# Battle of the Neighbourhoods

Stockholm versus Gothenburg

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# The Technology Hub

“We are stuck with technology when what we really want is just stuff that works.”
— **Douglas Adams, The Salmon of Doubt**


# 01

# Introduction

# Background and Problem

## Location

There are many choices but which is the most suitable

## Data

What Information is currently available?

## Proximity

How close can my business be located to venues?

# About the Project

Stockholm which is the capital city of Sweden and Gothenburg which is the second-largest city each have a population of more than 1 million people each

- The size of the company could also mean that it cannot be set up in places with proximity to all the parks and food hubs they need.

- This means that technology hubs that intend to employ a large number of employees will need to investigate parks and recreation areas or build their own.

This then means that a technology hub will have to do a location and proximity research to determine where it should be located.


# 02
# The Data

- There are many location providers like Foursquare, Google and Yelp which all have updated information
- Foursquare will be used for this capstone project because it has the most appropriate and consistent location data which is updated continuously
- Foursquare offers top picks, trending, food, coffee, nightlife, fun, shopping and breakfast
- The postal codes for Sweden will be downloaded in txt file format as a zip file provided by the Wikipedia site https://en.wikipedia.org/wiki/List_of_postal_codes_in_Sweden

# 03 Methodology

# Major Requirements

## Pandas, folium and geocoders

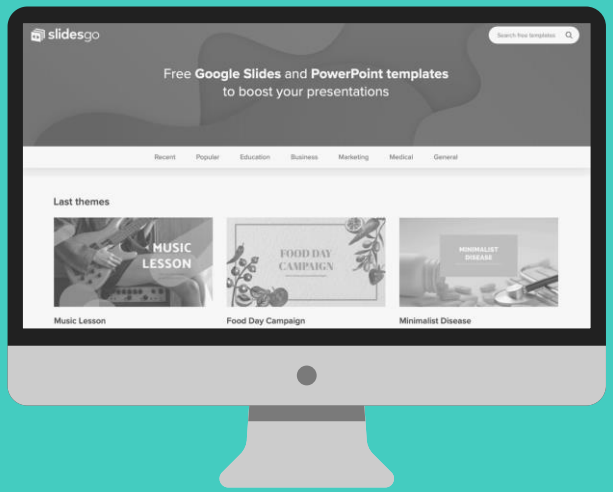
The python libraries that were used

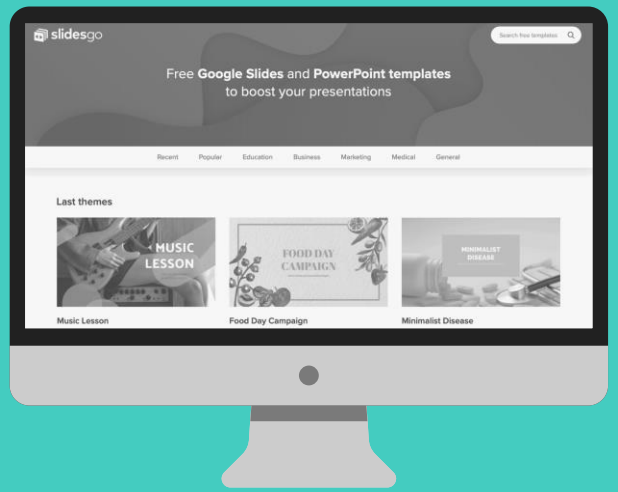
## Kmeans

The clustering algorithm used

# Exploration

- The pandas library was then used to extract the data delimited by whitespaces and given column names and loaded into a pandas data frame.
- Stockholm and Gothenburg data were each filtered out into two new data frames and the latitude and longitude data for the two cities was got using the geopy library





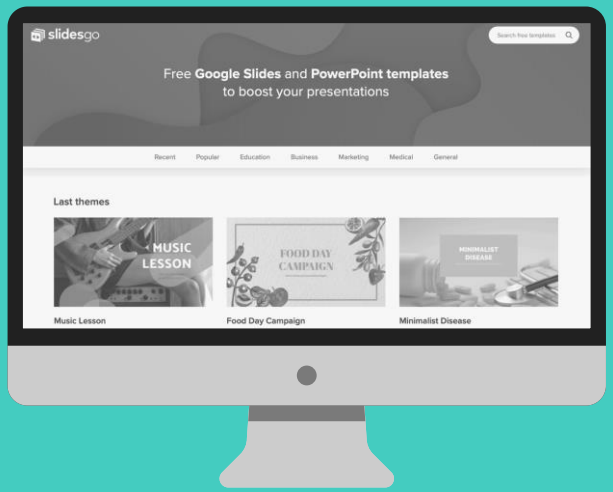

# Analysis

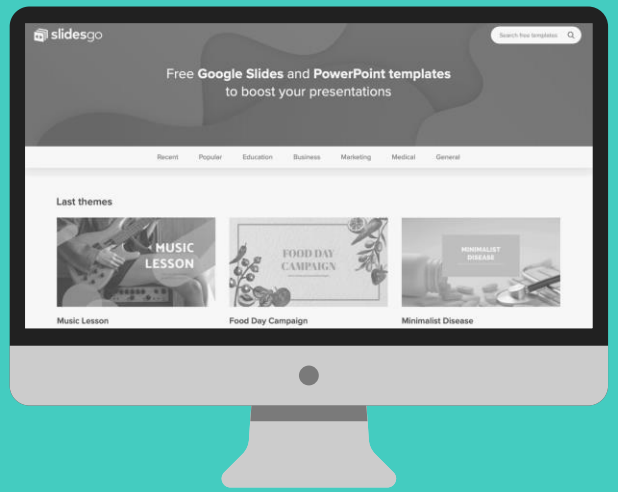
- Using the Foursquare API, we retrieved the top 100 locations in the two cities within a radius of 500 meters and cleaned the resultant JSON results into a new pandas data frame.
- The venue categories were then split and encoded using the pandas get_dummy function and the mean of each neighbourhood was derived. Using these result, the top 10 most common venues for each location was printed into a pandas data frame for each of the cities.

# Clustering with KMeans

- The results of the top 10 most common venues for the two cities were then used as input into the K-means clustering method of vector quantisation.

- K-means was used because it gives a better picture of how the different clusters belong and are related to each other with the nearest mean.






# Examining the Clusters

- Data of the 5 different clusters was then examined and any observations were reported to the client intending to build a Technology Hub.
- The details of the results are further discussed in the next chapter of results.

# 04
# The Results

# Results

The results also show that Stockholm cluster 3 has 15 top venues while Gothenburg cluster 1 has 12 top venues within a 500-meter radius

55%
Stockholm

5%
Stockholm

10%
Programming

30%
Gothenburg

- The results also show that Hotels and food amenities are the most common and top trending places in Stockholm.
- Gothenburg however has construction and landscaping, hotel and Pizza places as the most common venues.


# 05

# Discussion

# Discussing Results

## Stockholm

Recommended Choice

## Stockholm

Has more venues

## Gothenburg

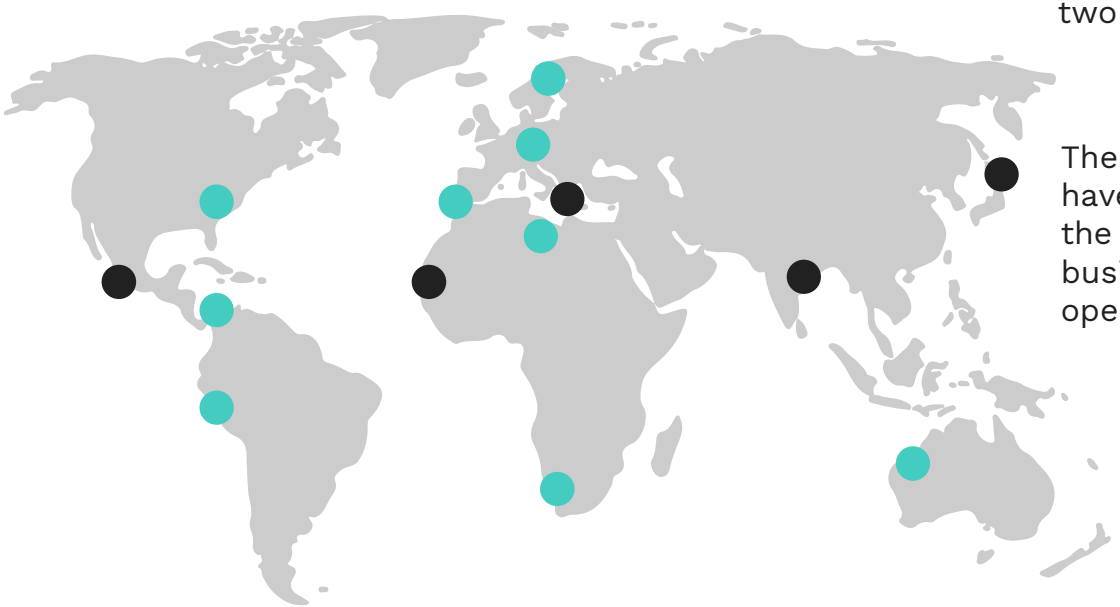
Will appeal more to tourists

## Gothenburg

More suited for a tourist center

# 06
# Conclusion

# Conclusion



This project gives more insight into the surrounding neighbourhoods and how spaced venues are within the two cities

There are also differences that have been sighted that could be the deciding key factor for many businesses out there looking to open up shop in Sweden.

# Thanks!

Do you have any questions?
youremail@freepik.com
+91 620 421 838
yourcompany.com