

Opening a New Shopping Mall in New Delhi, India

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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 analyze and select the best locations in the city of New Delhi, India to open a new shopping mall.
- This project is timely as the city is expected to see a rise in population and income levels.
- **Business Question-**
 - In the city of Kuala Lumpur, Malaysia, 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 Neighborhoods in Delhi, India
 - Latitude and Longitude Coordinates of the neighborhoods.
 - Venue data, particularly data related to shopping malls.
- Sources of Data:
 - Wikipedia page for neighborhoods
(https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Delhi)
 - Geocoder Package for latitude and longitude coordinates
 - Foursquare API for venue data.

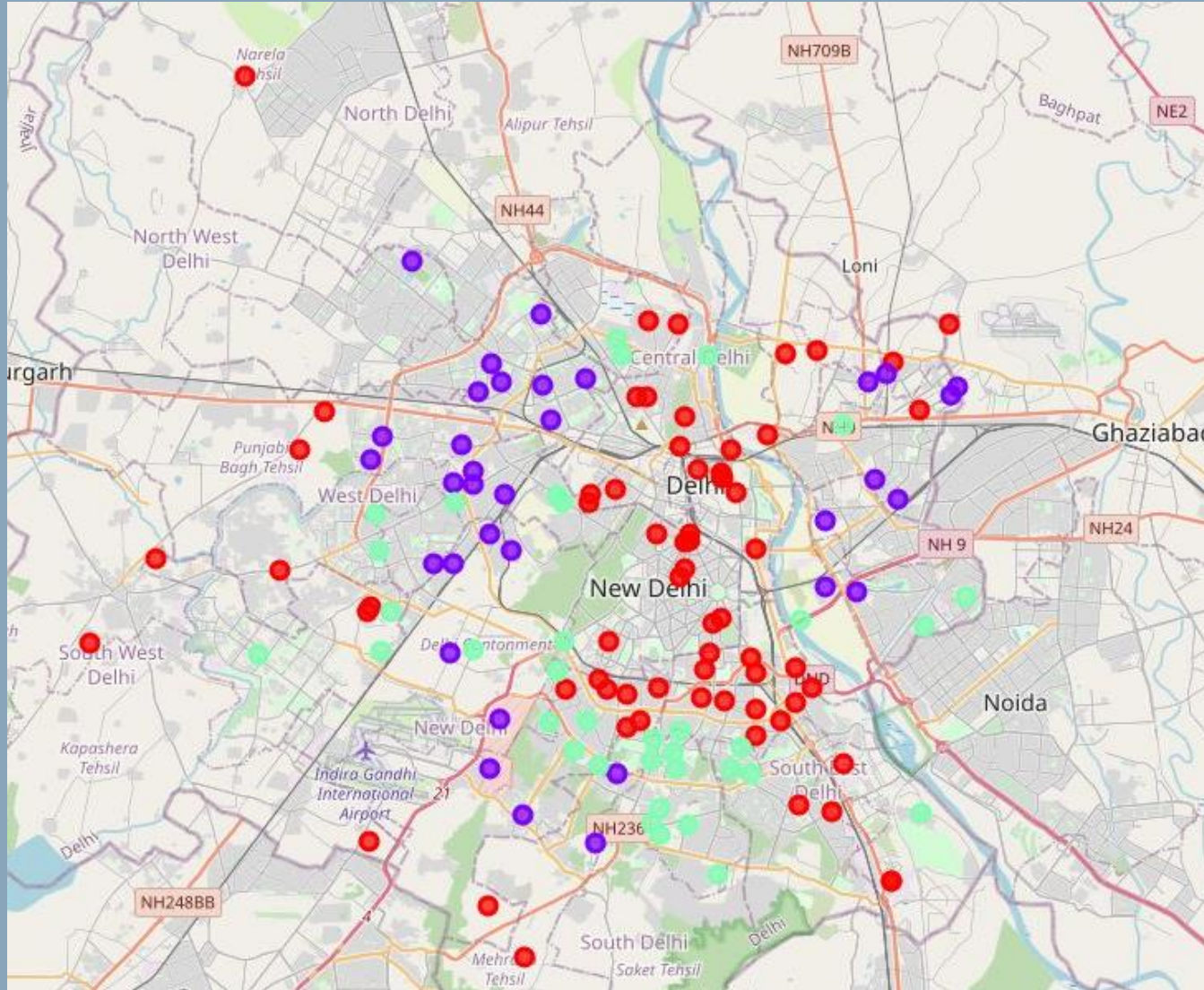
Methodology

- Web scraping Wikipedia page for neighborhoods list
- Get latitude and longitude coordinates using Geocoder
- Use Foursquare API to get venue data
- Group data by neighborhood 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

Categorized the neighborhoods into 3 clusters:

- Cluster 0 (Red): Neighborhoods with low number to no existence of shopping malls
- Cluster 1 (Purple): Neighborhoods with moderate
- Cluster 2 (Mint Green): Neighborhoods with high concentration of shopping malls.



Discussion

- Most of the shopping malls are concentrated in the southern area of the city
- Highest number in cluster 2 and moderate number in cluster 1.
- Cluster 0 has very low number to no shopping malls in the neighborhood.
- Oversupply of shopping malls mostly happened in the central area of the city, with the suburb area still have very few shopping malls.

Recommendations

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

Conclusion

- **Answer to business question:** The neighborhoods in cluster 1 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.

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