

Coursera Capstone IBM Applied Data Science Capstone

Opening a New Shopping Mall in Delhi,
India



BY: RAVI SHARMA

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Introduction

- Shopping malls are like a one-stop destination for all types of shoppers for all activities.
- For retailers, the central location and the large crowd at the shopping malls provides a great distribution channel to market their products and services.
- Property developers are also taking advantage of this trend to build more shopping malls to cater to the demand. As a result, there are huge number of shopping malls in the capital city of India i.e. Delhi and many more are being built.
- Opening shopping malls allows property developers to earn consistent rental income. Of course, as with any business decision, opening a new shopping mall requires serious consideration and is a lot more complicated than it seems.
- Particularly, the location of the shopping mall is one of the most important decisions that will determine whether the mall will be a success or a failure.

Business Problem

❖ Location of the shopping mall is one of the most important decisions that will

determine whether the mall will be a success or a failure

❖ Objective: To analyse and select the best locations in the capital city of India, Delhi to open a new shopping mall

❖ This project is timely as the city is currently

suffering from overpopulation everywhere but malls are located in particular areas only.

❖ Business question

➤ In the capital city of India, Delhi , if a property developer is looking to open a new shopping mall, where would you recommend that they open it?

Data

Data required

- List of neighbourhoods Delhi.
- Latitude and longitude coordinates of the neighbourhoods
- Venue data, particularly data related to shopping malls

Sources of data

- Wikipedia page for neighbourhoods (https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Delhi)
- Geocoder package for latitude and longitude coordinates
- Foursquare API for venue data

Methodology

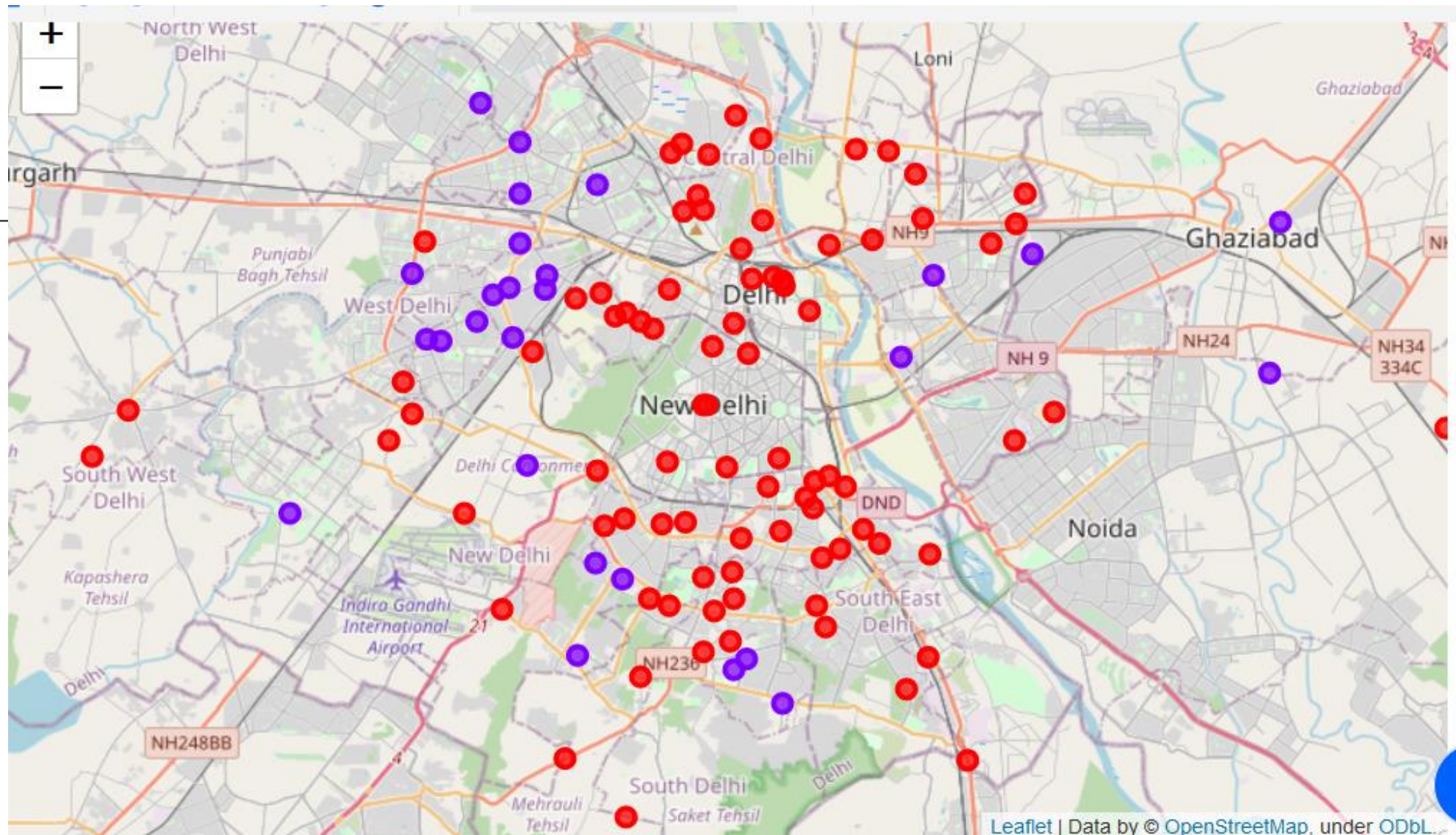
- ❖ Web scraping Wikipedia page for neighbourhoods list
- ❖ Get latitude and longitude coordinates using Geocoder
- ❖ Use Foursquare API to get venue data
- ❖ Group data by neighbourhood and taking the mean of the frequency of occurrence of each venue category
- ❖ Filter venue category by Shopping Mall
- ❖ Perform clustering on the data by using k-means clustering
- ❖ Visualize the clusters in a map using Folium

Results

The results from the k-means clustering show that we can categorize the neighbourhoods into 3 clusters based on the frequency of occurrence for “Shopping Mall”:

- ❖ Cluster 0: Neighbourhoods with low number to no existence of shopping malls
- ❖ Cluster 1: Neighbourhoods with moderate number of shopping malls
- ❖ Cluster 2: Neighbourhoods with high concentration of shopping malls

The results of the clustering are visualized in the map below with cluster 0 in red colour, cluster 1 in purple colour, and cluster 2 in mint green colour.



Discussion

- ❖ Surprisingly most of Delhi's malls are located at locations very far from each other and importantly not in central region.
- ❖ Cluster 0 is representing, clusters where no malls or very few exists. This represents a great opportunity and high potential areas to open new shopping malls as there is very little to no competition from existing malls.
- ❖ Meanwhile, shopping malls in cluster 1 are likely suffering from intense competition due to oversupply and high concentration of shopping malls.
- ❖ This project recommends property developers to capitalize on these findings to open new shopping malls in neighborhoods in cluster 0 with little to no competition.
- ❖ Property developers are advised to avoid neighborhoods in cluster 2 which already have high concentration of shopping malls and suffering from intense competition.

Recommendations

- ❖ Open new shopping malls in neighbourhoods in cluster 0 with little to no competition
- ❖ Can also open in neighbourhoods in cluster 1 with moderate competition if have unique selling propositions to stand out from the competition
- ❖ Avoid neighbourhoods in cluster 2, already high concentration of shopping malls and intense competition

Conclusion

- ❖ Answer to business question: The neighbourhoods in cluster 0 are the most preferred locations to open a new shopping mall
- ❖ Findings of this project will help the relevant stakeholders to capitalize on the opportunities on high potential locations while avoiding overcrowded areas in their decisions to open a new shopping mall

Thank You!

