


IBM APPLIED DATA SCIENCE CAPSTONE

Finding Best Location to Open New Shopping Mall in New Delhi, India

- By: Aditya Uniyal




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 location in the city of New Delhi, to open a new shopping mall
 - Business question:
 - Considering existing competitors in the market, what could be the best location in the city of New Delhi, India to open a new shopping mall?
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DATA

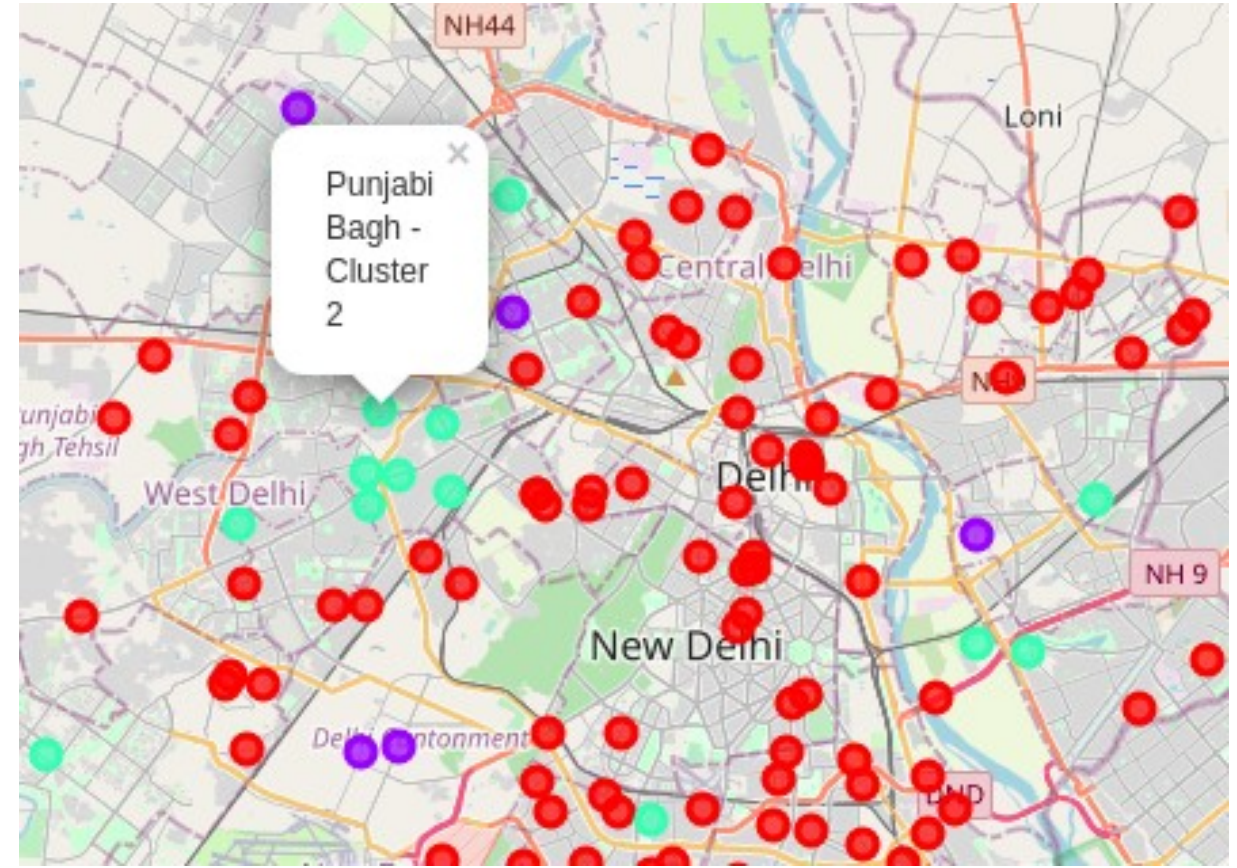
- Data required
 - List of neighborhoods in New Delhi, India
 - Latitude and longitude coordinates of the neighborhoods
 - Venue data, particularly data related to shopping malls
- Sources of data
 - Foursquare API for venue data
 - Wikipedia page for neighborhoods
(https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Delhi)
 - Geocoder package for latitude and longitude coordinates

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.
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RESULTS

- Categorized the neighborhoods into 3 clusters :
1. **Cluster 0**: Neighborhoods with highest number of shopping malls
 2. **Cluster 1**: Neighborhoods with lowest number of shopping malls
 3. **Cluster 2**: Neighborhoods with moderate concentration of shopping malls



DISCUSSION

- Highest number of malls in cluster 0
 - Cluster 2 has very less number of malls than cluster 0 but higher than cluster 1
 - Cluster 1 has very low shopping malls
 - Oversupply of shopping malls mostly happened in the central area of the city, with the suburb area still have very few shopping malls
 - Property developers are advised to avoid neighborhoods in cluster 0 which already have high concentration of shopping malls
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RECOMMENDATIONS

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



Thank You!