# API PROJECT: PART 2

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.

    a.   Plot the bar graph of number of restaurants present in Delhi NCR vs Rest of India.
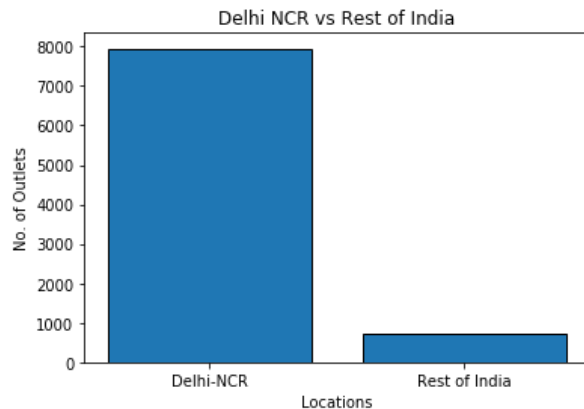
From, the graph on the left, we can see that there are almost 8000 outlets in the Delhi – NCR region, while almost 1000 in the Rest of India region. This proves that the dataset is highly skewed toward the cities included in Delhi – NCR.

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

When checking which cuisines are not present in the restaurant of Delhi – NCR but are in the rest of India, we find the following cuisines:
i.   German
ii.   Malwani
iii.   BBQ

    iv. Cajun
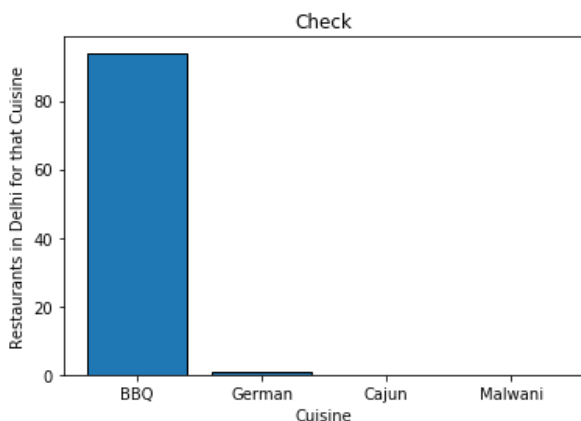
However, when we check the dataset of Delhi – NCR restaurants for BBQ on the Zomato API, we find that at least 94 restaurants serve that cuisine. Similarly, Delhi - NCR has 1 restaurant for German cuisine. This suggests that Delhi-NCR is just an incomplete dataset.

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

The top 10 cuisine for Delhi – NCR is: North Indian, Chinese, Fast Food, Mughlai, Bakery, South Indian, Continental, Desserts, Street Food, and Italian.

The top 10 cuisine for Rest of India is: North Indian, Chinese, Continental, Italian, Café, Fast Food, South Indian, Mughlai, Desserts, and Mexican.

d. 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.
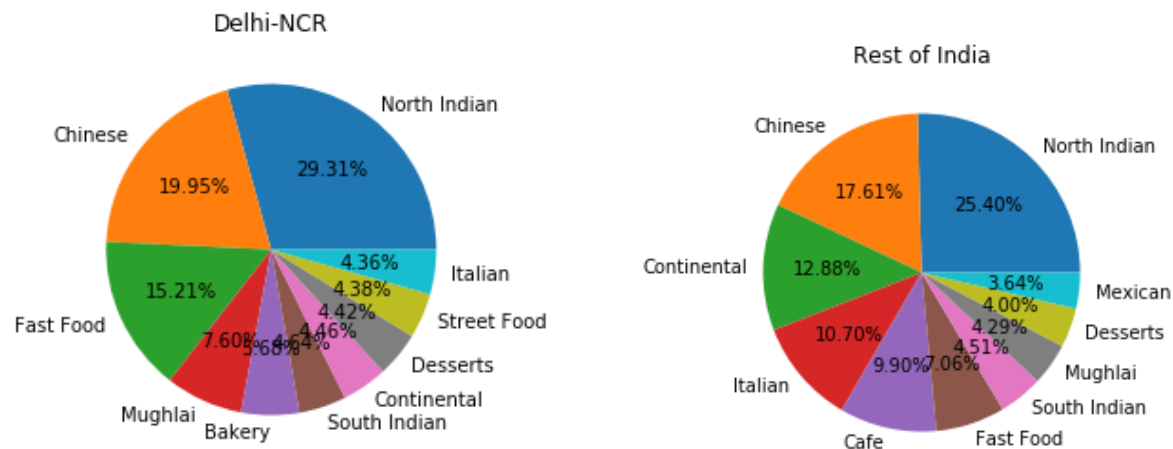
From the above pie charts, we can see that many of the top 10 cuisines served in Delhi – NCR and rest of India are pretty similar. However, the popularity of these dishes varies significantly. For instance, while Fast Food is the third most popular in Delhi-NCR at 15.21%, in the rest of India, the dish only constitutes 7.06% for the top 10 cuisines. Similarly, Continental dish is the third most popular cuisine in rest of India making up 12.88% for the most popular cuisines, while in Delhi – NCR, the dish is a mere 4.46%. A comparable phenomenon is seen for Italian and Mughlai. However, in spite of these discrepancies quite a few dishes have a similar popular. For instance, the top two dishes in both regions, North Indian is 29.31% and 25.40% and Chinese is 19.95% and 17.61 in Delhi – NCR and in rest of India. A similar trend is seen in Desserts and South Indian. Furthermore, a few numbers of cuisines are only present in one region's top ten. For example, Bakery and Street Food are unique to the Delhi- NCR top ten, and Mexican and Café are unique to rest of India top ten.

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

    a. Write a short detail analysis of how the rating is affected by restaurant due following features: Plot a suitable graph to explain your inference.

        i. Number of Votes given Restaurant

Correlation of Votes with Rating
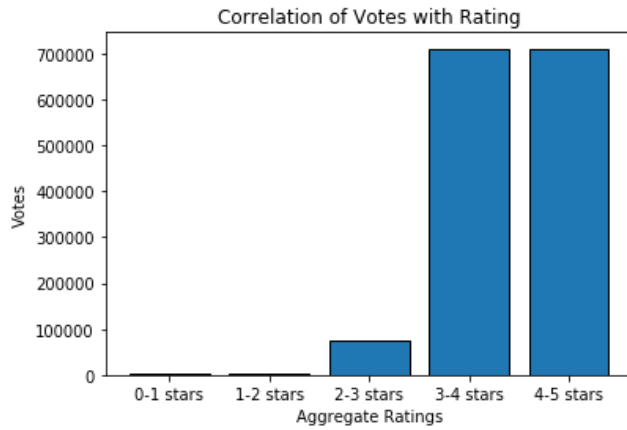
From the bar graph on our left, we can see that restaurants with a voting of about 70,000 votes got rating between 4 and 5 stars. However, restaurants with votes less than 10,000 were given ratings between 1 and 2 star. Restaurants with almost 10,000 votes were given a 3 stars rating. From this we can decipher that the higher the votes, the better the restaurant's aggregate rating.

ii. Restaurant serving more number of cuisines
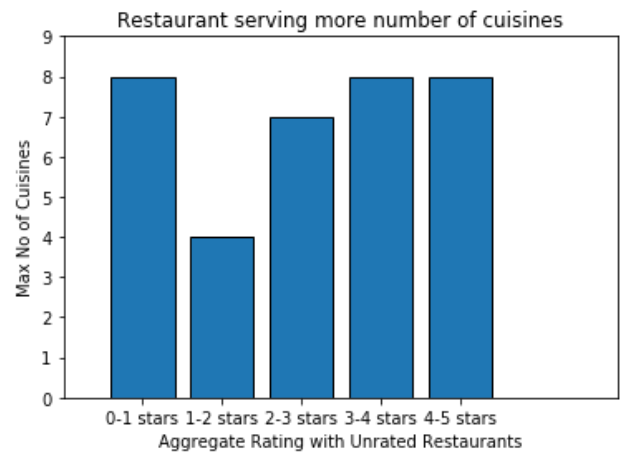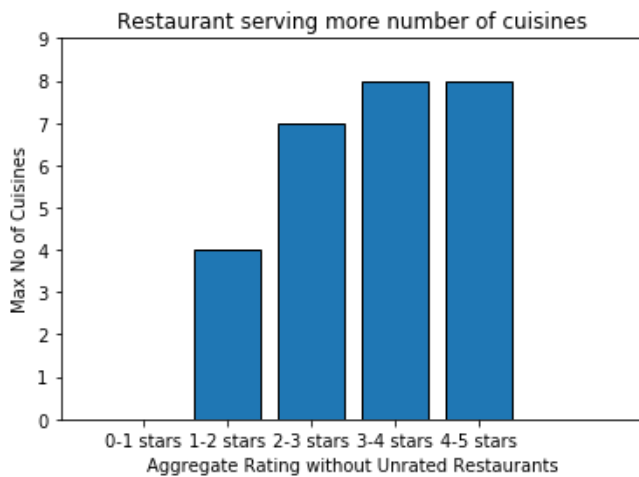
When we look at the bar graph on the right, we will assume that restaurants ratings are not correlated with the number of cuisines. This is because restaurants with 0-1 star rating and those with 4-5 stars rating have 8 types of cuisines. However, after dropping the unrated restaurants we will see a trend as shown in the bar graph on the left. With increase in ratings the maximum number of cuisines also increases. For restaurants with 1-2 stars, the max number of cuisine is 4. While for those with 3-4 or 4-5 stars, the max number of cuisines in restaurants is 8.

iii. Average Cost for Two

Average Cost of Restaurant
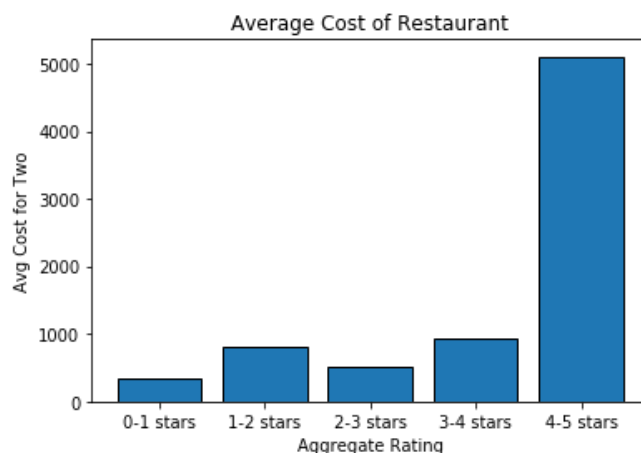
When we look at the bar graph, we can see that the main trend in the graph is that with the increase in restaurant rating, the average cost of

two also increases. Here, a restaurant between 0 to 1 stars has an average cost of less than 500, while that of a 4 to 5 stars restaurant is more than 5000. Hence, with increase in prices, the quality of food increases, thus the rating also improves.

   iv.   Restaurant serving some specific cuisines.
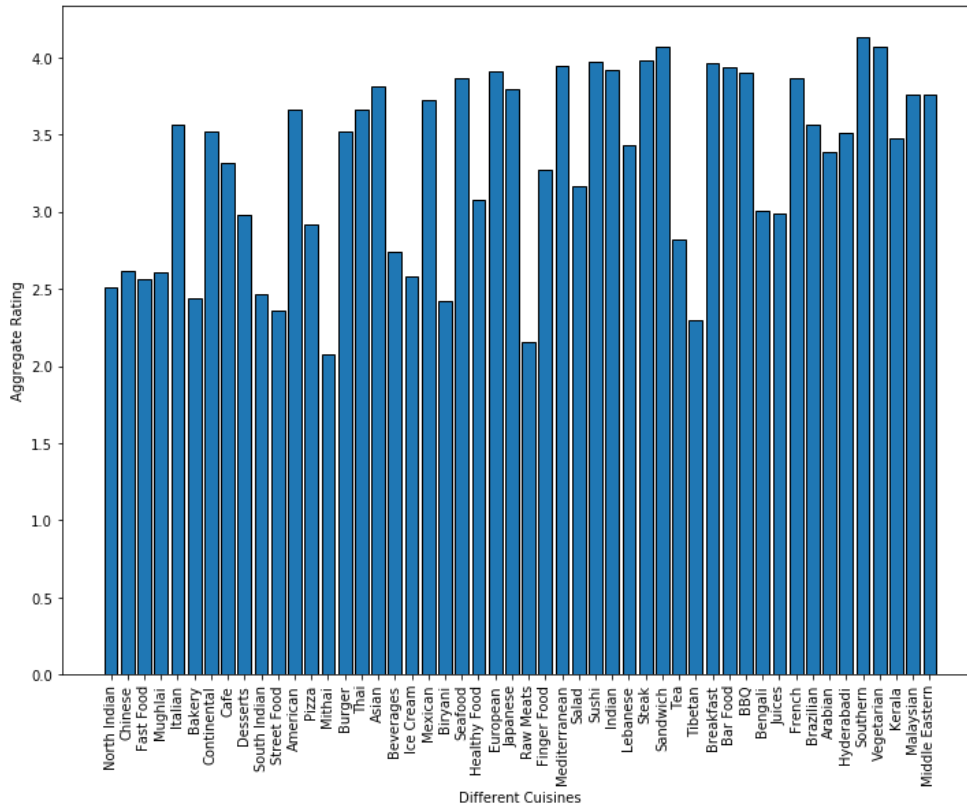
With a sample of 50 cuisines, we can see that different cuisines have different ratings. For instance, for Burger the aggregate rating is 2 stars while that of Southern is a bit more than 4 stars. This discrepancy can be caused by individuals having liking or disliking for a particular cuisine. This can alter their perception of the food, thus affecting the aggregate rating for that restaurant due to that cuisine.

b. Find the weighted restaurant rating of each locality and find out the top 10 localities with more weighted restaurant rating?
   Top 10 localities:
       i.   Fort Street
       ii.   Lexington Street, Soho
       iii.   Old Dutch Hospital, Fort
       iv.   Aminabad
       v.   West Park
       vi.   Marshalltown
       vii.   Gíçvea
       viii. City and Suburban
   ix.   The Milk District
       x.   Windermere

3. Visualization:
   a. Plot the bar graph top 15 restaurants have a maximum number of outlets.

Restaurants with Max Number of Outlets
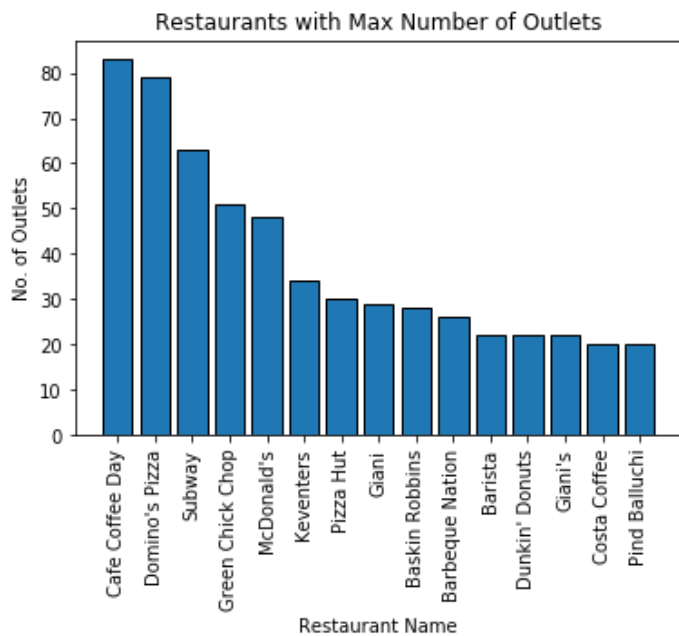
From the bar graph, the restaurant with the maximum number of outlets is Café Coffee Day with more than 80 outlets. This is then followed by Domino's Pizza, Subway, Green Chick Chop, McD, Keventers, Pizza Hut, Giani, Baskins Robbins, Barbeque Nations, Barista, Dunkin Donuts, Giani's, Costa Coffee and Pind Balluchi.

b. Plot the histogram of aggregate rating of restaurant.
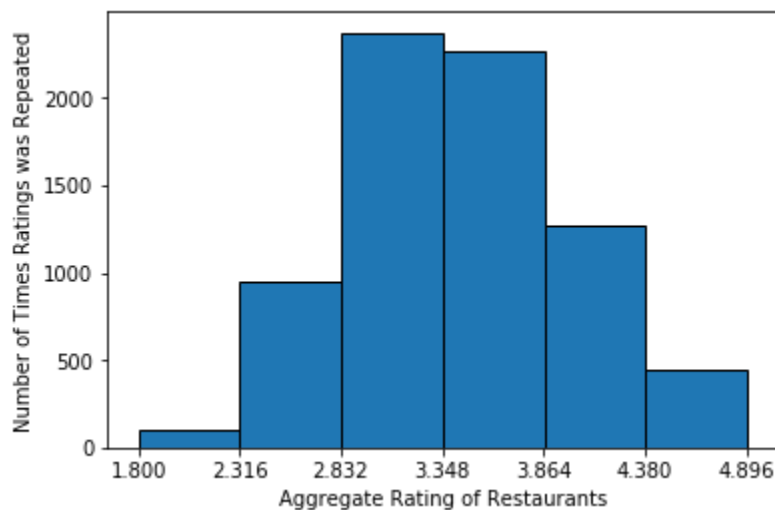
The above graph gives us the aggregate rating of restaurants sorting them in the range of 1.8 – 2.3, 2.3 – 2.8, 2.8 – 3.3, 3.3 – 3.8, 3.8 – 4.3, 4.3 – 4.8. The maximum number of restaurant ratings lies between 2.8 – 3.3 as we can see from the histogram above. While minimum is in 1.8 – 2.3.

c. Plot the bar graph of the restaurants with the top 10 number of votes.
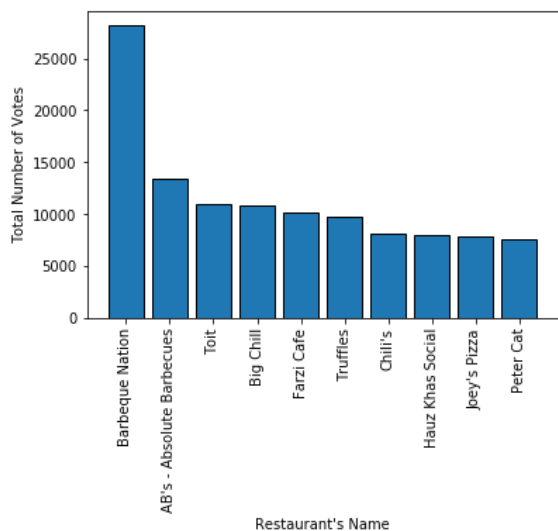
When the votes for each restaurant are added, we get that Barbeque is the most voted restaurant with over 25000 votes. This list is then followed by AB's, Tolt, Big Chill, Farzi Café, Truffles, Chili's, Haz Khas Social, Joey's Pizza, Peter Café.

THE TOP 10 RESTAURANTS WITH MAX VOTES:

i. Barbeque Nation 28142
ii. AB's - Absolute Barbecues 13400
iii. Toit 10934
iv. Big Chill 10853
v. Farzi Cafe 10098
vi. Truffles 9682
vii. Chili's 8156
viii. Hauz Khas Social 7931
ix. Joey's Pizza 7807
x. Peter Cat 7574

d. Plot the pie graph of top 10 cuisines present in restaurants in the USA.

Top 10 Cuisines Present in USA
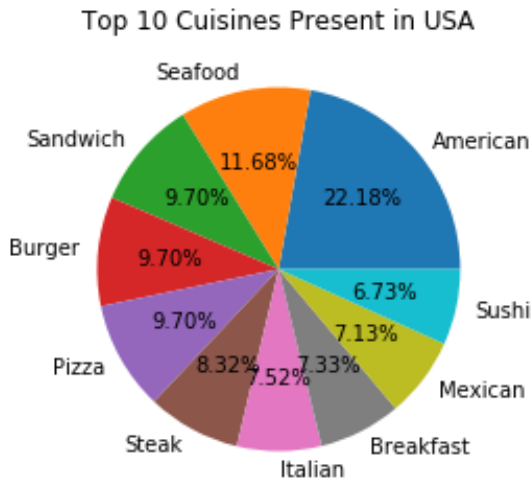
Top cuisines in USA with number of restaurants that cater to them:

i. American :112
ii. Seafood: 59
iii. Sandwich: 49
iv. Burger :49
v. Pizza: 49
vi. Steak: 42
vii. Italian: 38
viii. Breakfast: 37
ix. Mexican: 36
x. Sushi: 34

e. 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.

Name : Aggregate Ratings: Weighted Ratings

- Jahanpanah 3.90 3.90
- Rangrezz Restaurant 3.50 3.50
- Time2Eat - Mama Chicken 3.60 3.60
- Chokho Jeeman Marwari Jain Bhojanalya 4.00 4.00
- Pinch Of Spice 4.20 4.20
- MoMo Cafe 4.00 4.00
- Peshawri - ITC Mughal 4.30 4.30
- Taj Bano - ITC Mughal 4.00 4.00
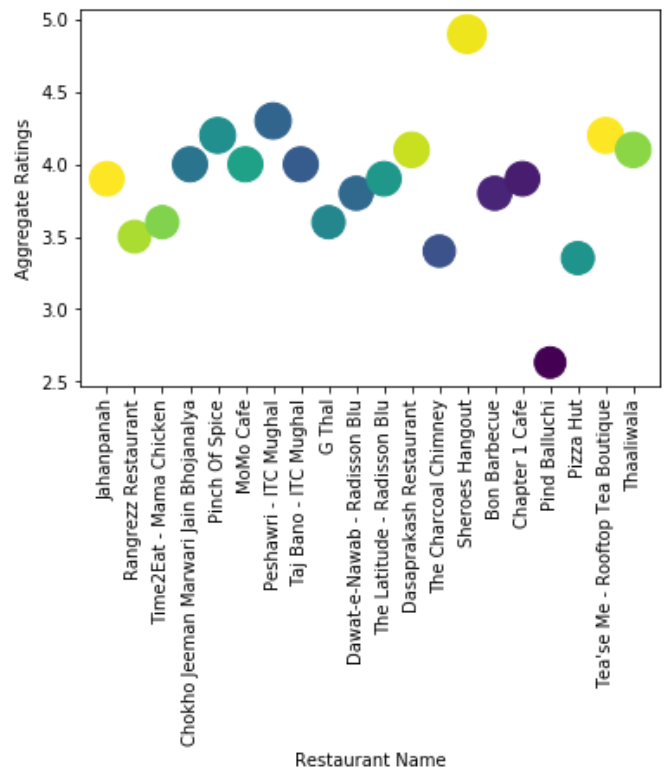
- G Thal 3.60 3.60
- Dawat-e-Nawab - Radisson Blu 3.80 3.80
- The Latitude - Radisson Blu 3.90 3.90
- Dasaprakash Restaurant 4.10 4.10
- The Charcoal Chimney 3.40 3.40
- Sheroes Hangout 4.90 4.90
- Bon Barbecue 3.80 3.80
- Chapter 1 Cafe 3.90 3.90
- Pind Balluchi 2.63 3.23
- Pizza Hut 3.35 3.58
- Tea'se Me - Rooftop Tea Boutique 4.20 4.20
- Thaaliwala 4.10 4.10