Introduction

Background

Large cities are diverse, having many distinct neighbourhoods where different activities take place and where different demographics tend to live together. Some neighbourhoods are famed for its nightlife and are likely to attract students and people in their 20s for example Shoreditch in London. Families with children might prefer neighbourhoods with good schools, play areas and green spaces, for example Dulwich and Chiswick in London. Some neighbourhoods contain a high concentration of office-based business such as the City of London or Canary Wharf. Some neighbourhoods have many historical places and landmarks and might be preferred by tourists and have a high concentration of hotels and restaurants. Certain neighbourhoods are famous for their shopping, such as Oxford Street in London. There are also neighbourhoods known for their cultural offering such as the South Bank, Barbican or South Kensington in London with venues such as concert halls, museums and theatres.

As we have seen above different neighbourhoods will have different venues and these venues are likely to give us a good indication as to the type of neighbourhood it is. We can then look at the different types of venues as features or characteristics of the particular neighbourhood. With this information we can apply machine learning methods to classify together different neighbourhoods, to cluster different neighbourhoods into different groups and even to create a recommender systems. The aim of this project is to build a neighbourhood recommender system based on a user rating.

Problem

GIven the large size of certain cities it becomes very difficult for individuals to get to know all neighbourhoods. This problem becomes even worse when moving to an unknown but similarly-sized city in a different region or country.

Interest

The recommender system will be of interest to individuals and certain businesses
For example if a lecturer changes jobs from a University in West London to one in East London, she might want to live in a similar neighbourhood but closer to work. The recommender system for neighbourhoods will be a great help for him. While a family might be very happy with their neighbourhood in London, if they had to move to Toronto they will not know which neighbourhood to choose from. Once again the recommender system can help them make a better choice about neighbourhoods in the new city.

A business-owner such as a dry-cleaner planning on expanding his business by opening a new shop could use the recommender system for neighbourhoods. His existing shop might be in a neighbourhood with many coffee shops and restaurants but few landmarks or businesses. A neighbourhood with such characteristics might indicate a high-income

demographic who will have a high demand for dry-cleaning services (as opposed to a neighbourhood with many coffee shops and restaurants but lots of landmarks which is likely to have a high transient demographic like tourists who do not use many dry-cleaning services). Therefore the recommender system will help the business owner make a choice as to what neighbour it will be profitable to open a new shop. It can also be used by real estate agents suggesting new neighbourhoods to customers. It can also be used by real estate investors looking for similar neighborhoods.