Data Science Capstone Project - Solving Business Problems with Location Data

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Introduction/Business Problem

For my final capstone project for the Coursera IBM Data Science Professional Certificate, I have done for the IBM Data Science course on Coursera. This is the final, culminating project which ties together every course and gives me some practical experience with applying the course material.

The business problem I have selected to come up with a location for a new coffee shop/cafe in South Dublin.

We have chosen South Dublin for two main reasons. The first reason is that South Dublin City Centre is so densely populated with coffee shops, cafes and restaurants that it is too competitive to flourish or survive in a competitive market, especially with a new and unknown brand.

The second reason is that South Dublin is considered a very useless and affected area. It is also on the coastal area of the South, where the quality of life higher. This area also boasts the DART (Dublin Area Rapid Transit) railway network leading to it the city centre. This combination has one of these statistics sounds like a good idea to consider coffee & cafe training workshops, as well as opinions on it.

In order to identify the primary location for the final capital, we need to take it to account the amount of competition outlets that are already operating there, while also considering if there are heavy shops and other services in the area. We will achieve this by utilizing the FourSquare API to return such locations.

Data

Part 1:

Before any data preprocessing could be done, we had to install and load the packages required for the project. These included:

- numpy libraries (also in excel/csv format)
- pandas (for creating dataframes and manipulation)
- geopy (look up geo coordinates)
- matplotlib (for creating charts/plots)
- folium (for creating maps on FourSquare API)
- sklearn (machine learning)
- sklearn.cluster (k-means)
- Modules
- Requests
- Beautiful Soup
- Markup
- Geocoder
- Tabula-Py
- Tabula-Wrapper
- Tabula-Tools
- Plotly
- Plotly-Express
- Plotly-Geo
- Plotly-Cmd
- Plotly-Orca
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- Plotly-Plotlytools
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- Plotly-Chart_Studio
- Plotly-Dashboard_Core
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