

COURSERA CAPSTONE PROJECT

IBM APPLIED DATA SCIENCE CAPSTONE


Opening a New Shopping Mall in Mumbai, 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 analyse and select the best locations in the city of Mumbai, India to open a new shopping mall
 - This project is timely as the city is currently suffering from oversupply of shopping malls
 - Business question
 - In the city of Mumbai, India , if a property developer is looking to open a new shopping mall, where would you recommend that they open it?
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Data

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- Data required
 - List of neighborhoods in Mumbai
 - 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:Suburbs_of_Mumbai)
 - Geocoder package for latitude and longitude coordinates
 - Foursquare API for venue data

Methodolog

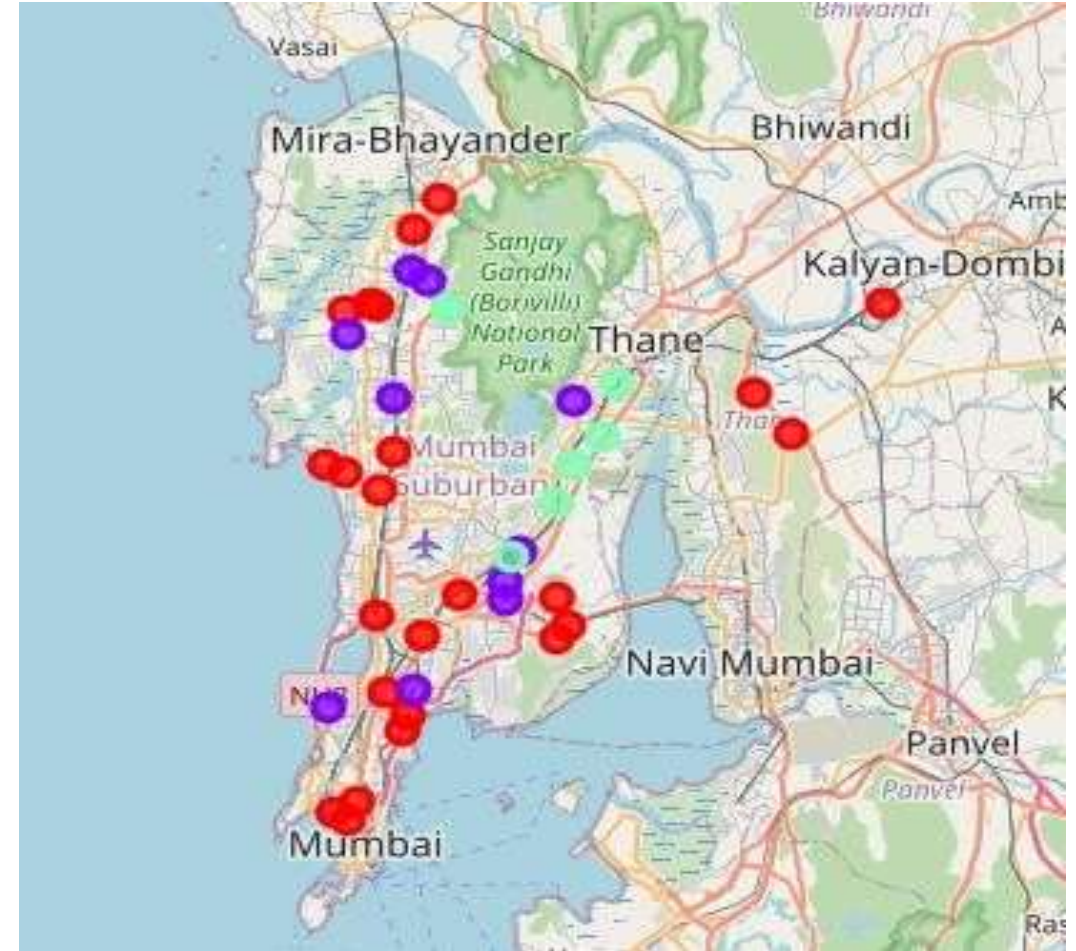
y:

- ← 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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Result


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- Categorized the neighborhoods into 3 clusters :
 - Cluster 0: Neighborhoods with low to no existence of shopping malls
 - Cluster 1: Neighborhoods with moderate number of shopping malls
 - Cluster 2: Neighborhoods with high concentration of shopping malls




Discussion:

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

- Answer to business question: The neighborhoods 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

