Predicting the best location for a second office

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1. Introduction

1.1 Background

The company I work for is currently located in Times Square, New York. The firm is growing at a good rate. Given the expansion of our services and client base it may soon be time to seek additional office space. Our company employs professionals from the Tristate area (New York, New Jersey and Connecticut) and our clients are generally spread out across Manhattan and across the other four boroughs in New York.

1.2 Problem Statement

Determining the optimal location for expanding the company's operation in New York City requires careful consideration of a number of options. The company may choose to increase the space it leases in the current building, if this is possible, or may consider opening up a second office location in New York City. Opening up a second office and ensuring that this office provides the same amenities and facilities that the current office provides is important in order to ensure that staff in different locations are getting similar conditions and surrounding environments to achieve the same level of productivity. This requires considering the accessibility of the location to public transit, proximity to other venues that the staff frequent outside the office such as gyms, restaurants for breakfast and lunch meals or evening entertainment venues following a hard day's work in the office. In the search for a possible second location it would be ideal if the company could identify other locations that have a similar profile to the company's existing location.

Target Audience

This report is prepared for the use of the company's management to assist them in planning for future expansion. The report seeks to aid the decision making process of management in choosing a future office location as part of the expansion plan.

2. Data

2.1 New York Neighborhoods Data

For this dataset we will use the New York neighborhood data file used in the IBM Data Science course labs that contains the 5 boroughs in New York City and the neighborhoods that exist in each borough as well as the latitude and longitude coordinates of each neighborhood. This available at the URL: https://cf-courses-data.s3.us.cloud-object-storage.appdomain.cloud/IBMDeveloperSkillsNetwork-DS0701EN-SkillsNetwork/labs/newyork_data.json and will be read as a JSON file into a pandas dataframe.

2.2 Foursquare data to explore venues around New York neighborhoods

The Foursquare API will be used to explore venues surrounding the New York neighborhoods in the Manhattan neighborhoods from the neighborhoods from the above dataset. The current office is located in Manhattan and a second location in the Manhattan area is considered appropriate as this borough is central enough and has more options for commercial real estate that meets the profile of the current office location and is also suitable office for a professional services firm.

2.3 New York Public Transit Data

Most of the company's employees use the New York City subway for transportation to the office. The proximity of the office location to a number of subway lines will be ideal. Data on the location of subway station will be sourced from the New York Metropolitan Transportation Authority (MTA). This data is available on the MTA's website at http://web.mta.info/developers/developer-data-terms.html#data. A URL to a file containing subway station data is available at this location and this file is available in .csv format and will be read directly into a pandas dataframe using the **read_csv** function. The URL is as follows:
https://atisdata.s3.amazonaws.com/Station/Stations.csv.