Locations Search for New Coffee Shops

Applied Data Science Capstone Project

Contents

Introduction

An international coffee chain that is specializing in selling coffee and other beverages from different countries around the world is planning to enter the UK market within the following two years. Top management considers this to be a major step in the company's expansion plans that entails considerable risks. United Kingdom hosts main international coffee chains and many more local coffee shops can be found in all major cities. Thus, the company expects to meet strong competition from rival brands and local coffee shops. Moreover, costs for opening and operating a new coffee shop in UK are expected to be very high, especially when it comes in leasing properties in metropolitan areas such as London.

In view of all these, the department that is responsible for planning and implementing the UK expansion plans, has decided that the best course of action is to focus in London, and start with a few coffee shops, three to four, in central London. In order to find the best location and understand and map competition in central London, they assigned to a data analyst to explore coffee shops and venues in areas located in Western [1], Western Central [2], South Eastern [3], and South Western London [4]. They are mostly interested in learning how coffee shops are distributed in these areas, get a segmentation and description for these areas based on venues found there, e.g. are they near theatres, parks or other venue types, and if possible find the average price range and rating for coffee shops in these areas. Hoping to minimize risks and costs, they expected that through this survey they will be able to pinpoint locations where new coffee shops can fit.

Data

The primary data source will be the Foursquare API [5], from which data on venues across different locations in central London will be used. Due to the restrictions that Foursquare imposes on the number of calls and the type of available data, information for approximately 50 to 100 venues per postcode district [6] will be collected in a radius of 500 meters around the centre of each area. Venues will include coffee shops, restaurants, theatres, parks museums and any other venue types available through the Foursquare API. Data will be aggregated to generate statistics per postcode district, such as frequency for different venue categories, top venues according to frequency of occurrence, and density of coffee shops or similar shops per postcode district. These metrics will be used to identify potential areas where new coffee shops could fit, and for exploring and segmenting areas according to the most frequent venues encountered there.

Some additional metrics that could be used are the average ratings and price range for coffee shops per postcode district. To accomplish this, we need to use the venues details calls in Foursquare API [5] which is a premium call, and a personal account has a limit of 500 premium calls per day. To overcome this obstacle a selection of limited coffee shops, e.g. top 5 per postcode district will be made, or perhaps select coffee shops for only few postcode districts, e.g. after narrowing down the list of interesting areas.

To be able to extract data from Foursquare API [5], coordinates for each postcode district must be available. For this reason a data frame with details and postcodes per area will be scrapped from Wikipedia, see references [1] to [4], and coordinates will be obtained from the Free Map Tools [7].

References

[1] Wikipedia, “W Postcode Area,” [Online]. Available: https://en.wikipedia.org/wiki/W_postcode_area. [Accessed 3 10 2019].

[2] Wikipedia, “WC Postocode Area,” [Online]. Available: https://en.wikipedia.org/wiki/WC_postcode_area. [Accessed 3 10 2019].

[3] Wikipedia, “SE Postcode Area,” [Online]. Available: https://en.wikipedia.org/wiki/SE_postcode_area. [Accessed 3 10 2019].

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[5] “Foursquare Developers Portal,” Foursquare, [Online]. Available: https://developer.foursquare.com/.

[6] Wikipedia, “London postal district,” [Online]. Available: https://en.wikipedia.org/wiki/London_postal_district. [Accessed 03 10 2019].

[7] Free Map Tools, [Online]. Available: https://www.freemaptools.com/download-uk-postcode-lat-lng.htm. [Accessed 3 10 2019].