# Food Delivery Insight Report

For the analysis, I have used Jupyter Notebook!

Link - Jupyer Notebook

Firstly, let's have a look at our data!

| | Restaurant | Location | Cuisines | Average_Cost | Minimum_Order | Rating | Votes | Reviews | Delivery_Time |
|---|---|---|---|---|---|---|---|---|---|
| 0 | ID_6321 | FTI College, Law College Road, Pune | Fast Food, Rolls, Burger, Salad, Wraps | ₹200 | ₹50 | 3.5 | 12 | 4 | 30 minutes |
| 1 | ID_2882 | Sector 3, Marathalli | Ice Cream, Desserts | ₹100 | ₹50 | 3.5 | 11 | 4 | 30 minutes |
| 2 | ID_1595 | Mumbai Central | Italian, Street Food, Fast Food | ₹150 | ₹50 | 3.6 | 99 | 30 | 65 minutes |
| 3 | ID_5929 | Sector 1, Noida | Mughlai, North Indian, Chinese | ₹250 | ₹99 | 3.7 | 176 | 95 | 30 minutes |
| 4 | ID_6123 | Rmz Centennial, I Gate, Whitefield | Cafe, Beverages | ₹200 | ₹99 | 3.2 | 521 | 235 | 65 minutes |
| 5 | ID_5221 | Rmz Centennial, I Gate, Whitefield | South Indian, North Indian, Chinese | ₹150 | ₹50 | 3.8 | 46 | 18 | 30 minutes |
| 6 | ID_3777 | Mumbai Central | Beverages, Fast Food | ₹150 | ₹50 | 3.7 | 108 | 31 | 30 minutes |
| 7 | ID_745 | Delhi University-GTB Nagar | Chinese, Thai, Asian | ₹650 | ₹50 | 4.0 | 1731 | 1235 | 45 minutes |
| 8 | ID_2970 | Delhi University-GTB Nagar | Mithai, Street Food | ₹100 | ₹50 | 3.9 | 110 | 26 | 30 minutes |
| 9 | ID_3474 | Sector 1, Noida | Fast Food, North Indian, Rolls, Chinese, Momos... | ₹200 | ₹50 | 3.9 | 562 | 294 | 65 minutes |

Cool, we have some interesting features to work with!

We have different location from all over India, various Cuisines, the average and the minimum order cost, ratings & reviews as well as the Delivery Time.

We can make some very interesting visualization and can get some insightful information from this data.

Let's get our hands dirty and dive deep into it!

# Exploring the Data

We are calling our data frame 'df', let's have a look at the number of rows and columns:-

```
df.info()
```

```
<class 'pandas.core.frame.DataFrame'>
RangeIndex: 11094 entries, 0 to 11093
Data columns (total 9 columns):
 #   Column         Non-Null Count  Dtype 
---  ------         --------------  ----- 
 0   Restaurant     11094 non-null  object
 1   Location       11094 non-null  object
 2   Cuisines       11094 non-null  object
 3   Average_Cost   11094 non-null  object
 4   Minimum_Order  11094 non-null  object
 5   Rating         11094 non-null  object
 6   Votes          11094 non-null  object
 7   Reviews        11094 non-null  object
 8   Delivery_Time  11094 non-null  object
dtypes: object(9)
memory usage: 780.2+ KB
```

Great, we have a good amount of data to work with!

Let us see the unique Locations present:-

```
df['Location'].unique()
```

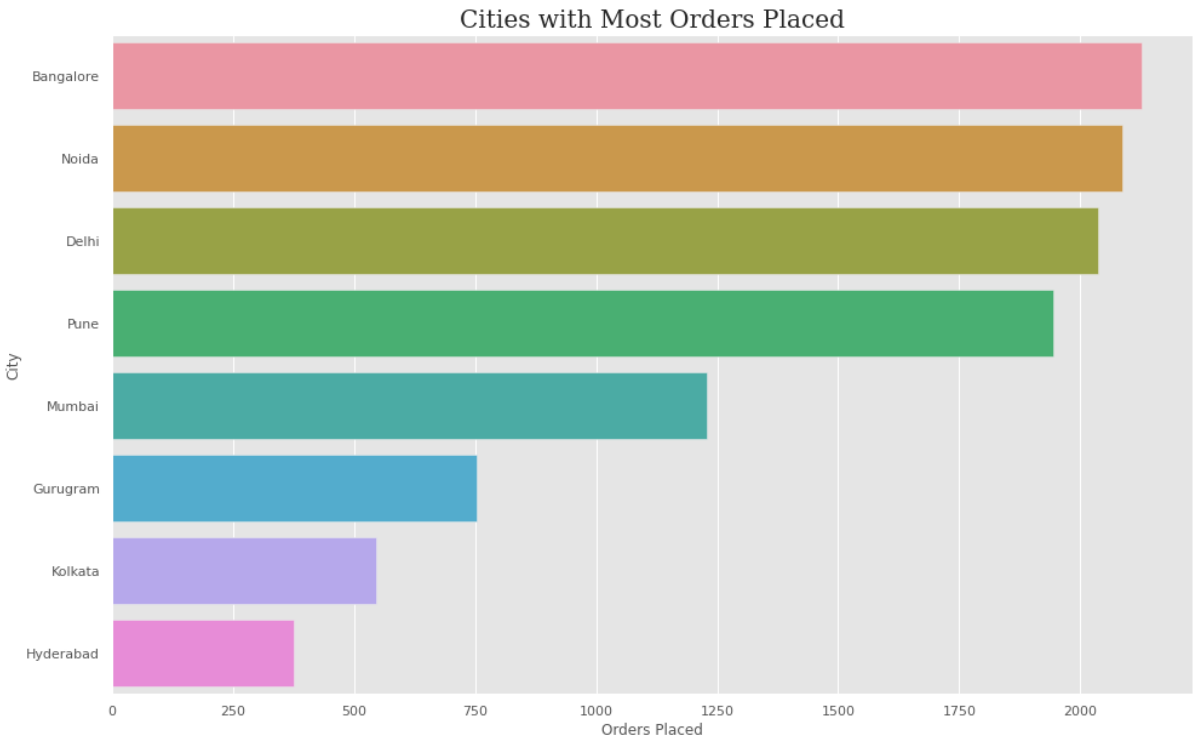
```
array(['FTI College, Law College Road, Pune', 'Sector 3, Marathalli',
       'Mumbai Central', 'Sector 1, Noida',
       'Rmz Centennial, I Gate, Whitefield', 'Delhi University-GTB Nagar',
       'Yerawada, Pune, Maharashtra',
       'Delhi Administration Flats, Timarpur', 'Moulali, Kolkata',
       'Dockyard Road, Mumbai CST Area', 'Pune University',
       'Gora Bazar, Rajbari, North Dumdum, Kolkata',
       'D-Block, Sector 63, Noida', 'Sector 14, Noida',
       'Mico Layout, Stage 2, BTM Layout,Bangalore',
       'Laxman Vihar Industrial Area, Sector 3A, Gurgoan',
       'Tiretti, Kolkata', 'Sandhurst Road, Mumbai CST Area',
       'MG Road, Pune', 'Hyderabad Public School, Begumpet', 'Majestic',
       'Chandni Chowk, Kolkata', 'Delhi High Court, India Gate',
       'Chatta Bazaar, Malakpet, Hyderabad', 'Sector 63A,Gurgaon',
       'Delhi Cantt.', 'Tejas Nagar Colony, Wadala West, Mumbai',
       'Babarpur, New Delhi, Delhi', 'Nathan Road, Mangaldas Road, Pune',
       'Panjetan Colony, Malakpet, Hyderabad', 'Raja Bazar, Kolkata',
       'Jaya Nagar, Saidabad, Hyderabad',
       'Noorkhan Bazaar, Malakpet, Hyderabad',
       'Musi Nagar, Malakpet, Hyderabad', 'BTM Layout 1, Electronic City'],
      dtype=object)
```

We can group these locations by their respective Cities, so let's get into that!

I created a new column where I added the names of the respective Cities:

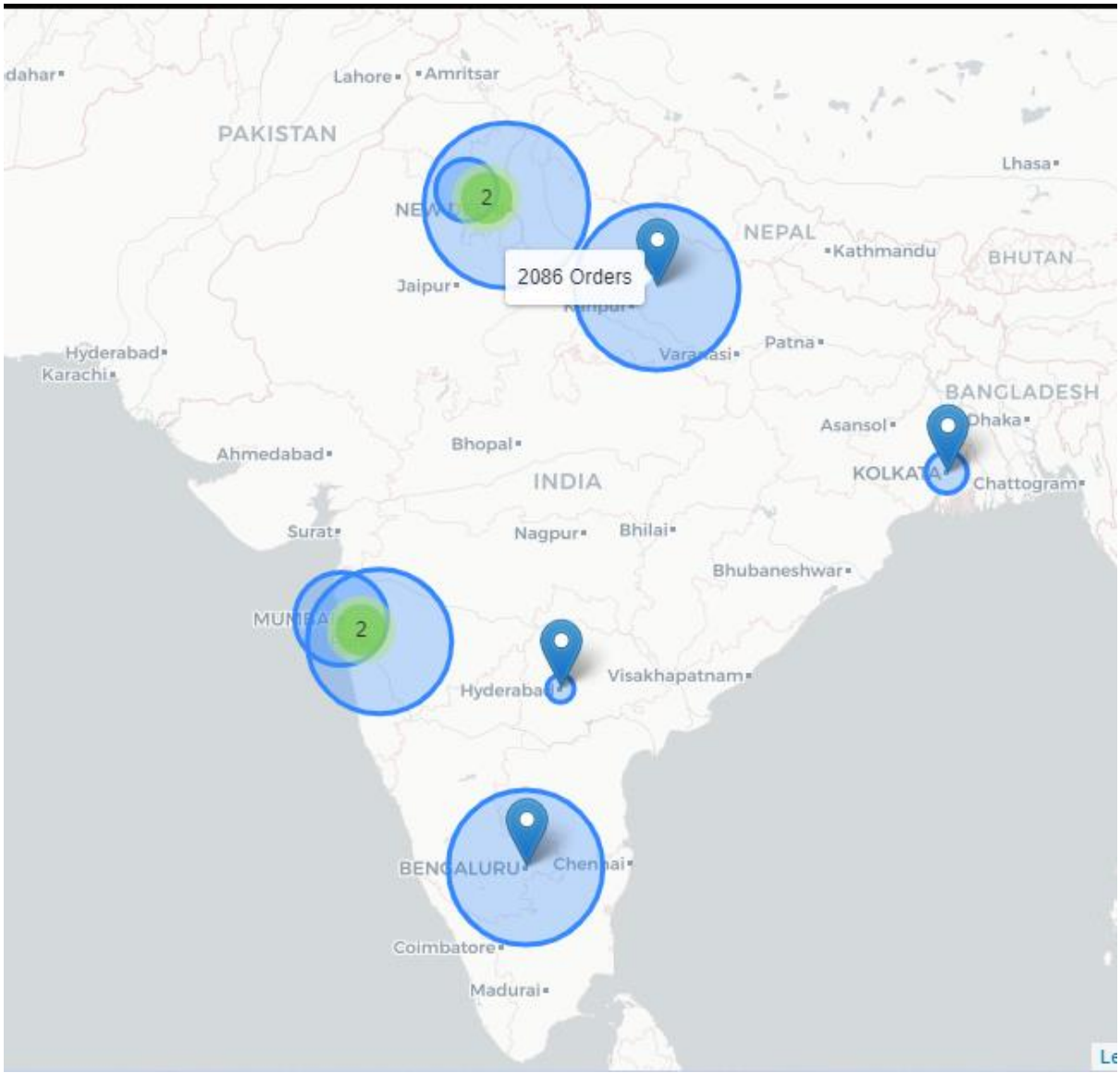
| | Restaurant | Location | Cuisines | Average_Cost | Minimum_Order | Rating | Votes | Reviews | Delivery_Time | City |
|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ID_6321 | FTI College, Law College Road, Pune | Fast Food, Rolls, Burger, Salad, Wraps | ₹200 | ₹50 | 3.5 | 12 | 4 | 30 minutes | Pune |
| 1 | ID_2882 | Sector 3, Marathalli | Ice Cream, Desserts | ₹100 | ₹50 | 3.5 | 11 | 4 | 30 minutes | Bangalore |
| 2 | ID_1595 | Mumbai Central | Italian, Street Food, Fast Food | ₹150 | ₹50 | 3.6 | 99 | 30 | 65 minutes | Mumbai |
| 3 | ID_5929 | Sector 1, Noida | Mughlai, North Indian, Chinese | ₹250 | ₹99 | 3.7 | 176 | 95 | 30 minutes | Noida |
| 4 | ID_6123 | Rmz Centennial, I Gate, Whitefield | Cafe, Beverages | ₹200 | ₹99 | 3.2 | 521 | 235 | 65 minutes | Bangalore |

Let's have a look at the cities with the most orders placed :-



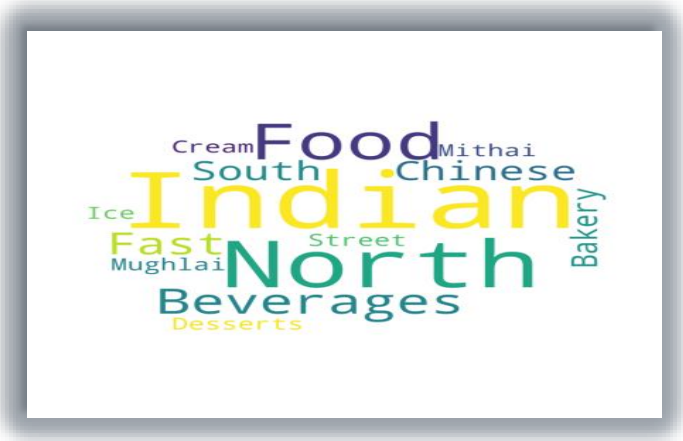

We can see that Bangalore is at the top with over 2000+ orders placed closely followed by Noida and Delhi, while Hyderabad is at the bottom with close to 400 orders placed.

Let us visualize the same using a Folium Map - [Link to the interactive Map]



# What does every City likes to order?


Common Food Ordered From all the cities :-



# What's the Average Cost & Delivery Time?


We can see that the Average Delivery Time for all the cities are quite similar. While on the other hand, Pune is having the highest Average Cost of all the cities, while Hyderabad and Kolkata having the lowest Average Cost.

# Do People Spend more money on High-rated/reviewed Restaurants?

We always tend to spend our money carefully. Does ratings and reviews play a major role in influencing our sentiments? It does indeed gives us assurance when a restaurant have good ratings and reviews, Let's Find out with the help of our data

Firstly, I have made new features and gave them ratings, Above 4 is grouped as Above Average, Between 3 & 4 grouped as Average and Below 3 is grouped as Below Average

```
array(['Average', 'Above Average', 'Unrated', 'Below Average', 'NEW',
       'Opening Soon', 'Temporarily Closed'], dtype=object)
```

Secondly, I created another new column called Total Votes & Reviews where I added both the Votes & Reviews

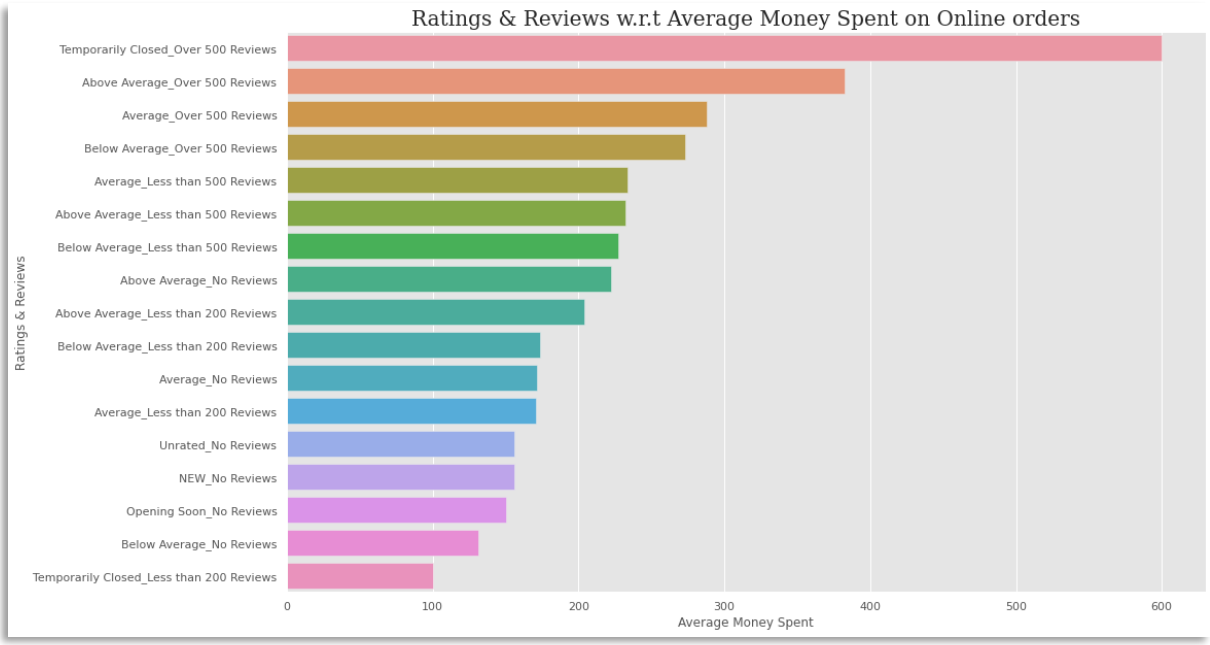
| | Restaurant | Location | Cuisines | Average_Cost | Minimum_Order | Rating | Votes | Reviews | Delivery_Time | City | Total Votes & Reviews |
|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ID_6321 | FTI College, Law College Road, Pune | Fast Food, Rolls, Burger, Salad, Wraps | ₹200 | ₹50 | Average | 12 | 4 | 30 minutes | Pune | 16 |
| 1 | ID_2882 | Sector 3, Marathalli | Ice Cream, Desserts | ₹100 | ₹50 | Average | 11 | 4 | 30 minutes | Bangalore | 15 |
| 2 | ID_1595 | Mumbai Central | Italian, Street Food, Fast Food | ₹150 | ₹50 | Average | 99 | 30 | 65 minutes | Mumbai | 129 |
| 3 | ID_5929 | Sector 1, Noida | Mughlai, North Indian, Chinese | ₹250 | ₹99 | Average | 176 | 95 | 30 minutes | Noida | 271 |
| 4 | ID_6123 | Rmz Centennial, I Gate, Whitefield | Cafe, Beverages | ₹200 | ₹99 | Average | 521 | 235 | 65 minutes | Bangalore | 756 |

Lastly, I grouped the reviews together and made a new column, all of this you can find in the notebook link I had shared above

| | Restaurant | Location | Cuisines | Average_Cost | Minimum_Order | Rating | Votes | Reviews | Delivery_Time | City | Total Votes & Reviews | Reviews Made | Ratings & Reviews Combined |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 0 | ID_6321 | FTI College, Law College Road, Pune | Fast Food, Rolls, Burger, Salad, Wraps | ₹200 | ₹50 | Average | 12 | 4 | 30 minutes | Pune | 16 | Less than 200 Reviews | Average_Less than 200 Reviews |
| 1 | ID_2882 | Sector 3, Marathalli | Ice Cream, Desserts | ₹100 | ₹50 | Average | 11 | 4 | 30 minutes | Bangalore | 15 | Less than 200 Reviews | Average_Less than 200 Reviews |

Ok now, let us visualize and see if the customers are comfortable spending more money in Good rated & Highly-reviewed restaurants.

## Visualization:-




We can clearly see that people tend to spend higher amount of money in restaurants which are rated above average and have over 500 reviews, So thus it proves that Ratings & Reviews have influence when people tend to spend a considerable amount of money while ordering food.

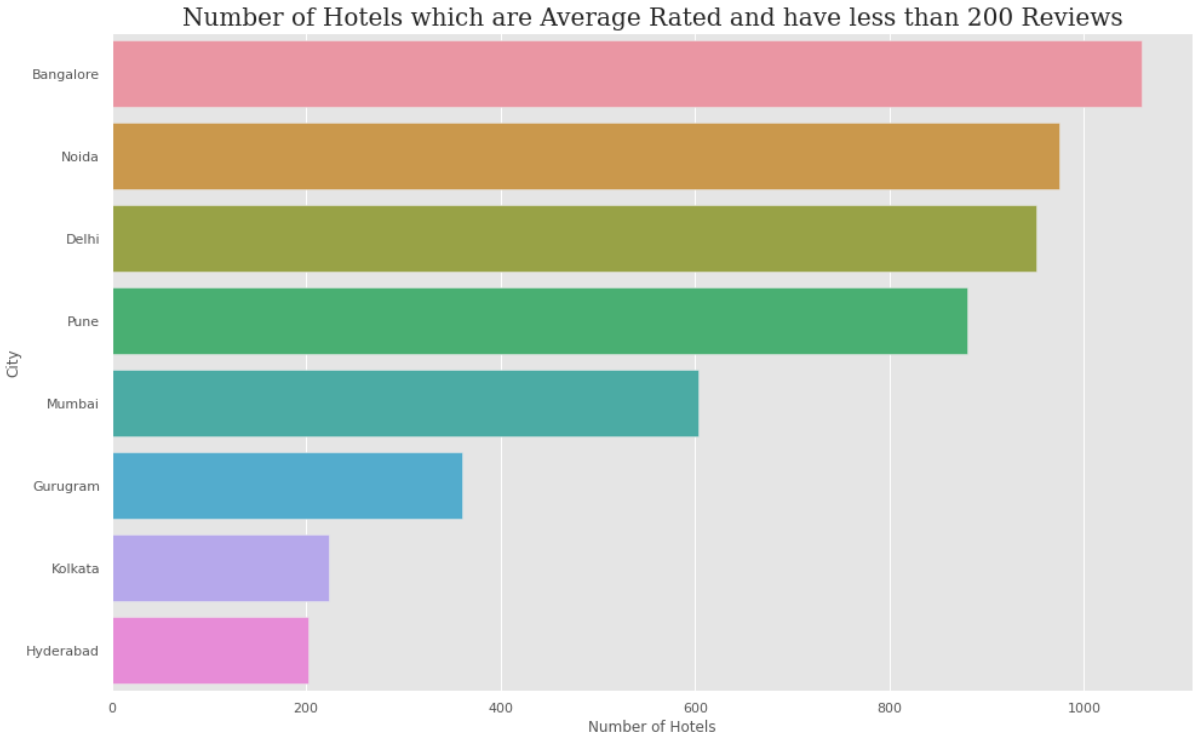
# Where do people from all over India like to order from?

Now we saw that people tend to spend more money on good rated and highly reviewed restaurants, but only on some occasions we tend to spend high amount of money ordering online food. Let us have a look, from where do most people tend to order from all the different cities in our dataset.

After combining and making some changes in our dataframe in our Notebook(given at the top), I got some very interesting insights:-

| City | Ratings & Reviews Combined | Count of Hotels |
|---|---|---|
| Bangalore | Average_Less than 200 Reviews | 1059 |
| Delhi | Average_Less than 200 Reviews | 951 |
| Gurugram | Average_Less than 200 Reviews | 360 |
| Hyderabad | Average_Less than 200 Reviews | 202 |
| Kolkata | Average_Less than 200 Reviews | 224 |
| Mumbai | Average_Less than 200 Reviews | 603 |
| Noida | Average_Less than 200 Reviews | 975 |
| Pune | Average_Less than 200 Reviews | 880 |

We can see from the above image that all the Cities preferred ordering from restaurants which are rated Average and have less than 200 reviews, and on the count we can see the number of such restaurants present in each cities. This is quite interesting because all of the Cities follows the same pattern



# Conclusion

We can conclude by stating the following points from our DataSet:-

- Although the cuisines are diversified in every state, but in online orders we can see somewhat similarity to what each states orders.
- Average delivery time across all cities are more or less the same.
- People tend to spend more on restaurants having good rating and high reviews.
- On an average people tends to order more from Average rated (between 3-4 stars) & less than 200 reviews restaurant, this pattern is present for all the cities.

Thanks, for reading! Will update to PowerBI or Tableau soon!

Link to Notebook: - Notebook