Finding the best place to open a coffee shop in Oslo

A Data analysis point of view

1. Introduction

1.1 Motivation

Oslo is the capital and most populous city of Norway. Although for Scandinavian countries, populous means often less than a million citizens (Oslo alone is around 700.000 citizens, and little more than 1 million with all the suburbs).

Oslo is divided into 15 districts or boroughs (called "Bydel") of almost equal population size (around 50.000 people for most of them), and each one divided in numerous neighborhoods. This partition is relatively recent and were created the 1st January 2004.


Oslo neighborhoods - Map - *Wikipedia*

This is also the economic and financial center of Norway, as well as an important center for maritime industries and trade in Europe. According to the annual report of best cities in the world for happiness and well-being **[6]**, Oslo is in the Top10 since several years, and Norway is also among the top 5 happiest country in the world, so it is a good place to live.

Here are some pictures of the town :

Oslo neighborhoods – trees in the city and fjord (sea) - *Pixabay©*
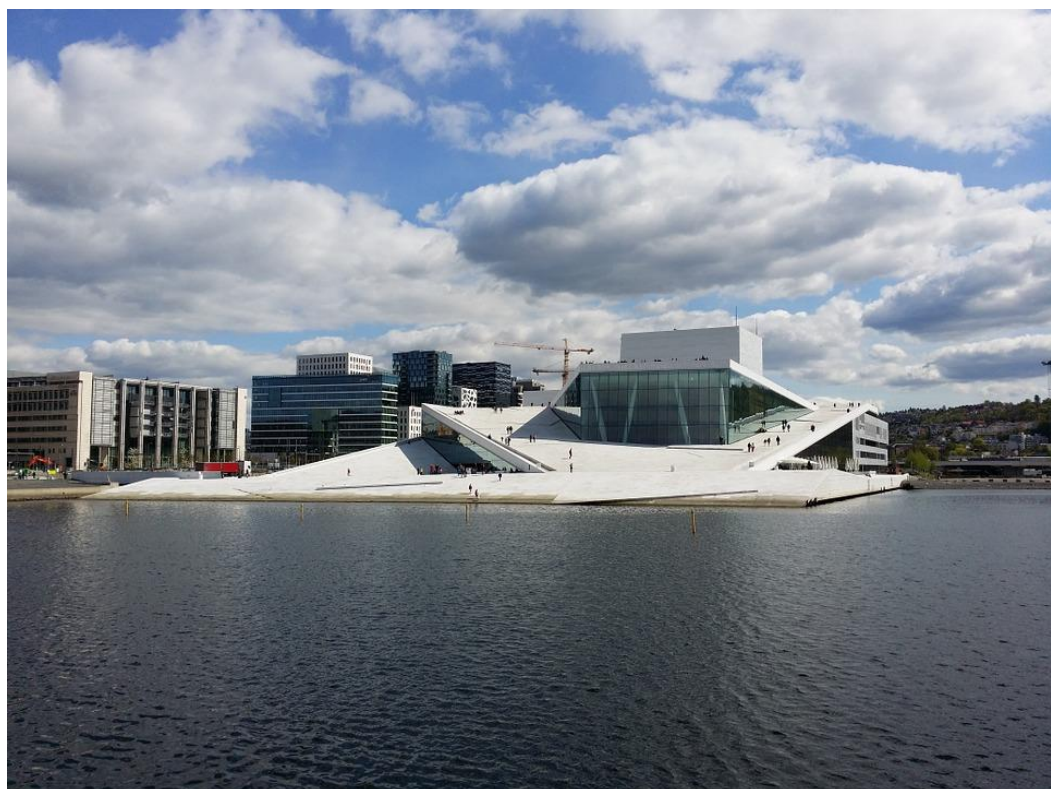
Oslo neighborhoods – the Opera - *Pixabay©*

Due to the small population and high level of income of Norwegian people, there are many possibilities for business. Indeed, Norwegians lives in one of the richest countries in the world **[7]** with a Gross Domestic Product (GDP) per capital > 90K$, and an exceedingly small population, less than 5,5M (all Norwegians together are not even third of NY population !!) for a quite large country of 385 207 km2 which for example is larger than Germany (populated with more than 83 million people).

It is also (like all Scandinavian countries) a highly prized destination for sustainable expats **[8]**, which should increase in the future years.

The almost only negative factor to go in Norway is cold climate (which in the next decades, because of global warming, should be also another advantage). However, as climate in Norway in still generally cold, people use to go in coffee shops, which are very popular, and where you can find hots drinks and nice pastries (this characteristic is not only because of cold climate, but probably an important factor). That is why I will focus my analysis on coffee shops more than restaurants. It is not a too complicated business (easier than a restaurant where you have many losses due to expired stock for example) and it could be a good start for an expat with not a high level of education, or also a pastry or bakery-shop chain, wanting to develop her business in North Europe.

Oslo neighborhoods – A coffee shop - *Pixabay©*

1.2 Problem

Data that might be suitable for a coffee shop business may include density of coffee shop/restaurant, also density of shops (many people doing shopping contribute to an increasing demand for drinks and snacks), density of people, average income of people per district, …

As we are asked to use Foursquare API for this analysis, we will use the number/density of different kind of venues.

For the clustering of neighborhood, we will use the most common venues.

2. Data acquisition and preprocessing

2.1 Data sources

For our analysis of neighborhoods of Oslo, I took mainly the data from Wikipedia by scrapping, a sometimes verify some points on the Oslo city website **[3]**

[1] https://no.wikipedia.org/wiki/Delbydeler_i_Oslo (thanks to Google Translate)

[2] https://en.wikipedia.org/wiki/Oslo

[3] https://www.oslo.kommune.no/ (thanks to Google Translate)

To find the coordinates of each neighborhoods in order to geolocalize them, I used the python library geopy, which allows to find latitude and longitude for a given address. For example

address = 'Ellingsrud, Alna, Oslo, NO'

gives

latitude = 59.9341909 and longitude = 10.9208973

We could also have simply used Google Maps, but as we needed to do it for all neighborhoods (more than 100) it was much faster to do it with a little Python programming.

As the purpose of this capstone is to use the **Foursquare API**, I used it for my Exploratory Data Analysis (EDA) to get the most common venues.

[4] https://developer.foursquare.com

And finally, all the pictures in our report are free of charges and come from Pixabay.

[5] https://pixabay.com

Others general REFERENCES

[6] https://worldhappiness.report/ed/2020/

[7] https://howmuch.net/articles/richest-countries-in-the-world

[8] https://www.internations.org/expat-insider/

Thanks for reading !