js['Abohar']['restaurants'][i]['name'],'|',i)
```

```
Rahul Food | 453869
```

2.5) different cuisines surved in abohar

In [7]:
```
cuisines = []
for i in js['Abohar']['restaurants'].keys():
    cuisines += (js['Abohar']['restaurants'][i]['cuisine'].split(',')
cuisines = list(set(cuisines))
print(len(cuisines))
```

```
22
```

2.5) Most popular cuisine surved in Abohar(top 5)

In [8]:
```
pop_cui = []
for cuisine in cuisines:
    c = 0
    for i in js['Abohar']['restaurants'].keys():
        if cuisine in (js['Abohar']['restaurants'][i]['cuisine']):
            c += 1
    pop_cui.append([cuisine,c])
df = pd.DataFrame(pop_cui,columns =['item','freq'])
df[df['freq'] == max(df['freq'])]   #  it prints only one cuisine
```

Out[8]:

	item	freq
21	Indian	31

In [9]:
```
## method 2
pop_cui = []
for cuisine in cuisines:
    c = 0
    for i in js['Abohar']['restaurants'].keys():
        if cuisine in (js['Abohar']['restaurants'][i]['cuisine']):
            c += 1
    pop_cui.append([cuisine,c])
df = pd.DataFrame(pop_cui,columns =['item','freq'])
df.sort_values(by='freq',ascending=False).head(5)
```

Out[9]:

	item	freq
21	Indian	31
2	North Indian	20
15	Beverages	10
3	Chinese	9
16	Fast Food	9

2.6) average cost of eating outside in Abohar

In [10]:
```
cost = []
for i in js['Abohar']['restaurants'].keys():
    cost.append(int(js['Abohar']['restaurants'][i]['cost'].split(' ')
avg_cost = (round(sum(cost)/len(cost),2))
print('Average cost of eating outside in abohar is : Rs. '+str(avg_co
```

```
Average cost of eating outside in abohar is : Rs. 232.7
```

2.7) average cost of eating north indian in Abohar

In [11]:
```
price = []
for i in js['Abohar']['restaurants'].keys():
    if 'North Indian' in js['Abohar']['restaurants'][i]['cuisine']:
        price.append(int(js['Abohar']['restaurants'][i]['cost'].split
print(sum(price)//len(price))
```

```
243
```

2.8) Average cost of each cusine in Abohar

In [12]:
```
avg_cuisine = []
for cuisine in cuisines:
    price = []
    for i in js['Abohar']['restaurants'].keys():
        if cuisine in js['Abohar']['restaurants'][i]['cuisine']:
            price.append(int(js['Abohar']['restaurants'][i]['cost'].s
    avg_cuisine.append([cuisine,sum(price)//len(price)])
avg_cuisine = pd.DataFrame(avg_cuisine,columns = ['cuisine','avg_cost
avg_cuisine.head()
```

Out[12]:

	cuisine	avg_cost
0	Sweets	166
1	Desserts	100
2	North Indian	243
3	Chinese	266
4	Continental	200

2.8) top 5 expensive cuisine in Abohar

In [13]:
```
avg_cuisine.sort_values(by ='avg_cost',ascending=False).head()
```

Out[13]:

	cuisine	avg_cost
6	Punjabi	700
11	Tandoor	475
18	Juices	300
17	Ice Cream	300
9	Pizzas	287

2.9) top 5 cheapest cuisine in Abohar

In [14]:
```
avg_cuisine.sort_values(by ='avg_cost',ascending=True).head()
```

Out[14]:

	cuisine	avg_cost
1	Desserts	100
10	Chaat	116
0	Sweets	166
14	Snacks	192
4	Continental	200

3.Dataset Walkthrough -whole

3.1) how many restaurants are there in each city ?

In [15]:
```
rest_city = []
for i in js.keys():
    c = 0
    if 'restaurants' in js[i].keys():
        c = len(js[i]['restaurants'])
    else:
        for region in js[i].keys():
            if 'restaurants' in js[i][region].keys():
                c = len(js[i][region]['restaurants'])
    rest_city.append([i,c])

rest_city = pd.DataFrame(rest_city,columns=['city','total_restaurants
```

3.2) top 5 cities maximum number of restaurants

In [16]:
```
rest_city.sort_values(by = 'total_restaurants',ascending =False).hea
```

Out[16]:

	city	total_restaurants
104	Bikaner	1673
545	Sirsa	1659
559	Sultanpur	1430
433	Noida-1	1428
49	Bangalore	1396

3.3) how many restaurants have no menu or empty menu

In [17]:
```
c = 0
arr = []
for city in js.keys():
    if 'restaurants' in js[city].keys():
        for rest in (js[city]['restaurants'].keys()):
            if 'menu' in js[city]['restaurants'][rest].keys():
                if (len(js[city]['restaurants'][rest]['menu'].keys())
                    c += 1
                    arr.append([rest])
                else:
                    c += 1
                    arr.append([rest])
    else:
        for regions in (js[city].keys()):
            if 'restaurants' in js[city][regions].keys():
                for rest in js[city][regions]['restaurants'].keys():
                    if 'menu' in js[city][regions]['restaurants'][res
                        if len(js[city][regions]['restaurants'][rest]
                            c += 1
                            arr.append([rest])
                    else:
                        c += 1
                        arr.append([rest])
print(c)
arr = np.array(arr)
np.save('incompleted_rest_data.npy',arr)
```

```
78863
```

3.4) Top 5 most expensive cities to eat outside?

In [18]:
```
avg_cost = []
for city in js.keys():
    cost = []
    if 'restaurants' in js[city].keys():
        for rest in js[city]['restaurants'].keys():
            try:
                cost.append(int(js[city]['restaurants'][rest]['cost']
            except:
                pass
    else:
        for region in js[city].keys():
            if 'restaurants' in (js[city][region].keys()):
                for rest in js[city][region]['restaurants'].keys():
                    try:
                        cost.append(int(js[city][region]['restaurants
                    except:
                        pass
    try:
        avg_cost.append([city,sum(cost)//len(cost)])
    except:
        pass
df_ = pd.DataFrame(avg_cost,columns = ['city','avg_cost'])
df_.sort_values(by='avg_cost',ascending = False).head(5)
```

Out[18]:

	city	avg_cost
217	Hinganghat	18962
495	South-goa	470
396	North-goa	468
184	Gangtok	466
363	Mussoorie	460

3.5) top 5 most expensive cities to eat Indian?

In [19]:
```
ind_cuisine = []
for city in js.keys():
    cost = []
    if 'restaurants' in js[city].keys():
        for rest in (js[city]['restaurants'].keys()):
            try:
                if 'Indian' in js[city]['restaurants'][rest]['cuisine
                    try:
                        cost.append(int(js[city]['restaurants'][rest]
                    except:
                        pass
            except:
                pass
        try:
            cost = sum(cost)//len(cost)
        except:
            pass


    else:
        for regions in js[city].keys():
            if 'restaurants' in js[city][regions].keys():
                for rest in js[city][regions]['restaurants'].keys():
                    try:
                        if 'Indian' in js[city][region]['restaurants'
                            try:
                                cost.append(int(js[city][region]['res
                            except:
                                pass
                    except:
                        pass
                try:
                    cost = sum(cost)//len(cost)
                except:
                    pass

    ind_cuisine.append([city,cost])

ind_cuisine = pd.DataFrame(ind_cuisine,columns = ['city','cost'])


cost = []
for i in ind_cuisine['cost']:
    if (str(i)== '[]'):
        cost.append(0)
    else:
        cost.append(int(i))


ind_cuisine['cost'] = cost
ind_cuisine.sort_values(by='cost',ascending= False).head()
```

Out[19]:

	city	cost
237	Hinganghat	50241
202	Gangtok	460
397	Mussoorie	450

	city	cost
555	South-goa	449

Q1. Top 10 most common restaurant name in India

In [20]:
```
dct = {}
for city in js.keys():
    if 'restaurants' in (js[city].keys()):
        for rest in (js[city]['restaurants'].keys()):
            if (js[city]['restaurants'][rest]['name']) not in dct:
                dct[js[city]['restaurants'][rest]['name']] = 1
            elif js[city]['restaurants'][rest]['name'] in dct:
                dct[js[city]['restaurants'][rest]['name']] += 1

    else:
        for subcity in js[city].keys():
            if 'restaurants' in  js[city][subcity].keys():
                for rest in (js[city][subcity]['restaurants'].keys())
                    if (js[city][subcity]['restaurants'][rest]['name'
                        dct[js[city][subcity]['restaurants'][rest]['r
                    elif js[city][subcity]['restaurants'][rest]['name
                        dct[js[city][subcity]['restaurants'][rest]['r


top_rest = pd.DataFrame()
top_rest['Restaurants_name'] = dct.keys()
top_rest['most_count'] = dct.values()
top_rest.sort_values(by='most_count',ascending=False).head(10)
```

Out[20]:

	Restaurants_name	most_count
30	Domino's Pizza	481
110	Pizza Hut	364
104	KFC	352
88	Kwality Walls Frozen Dessert and Ice Cream Shop	333
197	Baskin Robbins	321
137	Subway	271
853	The Good Bowl	237
812	Faasos - Wraps & Rolls	236
850	The Biryani Life	235
833	Oven Story Pizza	232

Q2. Top 10 most common restaurant name in Bangalore

In [21]:
```
res = {}
for subcity in js['Bangalore'].keys():
    for rest in (js['Bangalore'][subcity]['restaurants'].keys()):
        if (js['Bangalore'][subcity]['restaurants'][rest]['name']) no
            res[js['Bangalore'][subcity]['restaurants'][rest]['name']
        else:
            res[js['Bangalore'][subcity]['restaurants'][rest]['name']

com_rest = pd.DataFrame()
com_rest['Restaurants_name'] = dct.keys()
com_rest['most_count'] = dct.values()
com_rest.sort_values(by='most_count',ascending=False).head(10)
```

Out[21]:

	Restaurants_name	most_count
30	Domino's Pizza	481
110	Pizza Hut	364
104	KFC	352
88	Kwality Walls Frozen Dessert and Ice Cream Shop	333
197	Baskin Robbins	321
137	Subway	271
853	The Good Bowl	237
812	Faasos - Wraps & Rolls	236
850	The Biryani Life	235
833	Oven Story Pizza	232

Q3. Total number of Dominos Branches

In [22]:
```
print('Total Number of Dominos Branches :')
top_rest[top_rest.Restaurants_name == "Domino's Pizza"].most_count
```

```
Total Number of Dominos Branches :
```

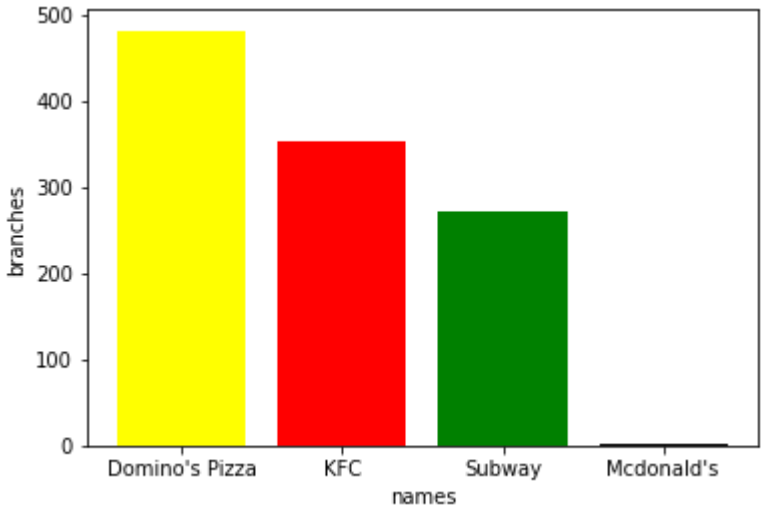
Out[22]:
```
30    481
Name: most_count, dtype: int64
```

Visualisation

Q4. Compare the number of Branches KFC, MacD , Dominos and Subway (Visualisation)

In [23]:
```
import matplotlib.pyplot as plt
names    = []
branches = []
for i in top_rest.values:
    if (i[0] == "KFC") or (i[0] == "Domino's Pizza") or (i[0] == "Sub
        names.append(i[0])
        branches.append(i[1])


plt.bar(names,branches,color = ['yellow','red','green','black'])
plt.xlabel('names')
plt.ylabel('branches')
plt.show()
```



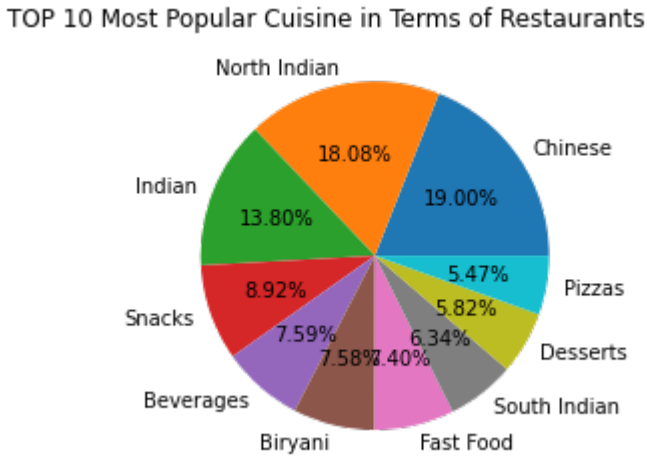
Q5. Top Most Popular Cuisines in terms of number of restaurants serving

In [24]:
```
dct = {}
for city in js.keys():
    if 'restaurants' in js[city].keys():
        for rest in (js[city]['restaurants'].keys()):
            if 'cuisine' in js[city]['restaurants'][rest].keys():
                for cuisines in (js[city]['restaurants'][rest]['cuisi
                    if cuisines in dct:
                        dct[cuisines] += 1
                    else:
                        dct[cuisines] = 1
            else:
                 for cuisines in js[city]['restaurants'][rest]['type'
                    if cuisines in  dct:
                        dct[cuisines] += 1
                    else:
                        dct[cuisines] = 1
    else:
        for subcity in js[city].keys():
            if 'restaurants' in js[city][subcity].keys():
                for rest in (js[city][subcity]['restaurants'].keys())
                    if 'cuisine' in js[city][subcity]['restaurants']|
                        for cuisines in (js[city][subcity]['restaurar
                            if cuisines in  dct:
                                dct[cuisines] += 1
                            else:
                                dct[cuisines] = 1
                    else:
                        for cuisines in js[city][subcity]['restaurant
                            if cuisines in  dct:
                                dct[cuisines] += 1
                            else:
                                dct[cuisines] = 1

cuisines = pd.DataFrame({'cuisine':dct.keys(),'total':dct.values()})

# taking only top 10 cuisine
cuisines = cuisines.sort_values('total',ascending = False).head(10)
```

In [25]:
```
# visualization
plt.pie(cuisines['total'],labels=cuisines['cuisine'],autopct = '%1.2f
plt.title('TOP 10 Most Popular Cuisine in Terms of Restaurants servir
plt.show()
```



Q6. Ratio of veg and non-veg restaurants in India

In [26]:
```
veg_rest = 0
non_veg_rest = 0
for city in js.keys():
    if 'restaurants' in js[city].keys():
        for rest in js[city]['restaurants'].keys():
            veg = 0
            nonveg = 0
            if 'menu' in js[city]['restaurants'][rest].keys():
                for menu in (js[city]['restaurants'][rest]['menu']):
                    for food in (js[city]['restaurants'][rest]['menu'
                        if js[city]['restaurants'][rest]['menu'][menu
                            veg += 1                    # counting the
                        else:
                            nonveg += 1
                if nonveg == 0:                         # if no noveg c
                    veg_rest += 1
                else:
                    non_veg_rest += 1
            else:
                pass
    else:
        for subcity in js[city].keys():
            if 'restaurants' in js[city].keys():
                for rest in js[city][subcity]['restaurants'].keys():
                    veg = 0
                    nonveg = 0
                    for menu in (js[city][subcity]['restaurants'][res
                        for food in js[city][subcity]['restaurants']|
                            if js[city]['restaurants'][rest]['menu']|
                                veg += 1
                            else:
                                nonveg += 1
                    if nonveg == 0:
                        veg_rest += 1
                    else:
                        non_veg_rest += 1

plt.pie([veg_rest,non_veg_rest],labels =['veg_rest','non_veg_rest'],a
plt.title('Veg Restaurants VS Non Veg Restaurants')
plt.show()
```