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Plots and Explanations

Question 1 : The dataset is highly skewed toward the cities included in Delhi-NCR. So, we will summarise all the other cities in Rest of India while those in New Delhi, Ghaziabad, Noida, Gurgaon, Faridabad to Delhi-NCR. Doing this would make our analysis turn toward Delhi-NCR v Rest of India.

1. Plot the bar graph of number of restaurants present in Delhi NCR vs Rest of India.

2. Find the cuisines which are not present in restaurant of Delhi NCR but present in rest of India.Check using Zomato API whether this cuisines are actually not served in restaurants of Delhi-NCR or just it due to incomplete dataset.

3. Find the top 10 cuisines served by maximum number of restaurants in Delhi NCR and rest of India.

4. Write a short detailed analysis of how cuisine served is different from Delhi NCR to Rest of India. Plot the suitable graph to explain your inference.

Question 1.1 : Plot the bar graph of number of restaurants present in Delhi NCR vs Rest of India.
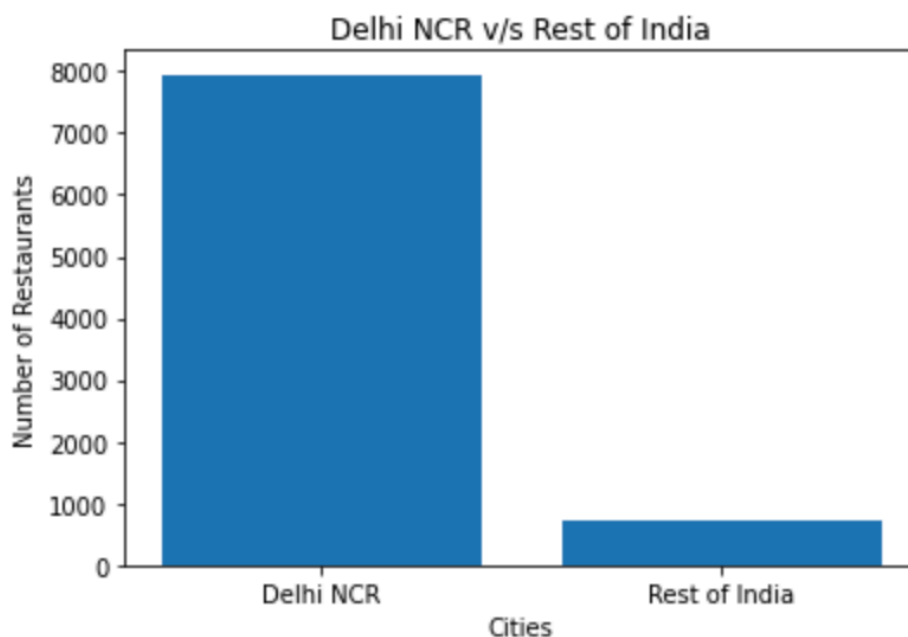

```
Delhi NCR      7947
Rest of India   705
```

Interpretation and Explanation :
Above is the bar graph representing the number of restaurants present in Delhi NCR and Rest of India, where Delhi NCR includes New Delhi, Ghaziabad, Noida, Gurgaon, Faridabad. While Rest of India is all the other cities combined. There is a huge difference between the number of restaurants in both the regions. Delhi NCR alone has 7947 restaurants while rest of the India has only 705 restaurants.

Question 1.2 : Find the cuisines which are not present in restaurant of Delhi NCR but present in rest of India.Check using Zomato API whether this cuisines are actually not served in restaurants of Delhi-NCR or just it due to incomplete dataset.

Interpretation and Explanation :
Through dataset we found that {'German', 'Cajun', 'Malwani', 'BBQ'} these cuisines are served in rest of India but not in Delhi NCR.
After checking through Zomato API, we found that BBQ is served in Delhi NCR. Hence dataset is incomplete.

Question 1.3 : Find the top 10 cuisines served by maximum number of restaurants in Delhi NCR and rest of India.

```
Top 10 Cuisines in NCR :
3597 North Indian
2448 Chinese
1866 Fast Food
933 Mughlai
697 Bakery
569 South Indian
547 Continental
542 Desserts
538 Street Food
535 Italian

Top 10 Cuisines in Rest of India :
349 North Indian
242 Chinese
177 Continental
147 Italian
136 Cafe
97 Fast Food
62 South Indian
59 Mughlai
55 Desserts
50 Mexican
```

Interpretation and Explanation : Above is the picture showing the top 10 cuisines served by the most number of restaurants in dncr and rest of India. In with the regions north indian and chinese takes the first 2 spots.

Question 1.4 : Write a short detailed analysis of how cuisine served is different from Delhi NCR to Rest of India. Plot the suitable graph to explain your inference.

Interpretation and Explanation :
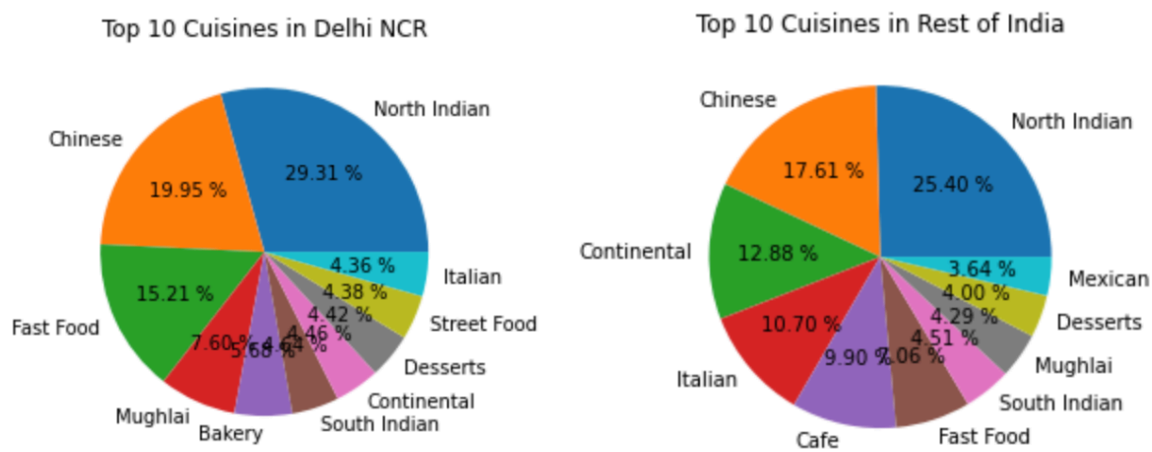
- North Indian and Chinese are the top most popular served cuisines in both DNCR and Rest of India
- Fast food and Mughlai are the next most popular cuisines served in dncr while in the rest of india, conitental and italian are the most popular served cuisines after north indian and chinese.
- Also Delhi ncr has more number of restaurants registered at zomato as compared to rest of india, this can be confirmed from the first plot

Question 2 : User Rating of a restaurant plays a crucial role in selecting a restaurant or ordering the food from the restaurant.

1. Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference.
   1. Number of Votes given Restaurant
    2. Restaurant serving more number of cuisines.
    3. Average Cost of Restaurant
    4. Restaurant serving some specific cuisines.

2. Find the weighted restaurant rating of each locality and find out the top 10 localities with more weighted restaurant rating?

1. Weighted Restaurant Rating=Σ (number of votes * rating) / Σ (number of votes) .

Question 2.1.1 : Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference : *Number of Votes given Restaurant*
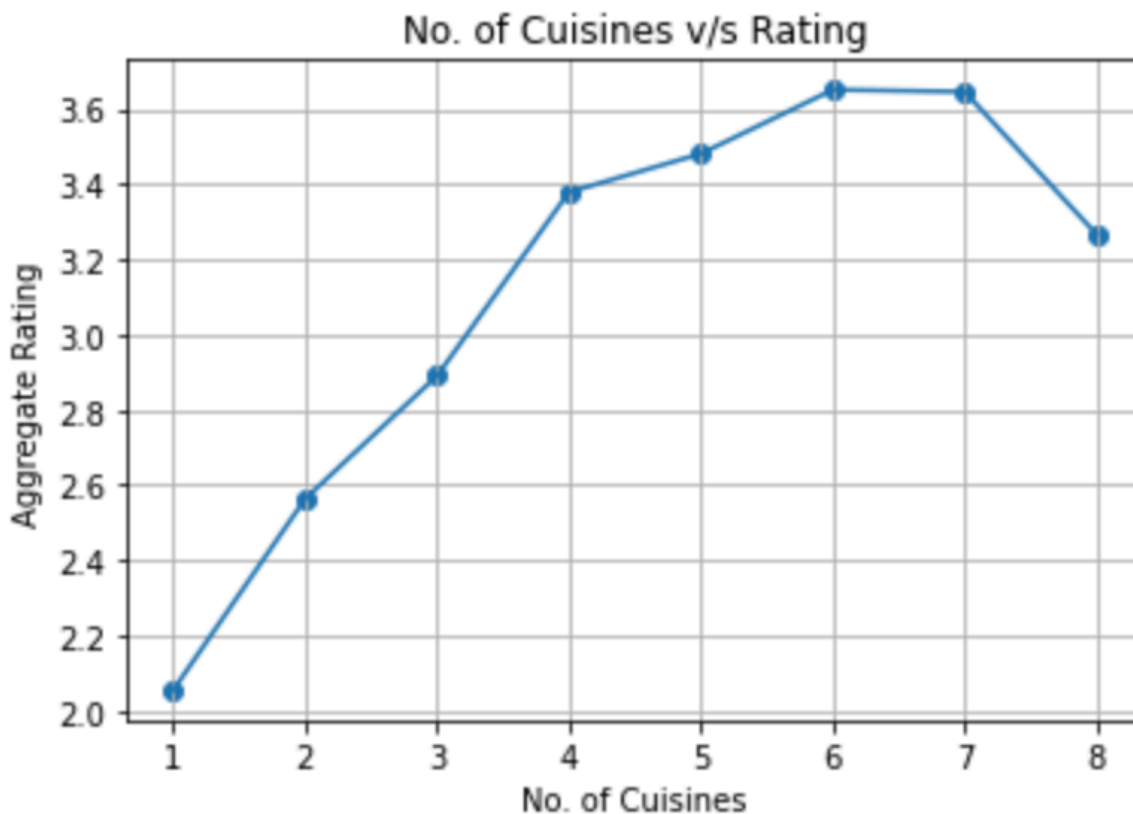
Interpretation and Explanation :
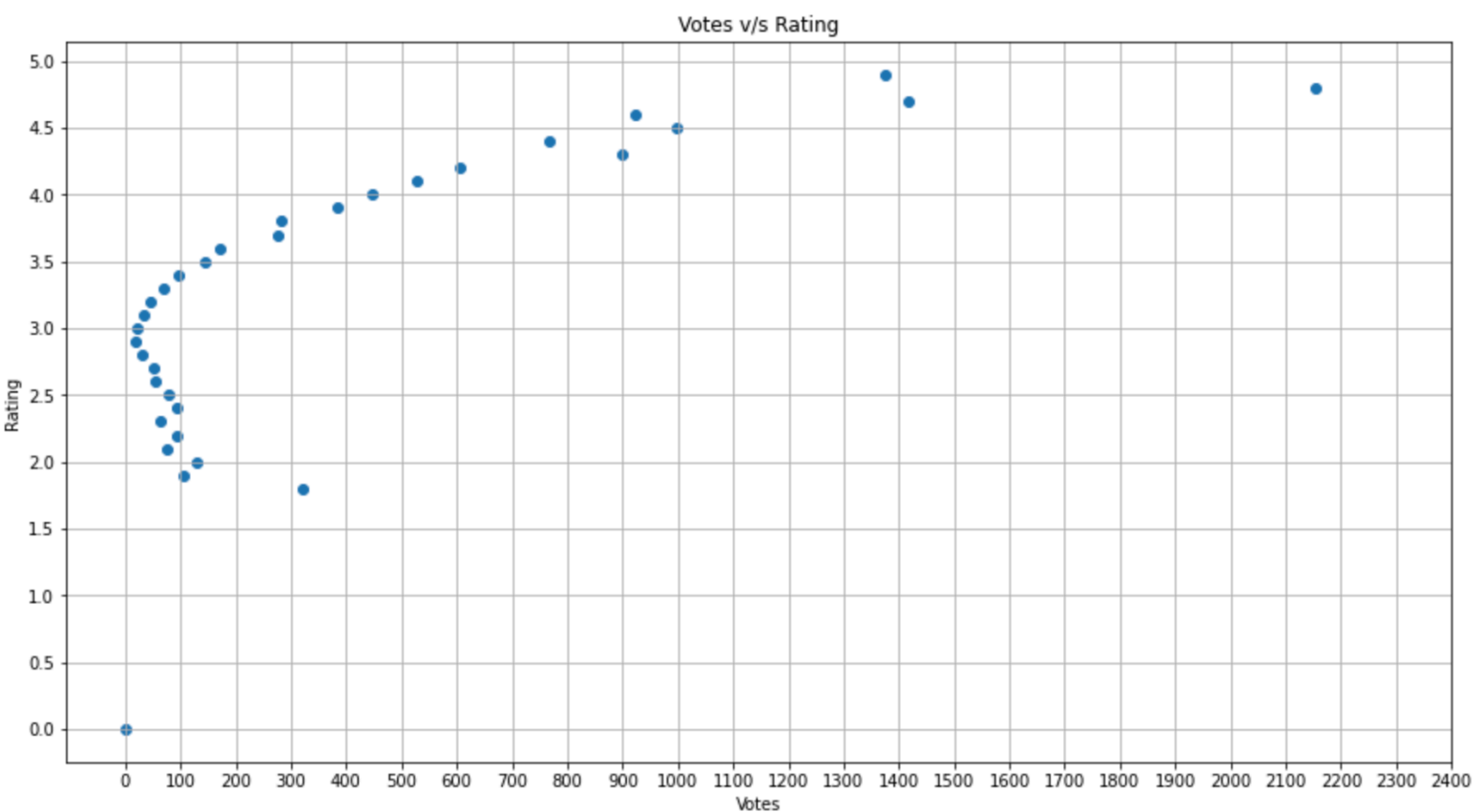
Votes v/s Rating

- Above the rating of Three , rating is increasing linearly with the number of votes, hence we can say that rating is somewhat directly proportional to the votes.
- Above 900 votes, rating is consistently more than 4.5 .
- Between 0 to 200 votes, there is the maximum range of ratings which is between 2 to 3.5 .
- Highest rating is at around 1380 votes.

Hence we can conclude that , if the restaurant has more votes, than it is most likely for that restaurant to have a better rating
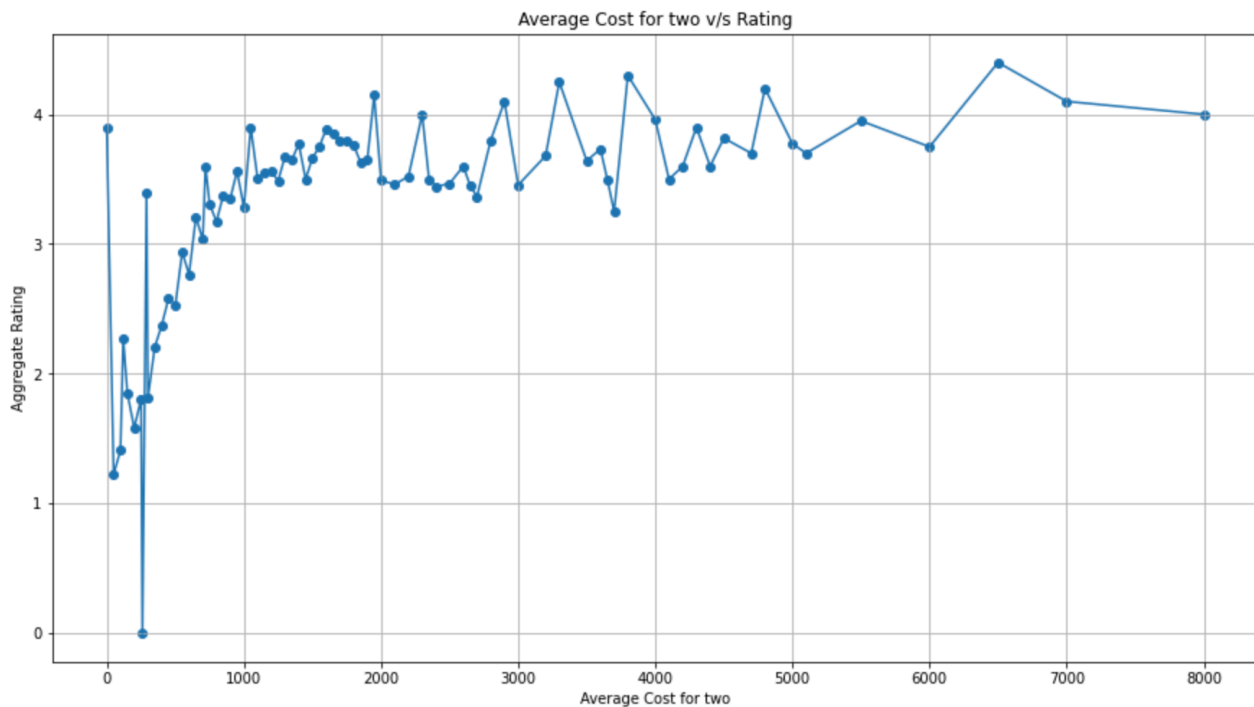
Question 2.1.2 : Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference : *Restaurant serving more number of cuisines*.

No. of Cuisines v/s Rating

Interpretation and Explanation :

- Rating is increasing linearly with increase in number of cuisines served by the restaurants till 6.
- For number of cuisines served by restaurants equal to 6 and 7, restaurants seems to have similar ratings.
- Rating is decreasing for restaurants serving 8 number of cuisines.

Question 2.1.3 : Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference : *Average Cost of Restaurant*


Average Cost for two v/s Rating

Interpretation and Explanation :

• Rating increases drastically when Average Cost for two increases from 0 to 1000 rupees.
• For Average cost greater than 6000 rupees, rating is consistently more than 4.
• Rating is 4 for maximum cost which is 8000 rupees.
• For Average cost between 1000 to 6000 rupees, maximum number of ratings is between 3 and 4.
• Highest rating is at cost 6500 rupees

Question 2.1.4 : Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference : *Restaurant serving some specific cuisines*

```
Top 10 Rated Cuisines
Persian 4.6
German 4.35
Modern Indian 4.28
Charcoal Grill 4.18
Parsi 4.1
Iranian 4.07
Steak 4.05
Burmese 4.05
Spanish 4.03
Sri Lankan 4.0
```

```
Top 10 Lowest Rated Cuisines
Cuisine Varies 0.0
Armenian 1.3
Afghani 1.42
Awadhi 1.57
Moroccan 1.62
Nepalese 1.66
Drinks Only 1.75
North Eastern 1.8
Pakistani 1.9
Mithai 2.07
```
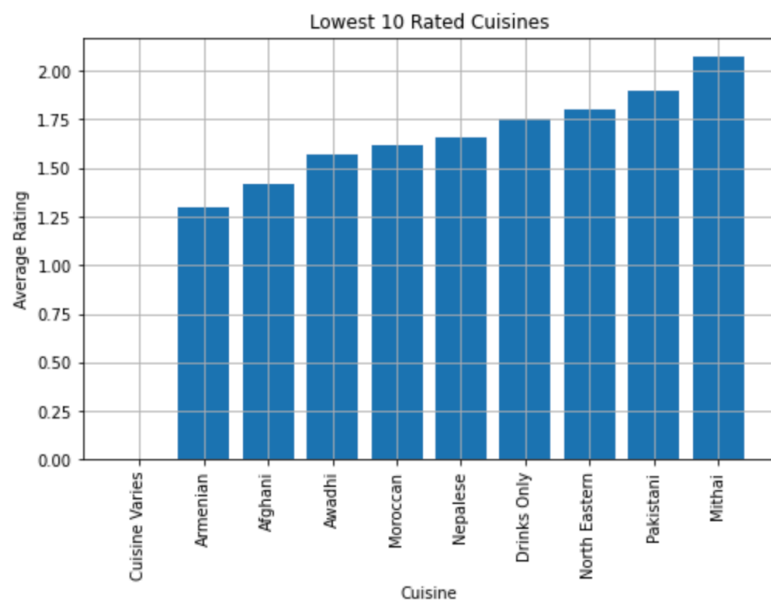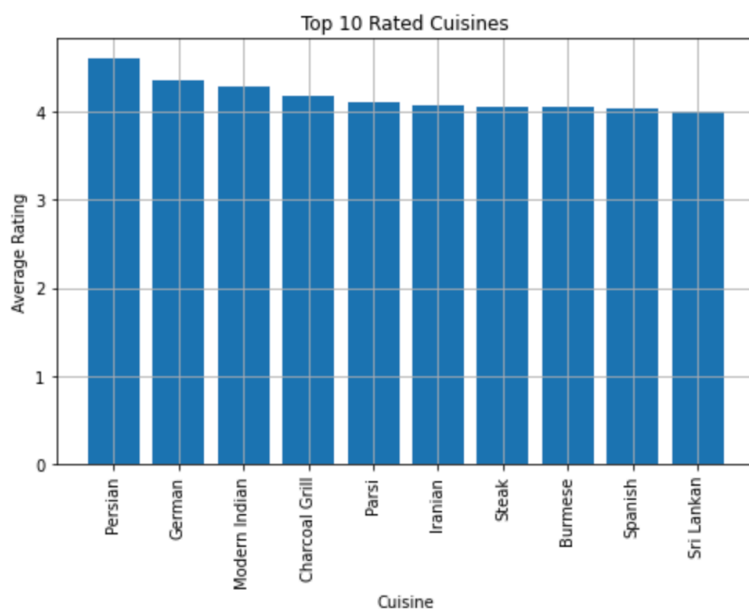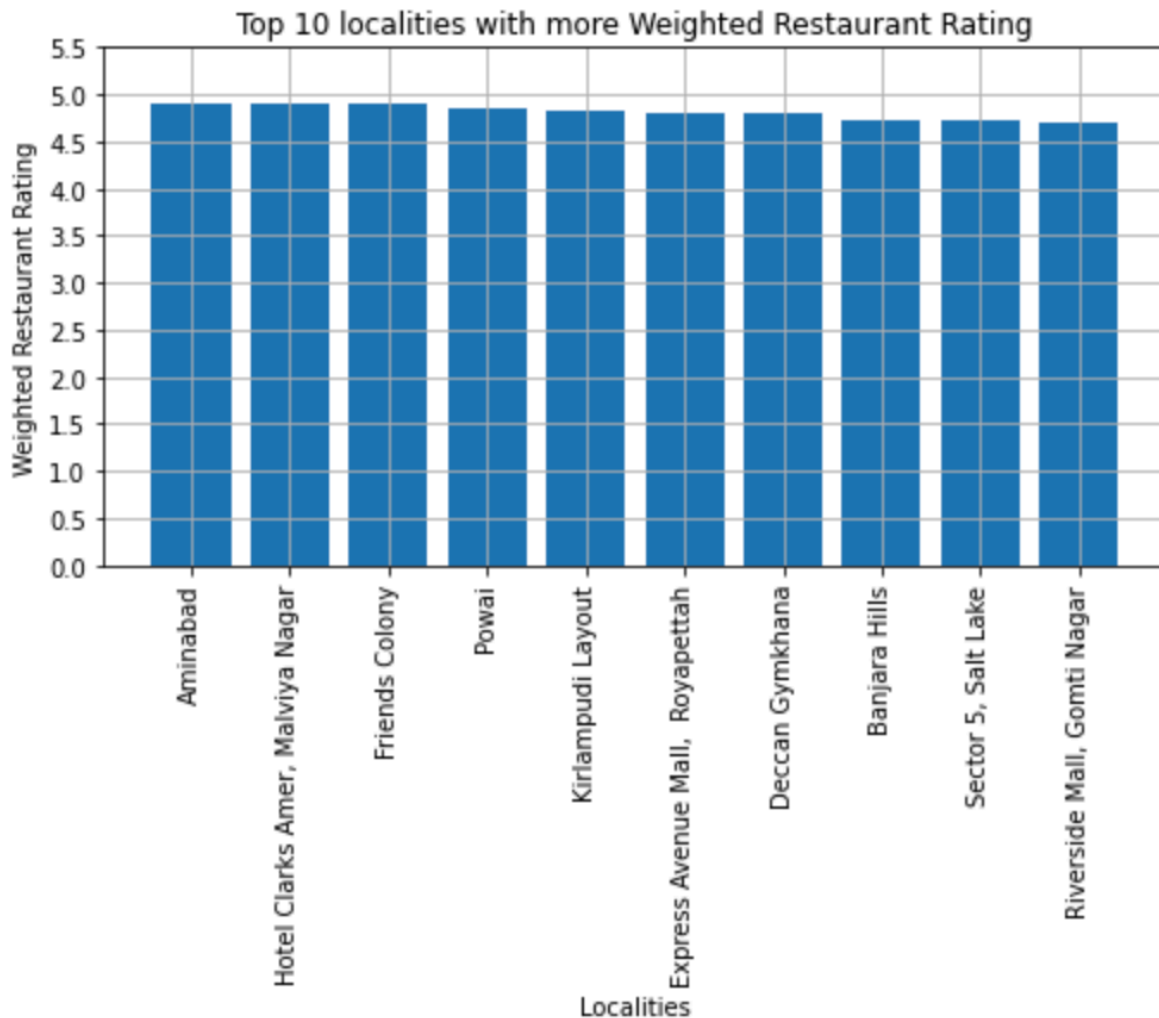

Interpretation and Explanation :

Left bar graph shows the top 10 cuisines served by the restaurants, serving which has resulted in the better rating of the restaurant. These cuisines include Persian, German and Modern Indian at the top 3 spots in the same order. This means that restaurants serving these cuisines has affected the rating in the positive manner.

On the other hand, other bar graph shows the cuisines served by restaurants, serving which has affected the restaurant's rating negatively, that is serving these cuisines has resulted in bad rating for the restaurants. These cuisines include Armenian, afghani, awadhi etc.

Question 2.2 : Find the weighted restaurant rating of each locality and find out the top 10 localities with more weighted restaurant rating Weighted Restaurant Rating=Σ (number of votes * rating) / Σ (number of votes).

Interpretation and Explanation :

This bar graph shows the top 10 localities in India having the most weighted restaurant rating, where Weighted Restaurant Rating=Σ (number of votes * rating) / Σ (number of votes). The weighted restaurant rating of top ten localities is almost the same. The height of the bars are gradually decreasing. However, Aminabad and Hotel Clarks Amer, Malviya Nagar are the localities where the weighted restaurant rating is the maximum as per the dataset.

List containing the top 10 localities having the most weighted restaurant Rating is as following :

```
Top 10 localities with more Weighted Restaurant Rating
4.9 Aminabad
4.9 Hotel Clarks Amer, Malviya Nagar
4.89 Friends Colony
4.84 Powai
4.82 Kirlampudi Layout
4.8 Express Avenue Mall,  Royapettah
4.8 Deccan Gymkhana
4.72 Banjara Hills
4.71 Sector 5, Salt Lake
4.7 Riverside Mall, Gomti Nagar
```
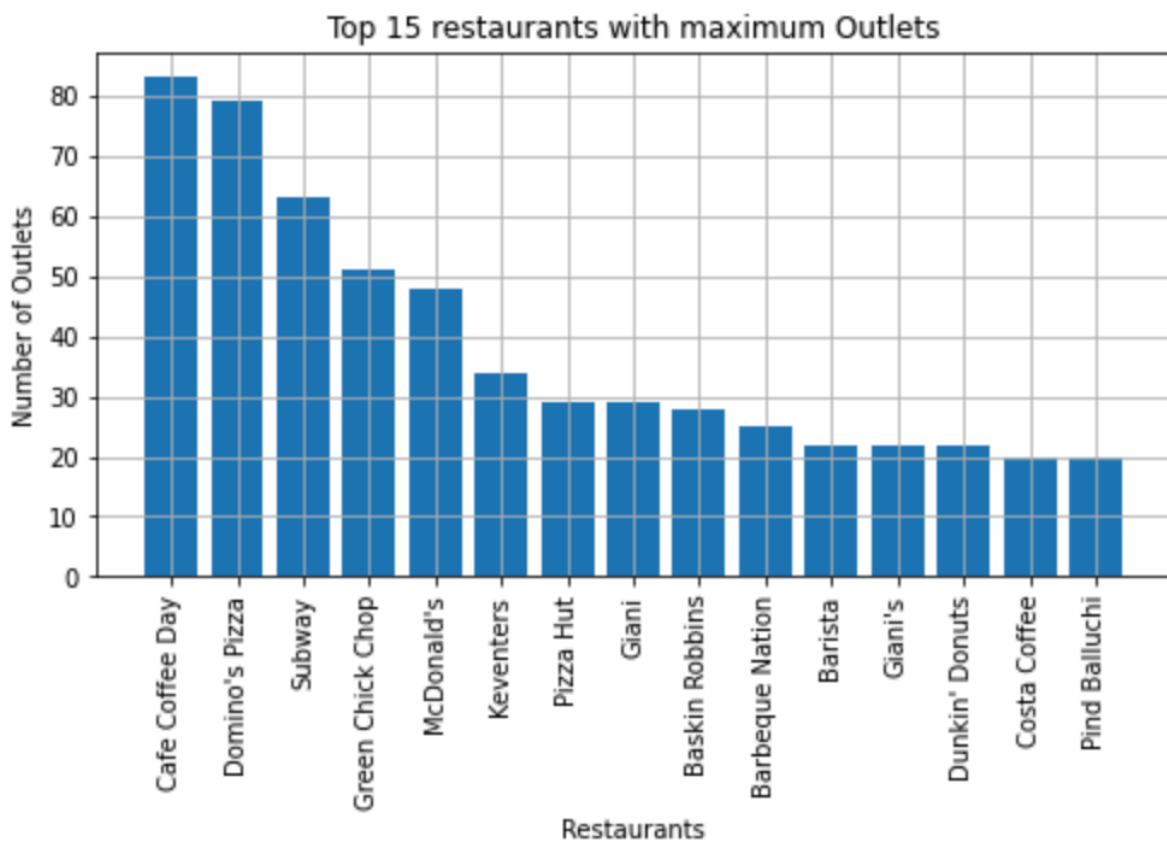
Question 3. Visualization :

1. Plot the bar graph top 15 restaurants have a maximum number of outlets.
2. Plot the histogram of aggregate rating of restaurant(drop the unrated restaurant).
3. Plot the bar graph top 10 restaurants in the data with the highest number of votes.
4. Plot the pie graph of top 10 cuisines present in restaurants in the USA.
5. Plot the bubble graph of a number of Restaurants present in the city of India and keeping the weighted restaurant rating of the city in a bubble.

Question 3.1 : Plot the bar graph top 15 restaurants have a maximum number of outlets.

Interpretation and Explanation : Here bar graph shows the top 15 restaurants having the maximum number of outlets. From the graph we see that there is a gradual decrease in number of outlets. Cafe Coffee Day and Domino's Pizza is way ahead of others in terms of number of outlets while Costa Coffee and Pind Balluchi has the lowest number of outlets among the top 15 restaurants.

Top 15 restaurants with maximum Outlets

List showing the top 15 restaurants with their exact number of outlets is following :

```
Restaurants having maximum number of Outlets :
83 Cafe Coffee Day
79 Domino's Pizza
63 Subway
51 Green Chick Chop
48 McDonald's
34 Keventers
29 Pizza Hut
29 Giani
28 Baskin Robbins
25 Barbeque Nation
22 Barista
22 Giani's
22 Dunkin' Donuts
20 Costa Coffee
20 Pind Balluchi
```
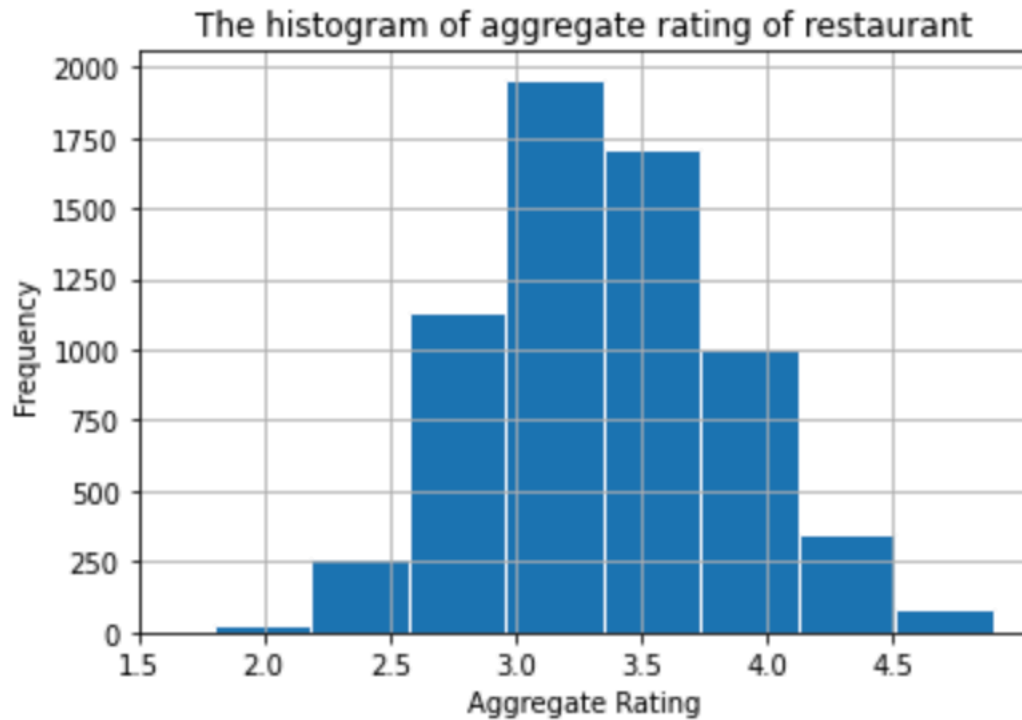
Question 3.2 : Plot the histogram of aggregate rating of restaurant(drop the unrated restaurant).

Interpretation and Explanation : Above is the histogram of aggregate rating of restaurants. This histogram contains 8 bins of ratings ranging from 1.5 to 5. From the graph we infer that most of the restaurants are rated between 2.9 to 3.8. The frequency of restaurants having rating greater than 4.5 is very low, same is the case with the restaurants having lower ratings.

Question 3.3 : Plot the bar graph top 10 restaurants in the data with the highest number of votes.

Top 10 Restaurants with the highest number of votes
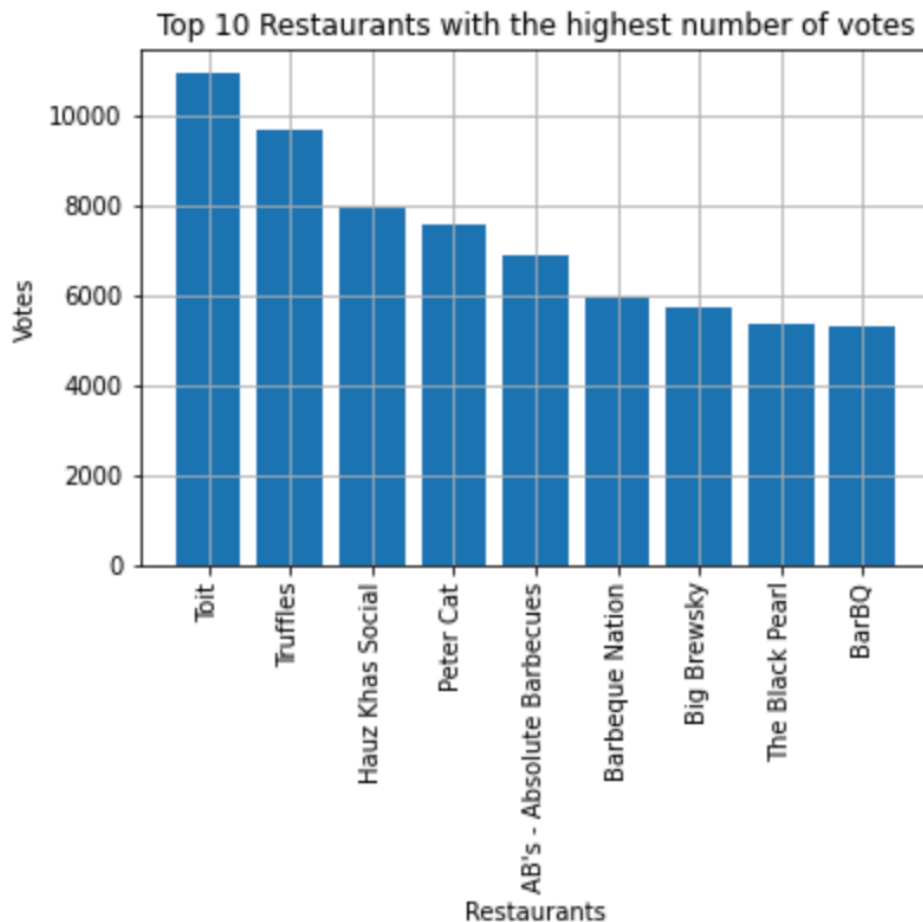
Interpretation and Explanation : Above bar graph shows the restaurants and number of votes received by these restaurants. From the bar graph we can infer that Toit has received the most number of Votes, while The Black Pearl and BarBQ has received the lowest number of votes out of these top 10 restaurants with most number of votes.

List of top 10 restaurants with exact number of votes is as follows:

```
Restaurants with highest number of Votes :
10934 Toit
9667 Truffles
7931 Hauz Khas Social
7574 Peter Cat
6907 AB's - Absolute Barbecues
5966 Barbeque Nation
5705 Big Brewsky
5434 AB's - Absolute Barbecues
5385 The Black Pearl
5288 BarBQ
```

Question 3.4 : Plot the pie graph of top 10 cuisines present in restaurants in the USA.
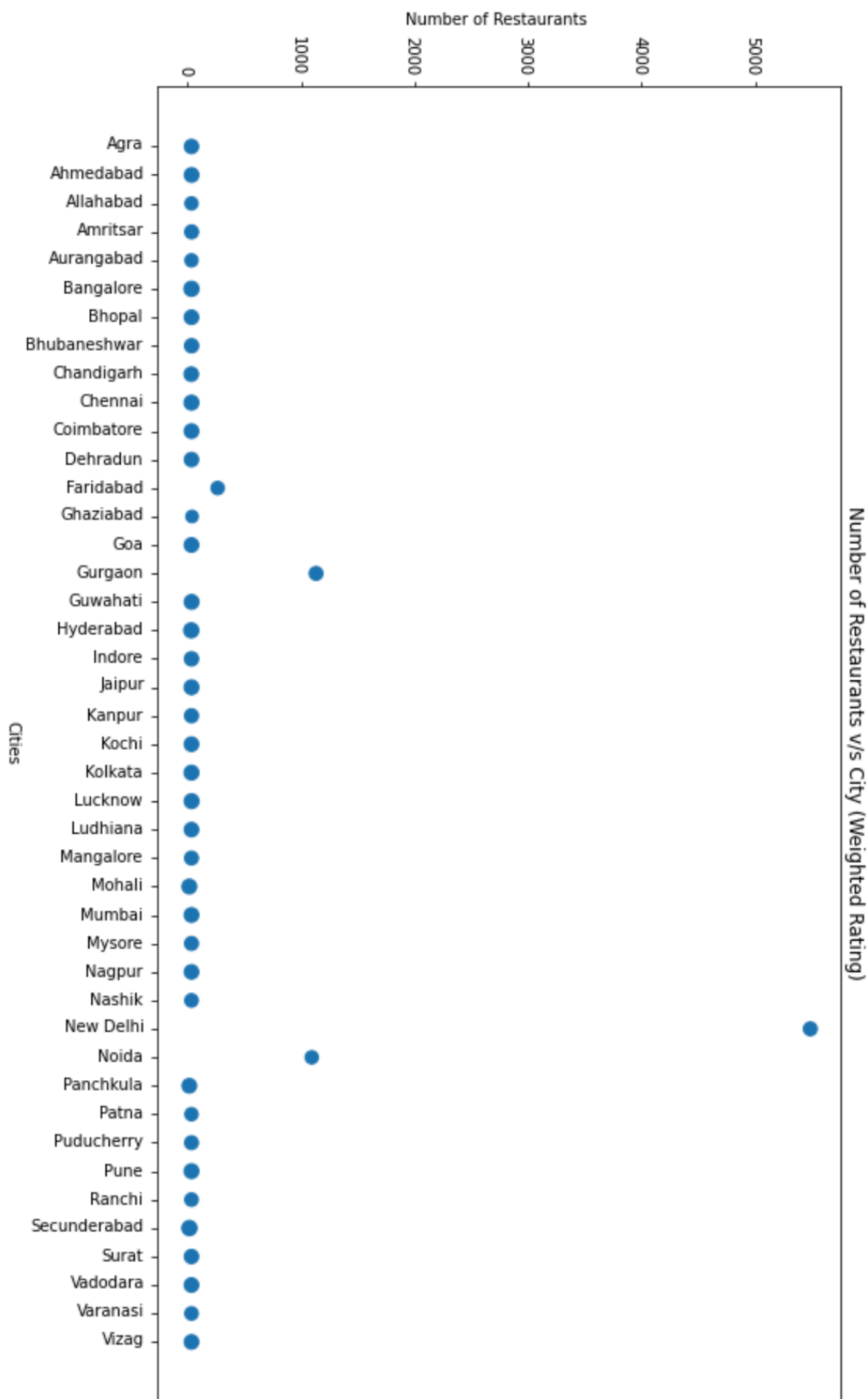

Interpretation and Explanation : Above is the Pie chart of top 10 cuisines in USA. We can infer from the pie chart above that American cuisines and seafood are the most popular cuisines in USA with percentage of 22.18 and 11.68 respectively. Sushi and mexican has the least percentages out if these top 10 cuisines.

The list of top 10 cuisines and exact number of restaurants serving these top 10 Cuisines as per the provided dataset are as follows :

```
Top 10 Cuisines in USA :
112 American
59 Seafood
49 Burger
49 Sandwich
49 Pizza
42 Steak
38 Italian
37 Breakfast
36 Mexican
34 Sushi
```

Question 3.4 : Plot the bubble graph of a number of Restaurants present in the city of India and keeping the weighted restaurant rating of the city in a bubble.

Interpretation and Explanation : Above is the bubble graph of a number of Restaurants present in the city of India and keeping the weighted restaurant rating of the city in a bubble. From this bubble graph it is pretty clear that New Delhi is way ahead of all other cities in terms of restaurants present in a city followed by noida and Gurgaon which have almost the same number of restaurants. Rest all of the other cities have almost the same number of restaurants.