# The Battle of Neighborhoods – Study of best neighborhoods to open a new shopping mall in Mumbai, India.

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# Introduction

A shopping mall is a place which has many modern things in it such as a complex of shops representing types of merchandisers and many walkways that enable the customer to go from unit to unit and to purchase some things. Mostly the shopping malls are been made in the urban areas with big buildings in it and it is a big area that is occupied by many small shops and convert it into a big shopping mall.

From the past there are been many development that has been done in the shopping malls as many entertainment venues like movie theatres restaurants and many things that are been added in a shopping mall as it is the single build structure many things are being constructed in it and it takes a lot of space and the area for the construction that is why it is mostly constructed in the big cities and the only is available in the urban sector.

Therefore, Mumbai being one of the most developed and busiest cities of India accommodates a large number of shopping malls across the city. Opening a shopping mall needs a serious amount of consideration. One of the vital factors for building a shopping mall is the location/area. Location plays major role in determining if a shopping mall will be a failure or success.

# Business Problem

The aim of this capstone project is to analyze and select the best location in the city of Mumbai, India to open a new shopping mall.

**Question:** If a property developer is looking to build a shopping mall, where would you recommend that they open it in the city of Mumbai?

By using data science methodology and machine learning techniques like clustering, classification we will try to find the solution to above question.

# Data

In order to solve the problem, we require following data:

1) **List of the neighborhoods in Mumbai**.
   Source: https://en.wikipedia.org/wiki/Category:Neighbourhoods_in_Mumbai

By the use of web scrapping technique, we extract the data from this webpage. We use python requests and beautifulsoup packages to achieve this.

2) **Latitude and longitude of each neighborhood**
   We use python geocoder package to obtain latitude and longitude of each neighborhood in Mumbai city.
3) **Obtain venue data for each neighborhood**
   We use Foursquare API to get the venues in each neighborhood.

In addition to that we do data cleaning and data wrangling. Also, we use k-mean clustering an unsupervised machine learning algorithm for clustering of data. Finally, we use Folium package to visualize map and to superimpose the different neighborhoods on map.