## The battle of the Neighbourhoods (Week 2)

## 28 February 2020

## Introduction: Business Problem

### Problem

Where would someone want to open a food outlet like a restaurant in the area of Johannesburg? The restaurant must be situated where there is high traffic of prospective clients, i.e. in a location with many companies and businesses. It should also be located where there is the least number of restaurants, and preferably where there no Japanese restaurants.

### Target audience

Prospective entrepreneurs seeking to open the restaurant in Johannesburg, South Africa.

### Background

When it comes to business location is everything. The success of a business can utterly fail in location A and flourish in location B. So the owners of such prospective businesses will definitely benefit from my project because it will help them locate their business in a location that will be most profitable for them, during all seasons of the year. It will help them know where most of their prospective clients are located, and thus make an informed decision about where their business should be situated.

A particular overseas business might be interested in opening a restaurant in Johannesburg, SA. This project is therefore designed to assist the decision making stakeholders of such a company to understand their target market and location better. This will help them understand where the specific location should be, the size of the restaurant and the prices it needs to charge for meals depending on competition, so that it can plan for things like, staff, salaries and building maintenance costs.

They need to decide if they should buy an already existing franchise which already carries a reputable brand, or if they can risk building their own brand by starting their own restaurant from scratch. Many questions can be answers based on the conclusions that will be drawn from this project.

## Data

### Which data will be used?

The data that I will be using will only be Foursquare location data. This will be sufficient and we'll therefore ignore other data sources for the purpose of our project.

Based on our problem, we will need the below data:

* number of existing restaurants in the neighborhood (any type of restaurant)
* number of and distance to Japanese restaurants in the neighborhood, if any
* distance of neighborhood from city center

### How will we use the data to solve the problem at hand?

We will be making calls to the Foursquare API for different purposes. We'll also construct URLs to send a request to the API to search for nearby restaurants, to explore the particular restaurants, to explore a Foursquare user and to get trending restaurants around the location. Finally we're going to use the Folium visualization library to visualize results.

From the Foursquare API data source we'll be using data like venues of restaurants nearby in order to conclude where the best location for our restaurant should be. The number of tips in a restaurant and the overall rating of the venue will be the other kinds of data that will be useful to help us make an informed decision of where the Hotel should be.

## Methodology

The purpose of this investigation/project is to find the location within ~ 6km that has the least number of restaurants.

In order to achieve the above objective we have collected the necessary data on the all the restaurants in the vicinity and also information about Japanese restaurants in the area. We did this using Foursquare.

We are also going to investigate restaurant density in the area. We will only focus our attention on the areas with low number of restaurants or no restaurants for that matter. An attempt will be made to use data visualization to do all this.

Finally, we should obviously take into account the locations that meet the requirements as set out by the stakeholders. Only locations with certain number of restaurants will be considered, i.e. 2 restaurants per certain radius. Using Folium we will visualize the clusters of all such locations.

## Results and discussion

There was fairly a small number of restaurants in the area around Braamfontein within a radius of 12km. The number of restaurants is 15, while 11 of those are Japanese. It gives a sense that Foursquare has not registered all the restaurants in 3rd world countries like South Africa since 15 seems quite low given information available about the actually number of restaurants in Johannesburg.

Nonetheless, the maps shown in the code display 3 hotspots of Japanese restaurants. A hotspot which had no restaurants at all was in Killarney. It actually has a Mall in the vicinity which attracts a lot of buyers of consumer goods. This will be good for the restaurant as an influx of customer will buy food from them by default since there will be no alternatives.

There are 15 options that the stakeholders can decide to choose from which I predict to be profitable for their business. The best location will be closest to the Mall.

## Conclusion

We were tasked with solving the business problem described in the first heading above, that is, to get candidate locations most suitable for the stakeholders to open a profitable restaurant that is close to the city center. We ideally focused on locations that had a low number of restaurants, which preferably are not Japanese.

Fifteen spots were found and therefore will be the onus of the stakeholders to decide which one fits their requirements the best.