**Opening New Shopping mall in Mumbai, India**

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1. **Introduction**
   1. **Background**

In metro cities in India, visiting shopping malls is a great way to relax and enjoy themselves during weekends and holidays. They can do grocery shopping, watch movies, dine at restaurants, shop at the various fashion outlets and perform many more activities. Shopping malls are like a one-stop destination for all types of shoppers. Due to large crowd gathering in shopping malls, it provides great distribution channel for retailers. Property developers are also taking advantage of this trend to build more shopping malls to cater to the demand. Opening shopping malls allows property developers to earn consistent rental income. Opening a new shopping mall requires serious consideration and is a lot more complicated as we have to select right location of the shopping mall. Location plays major role in determining success of shopping mall.

**1.2 Problem Description**

Mumbai is the financial, commercial and entertainment capital of India. Mumbai is composed of a number of neighborhoods spread across a total area of 603 sq km and with total population of 20.5million with 73,000 people per sq mile. This project explores, analyzes existing shopping mall information in Mumbai city in order to select best location to open new shopping mall. Using data science methodology and machine learning techniques like clustering, this project aims to provide solutions to answer business problem statement of

“In the city of Mumbai, India, if a property developer is looking to open a new shopping mall, which is the right place?”

* 1. **Interested audience**

The target audience for such a project is useful to property developers and investors looking to open or invest in new shopping malls in Mumbai city. The number of shopping malls in Mumbai are currently low when compared with the density of population in Mumbai. This provides an opportunity in creating new malls and this project tries to explore right location for creating new Shopping mall in Mumbai city.

1. **Data**
   1. **Data Sources**

Data requirements:

* List of Neighborhoods in Mumbai
* Latitude & Longitude of these neighborhoods
* Venue data to identify number of shopping malls in each neighborhood

Data sources:

* List of Neighborhoods & related latitude, longitude information in Mumbai
  + Wikipedia page <https://en.wikipedia.org/wiki/List_of_neighbourhoods_in_Mumbai>, contains 93 neighborhoods with related Latitude & Longitude information. We will use web scraping techniques to extract the data from this Wikipedia page with help of Python requests & Beautifulsoup packages.
  + We will get the geographical coordinates of the neighbourhoods using Python Geocoder package which will give us the latitude and longitude coordinates of the neighbourhoods
* Venue data
  + We will use Foursquare API to get the venue data for those neighbourhoods. Foursquare has one of the largest database of 105+ million places and is used by over 150,000 developers. Foursquare API will provide many categories of the venue data, we are particularly interested in the Shopping Mall category in order to help us to solve the business problem put forward.

References:

* About Mumbai:
  + <https://en.wikipedia.org/wiki/Mumbai>
* Number of shopping malls in Mumbai:
  + <https://en.wikipedia.org/wiki/Category:Shopping_malls_in_Mumbai>
  + <https://www.ixigo.com/shopping-malls-in-at-around-near-mumbai-lp-1140436#:~:text=248%20shopping%20malls%20in%20Mumbai%20%7C%20shopping%20in%20Mumbai>
  + <https://list.fandom.com/wiki/List_of_shopping_malls_in_Mumbai>
* Mumbai population
  + <https://populationstat.com/india/mumbai>