COURSE CAPSTONE

IBM PROFESSIONAL DATA SCIENCE CAPSTONE

Topic: Location Analysis for Confectionery Ltd

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Introduction

Confectionery Limited is a Multi-National Company that specializes in confectionery products such as assorted ice-creams, chocolates, cookies and candies. The company has succeeded in the various locations that it is currently operating and wishes to make great returns from a new shop in Manhattan, New York, USA.

Business Problem

The company has been presented with two investment opportunities to open a new shop in one of two locations. As a result, the company must choose the location that offers a possibility of greater revenue and thus profits. Due to the nature of its products, the company is looking to locate near schools as young people are their greatest customers.

The aim of this study will therefore be to find the best area to open this new venture for Confectionery Ltd based on the most valued attributes.

Data

The analysis will make use of Foursquare data together with geo-data of New York, Manhattan downloaded here: https://cocl.us/new_york_dataset

The variable that was mostly of interest was the **availability of customers** in the two locations provided. This was mostly **the number of schools** that were in the vicinity. However, the study also had to include the **number of trending venues** so as to filter down the best location from the two.

Target audience

The targeted audience is Confectionery Ltd growth and strategy decision makers.

Sources

The data was downloaded from the following platforms:

New York: https://cocl.us/new_york_dataset

Number of schools: https://foursquare.com/developers/api

Number of Trending Venues: https://foursquare.com/developers/api

Methodology

First step included downloading the json data of New York.

The data was converted to a pandas dataframe.

The data had to be filtered to represent only the data for Manhattan as the locations are in Manhattan.

Format and normalize the data.

Geolocator-Nominatim was then used to find the geo-coordinates of the two locations.

Foursquare was then used to obtain various data pertaining to schools in the vicinity of the two locations.

Foursquare was then used to obtain various data pertaining to trending venues in the vicinity of the two locations.

Represent the data visually with maps using Folium.

Results

The analysis showed that location two would be the best option for the new investment.

Discussion

Making a decision based only on the availability of the primary customers tended to be not sufficient as the difference was rather insignificant. As a result, the inclusion of trending venues managed to differentiate the two locations, setting apart what seemed to be a more lucrative location from the other one.

Location	Number of Schools	Number of Trending Venues
Location 1	10	0
Location 2	14	5

Location 2 offers a greater number of schools and also a greater number of trending venues. The trending venues offer high traffic and they include The Grand Central Terminal, AMC Empire 25, Macy's, Times Square and Port Authority Bus Terminal. All of these venues get uncountable visitors each year and would be great revenue for the business.

Conclusion

The location analysis for Confectionery Ltd was carried out successfully and a decision can be clearly made based on the results provided.