

New Mall Opening

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Background: Though I live in Dhaka, I could not find sufficient data for this problem for my city. So I chose Mumbai, my neighbor country India's capital. First problem while opening a shopping mall is its location. Depending on the perfect location one can earn or loss a lot of money.

Problem: Main goal of this problem is to find out if Mumbai is a perfect place to open a shopping mall.

Interest: Mainly this is helpful for the businessman who is looking for a place to open a shopping mall or who is going to invest money on a shopping mall.

Data We Need: Neighborhoods of Mumbai and their co-ordinates and venue data

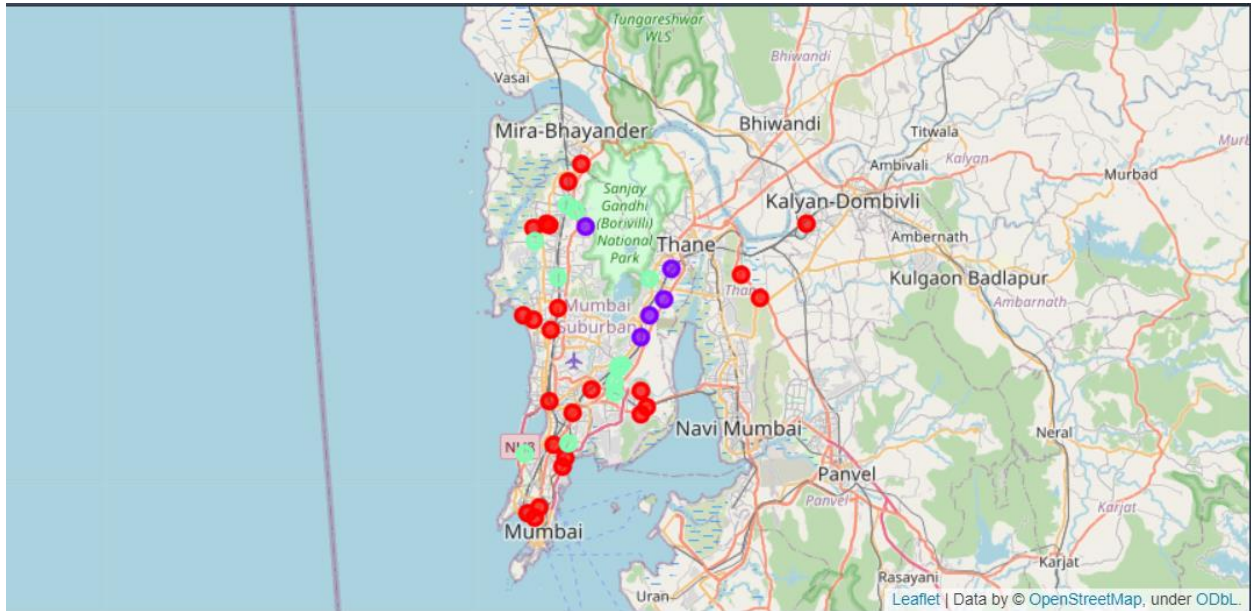
Source of Data: Foursquare API for venue data and https://en.wikipedia.org/wiki/Category:Suburbs_of_Mumbai for neighborhood list and Python beautifulsoup to extract that and Python Geocoder for co-ordinates.

Methodology: We extract the neighbors of Mumbai city by extracting data from the wiki page and used beautifulsoup to extract them. Then we get their co-ordinates using Geocoder. Then we use these co-ordinates to get data from Foursquare API to get top 100 results within 2000 meters. By making this call we get a JSON output. We extract name, category and co-ordinates. Then we filter shopping mall as venue category. Then we use K-means clustering based on the frequency of occurrence of shopping mall. By this we can answer which place is best for shopping mall.

Result:

There are three kinds of clusters.

1. Red: Low numbers of shopping mall
2. Purple: High density of shopping mall
3. Light Blue: Medium density of shopping mall

**Concussion:**

As red markers indicate low numbers of shopping mall, it is best to open shopping mall there. By this the investor can get much more benefits.