# Introduction to the Problem

Delhi is one of the most densely populated capital cities in the world. Thus location-wise business opportunities differ drastically when we consider the demographic situation of a particular region.

Many new businesses' turnover decrease or they even collapse simply because owner(s) of the business is/are not able to identify competition from already established businesses or otherwise miss the chance of being the first one to tap out a business opportunity from a particular locality.

# Data used for the Analysis

The data that will be used for analysis is available at:

- Neighbourhoods in Delhi:
  https://en.wikipedia.org/wiki/Neighbourhoods_of_Delhi
- Location data for neighbourhoods:
  https://github.com/adityasharmagithub/Coursera_Capstone/blob/master/delhi_dataSet.csv
- Developer data from Foursquare for venues:
  https://foursquare.com/

# Methodology

Steps included in the methodology for this analysis are:

1. Loading relevant data sets.
2. Characterizing data on the bases of neighbourhoods.
3. Updating the neighbourhood data with their geographical locations.
4. Visualizing neighbourhoods on the map with the help of suitable libraries.
5. Using API to explore the neighbourhood data.
6. Clustering the data of explored venues with respect to each location using K-means clustering algorithm.
7. Displaying the clustered hotspots on the map using suitable libraries.

# Result

The analysis enabled us to discover and describe visually and quantitatively:

- Neighbourhoods in Delhi.
- Geographical location coordinates of neighbourhoods.
- List of venues at the locations.
- Determining the most popular venue groups in the localities.
- Grouping the localities with respect to venue type.
- Each location with most common venues nearby.
- Clustering the locations with respect to the venue grouping.
- Visualising geographical location of hotspots.

# Discussions

The following observations can be drawn from the results of the analysis:

- There is a growing popularity of venues like Gyms and Pools in relatively developed localities. And restaurants are popular in the places which are associated with high tourist migration.
- The neighbourhood's recommendation obtained here are not completely accurate. This is due to the limitations in the dataset used in the project. Due to lack of cross-referencing sources, we may have missed a few neighbourhoods from our consideration. The foursquare API does not contain, or does not rely, a comprehensive dataset about the restaurants present in Delhi.
Delhi is more than 20 million now. And foursquare API is very less updated as compared to that number.

# Conclusion

Therefore, it can be concluded that the analysis of neighbourhoods and their nearby venues provided us with results that are visually empowered and can be presented to any new businessman who is trying to start a business in the city of Delhi.

He can identify the "hot" businesses in an area as well as where he's going to get the maximum competition for the services that he is about to offer.