**Segmenting and Clustering of neighborhoods of Westminster in London city.**

**Introduction:**

Stakeholders are looking forward to making Hotel in Westminster because Westminster is a tourist area and many tourists would love to stay in Westminster as most of the sights and attractions are in Westminster, such as National Portrait Gallery, National Gallery, Westminster Abbey, Guards Museum, Trafalgar Square, Horse Guards Parade, Houses of Parliament, London Eye, Buckingham Palace and Westminster Cathedral. As all the tourist would prefer a hotel which is near to these sights and attraction, it would be worth to segment and cluster the neighborhoods (areas) of Westminster to see which neighborhood would be best to make a hotel for tourists in Westminster.

**Data:**

1. Westminster is a borough of London. To figure out the best suitable neighborhoods to make a hotel in Westminster I needed geo-coordinates of Westminster, so I used a list of 32 London boroughs from Wikipedia page (https://en.wikipedia.org/wiki/List\_of\_London\_boroughs) and by using web scraping I extracted longitude and latitude of each borough and build data frame of Borough, Longitude and Latitude. This data gave us the longitude and latitude of Westminster.

2. By using the data of Westminster, which was obtained by step 1 and Wikimedia tool forge (https://tools.wmflabs.org) we were able to extract the links of geo-coordinates of neighborhoods of Westminster using Beautiful soup and linking them to borough name, area (neighborhood) and code. This allowed us to build a clean data frame of Borough, Neighborhood, latitude, and longitude at the end.

3. When I used Four square API this data helped us to find the venues in the neighborhoods and the 10 most common venues in the neighborhoods and by K means clustering of data obtained we will be able to find the neighborhoods which are best to make a hotel.

Links which have been used in this notebook:

List of London boroughs- https://en.wikipedia.org/wiki/List\_of\_London\_boroughs

Wikimedia tool forge - https://tools.wmflabs.org