FIND SIMILAR AREAS IN A CITY COMPARED TO AREAS OF INTEREST BASED ON FOURSQUARE LOCAL VENUES DATA USING K-MEANS CLUSTERING

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Author Note

This is the report for the final project in the IBM Applied Data-Science course on Coursera

1. Introduction

This is the report for the final project in the IBM Applied Data-Science course on Coursera, where the brief mentioned leveraging Foursquare data to solve a Data-Science problem, of the student's choosing.

Background

For multiple reasons (that are outside the scope of this project and will not be discussed) the rate of people moving has been rising and continues to rise. People are changing jobs more often. People are traveling more. People are living in more places during their lives. People are studying abroad more. All this means that people are also looking more for information regarding different places. Based on these trends more people might need to move to a place that is completely new to them. They might want to find out what area in that place they would like, or be similar to an area that they know they like. Or even find out what area they wouldn't like or be similar to places they dislike.

Problem

The problem tackled by this project is finding areas in a city that are similar to other areas of interest, with the particularization of the city to Zurich, CH, and the areas of interest to South Kensington -London UK, Greenwich – New York, NY USA and West Loop – Chicago, IL USA.

2. Data

Data regarding the characteristics of the areas

Data regarding 100 local venues was used to characterize area, which was collected using the Fousquare API.

Data regarding the areas

To assign local venues to areas, the longitude and latitude of the center of the area was used, together with the radius of the area. Data regarding areas of Zurich were difficult to obtain as no list of neighborhoods was found. However, a list of districts were found (https://www.zuerich.com/en/visit/about-zurich/zurichs-districts). Unfortunately, the dimensions of the districts were far larger than the dimensions of the neighborhoods of interest. The assumption being made is that the difference stems from the population, and population density difference of the cities where the areas of interests are, and the city of Zurich. Hence, the districts were split into smaller areas, similar in size to the areas of interest. Unfortunately, this data collection and manipulation was done by hand in an excel file that was exported as .csv to be imported in a dataframe.