**Moving Out of London – Report**

**Introduction**

I am in a very common situation faced by Londoners in that I wish to purchase my own home but find property prices in London to be prohibitively expensive, as a result I will be moving from North London to Hertfordshire due to its relatively affordable housing and proximity to the A1 for travelling north.

I like the area that I currently live in and so have undertaken the following anaysis to find a town similar to that area, in addition this town must meet the following criteria:

A rail station for commuting to Central London for work, particularly towns with stations on the line to Kings Cross

I currently live in EN4 (East Barnet) and within driving distance of EN5 (Barnet) & EN6 (Potters Bar) town centres, so would like to find somewhere with similar local ameneties.

This model could be adapted and used for others who need to move out of London when they want to buy a property, this is a high volume of people due to the high property prices in London.

**Data**

I am using Geographic coordinate data for the stations of interest between Potters Bar and Royston in Hertfordshire and for each of the EN postcode areas listed in the EN postcodes wikipedia entry.

These geographic coordinate data will be fed into foursquare to extract the venue data for the surrounding area which will then be used to group similar areas into clusters allowing for quick comparisons between the area you currently live in and areas of potential interest.

**Methodology**

The list of Enfield postcodes was scraped from the corresponding wikipedia entry, geographic coordiantes data was manually declared and appended to this table. Another table was defined for the same data for the towns/stations of interest in Hertfordshire and a new table was formed to combine these datasets, the index was reset and the old index data was cleaned out, some of the longer column headers were then renamed for easier data handling.

The geographical coordinates for the centrepoint of the map, Watton-at-Stone, were acquired and defined using the Geopy library, the map was generated using the Folium library with labelled markers added for each pair of coordinates.

The postcodes and coordiante data were then sent in a GET request to Foursqaure to return information for venues within 1km radius of each location, this data was then imported to a pandas dataframe detailing the venue name, venue category and coordinate data. A count of the venues per neighbourhoon (Postcode) shows that none of the neighbourhoods reached or exceeded the defined limit of 100 venues. The venue data was then analysed to find which venue types are most common in each neighbourhood.

K-means clustering was then run on this data to cluster similar neighbourhoods together and indicate which are most similar to my current area of EN4.

**Results**

The k-means clustering indicates that there are a number of towns that are not only similar to EN4 but which are also close to a couple of locations similar to EN5 & EN6.

- Only SG3 (Knebworth) is grouped in the same cluster as EN4 (East Barnet/Cockfosters)

- Lots of locations are grouped in the same cluster as EN5 (High Barnet) & EN6 (Potters Bar):

-EN1 (Enfield Town), EN8 (Waltham Cross), EN10 (Broxbourne), AL7 (Welwyn Garden City), SG1 (Stevenage), SG4 (Hitchin), SG6 (Letchworth) & SG8 (Royston)

- SG3 is close to AL7 & SG1 so has 2 nearby locations similar to those close to EN4

**Discussion**

The k-means clustering analysis indicates that SG3 is the best fit as it is similar to EN4 and is close to 2 larger towns/small cities that are similar to those close to EN4.

Looking at the clusters produced by the k-means analysis analysis a large proportion (10 of 19) of the locations have been grouped into 1 of the 5 clusters whic is the larger towns/small cities, the other 4 clusters all contain only 2 or 3 locations each. Viewing this in conjunction with the map there are a number of smaller towns/villages that are close to 2 of the larger towns/small cities that could be worth looking into further should Knebworth prove to be unsuitable on visiting or due to property prices. Knebworth is ideally located for commuting time though as it's located closer to London than most of the other locations.

**Conclusion**

The initial analysis of neighbourhoods to indicate which are similar to EN4 has provided one very close fit, Knebworth but there are a couple of others that could be worth a closer look, Hatfield & Baldock as they are also close to another 2 towns that are similar to the 2 towns close to East Barnet.

Hatfield is the closest to London of the 3 and has the advantage of being close to Potters Bar, an area which I already know, and also fairly close to my current location but being closest to London it is likely to have comparitively high property prices. Knebworth is a bit further out and located betwen two larger towns whereas Baldock is the furthest from London and close to two fairly small towns.

Taking these factors into consideration Knebworth appears to be the best fit based on this particular analysis.