Data Science Capstone

Finding the ideal neighborhood for a new restaurant in Miami, Florida.

Background

- Miami is a major center and leader in finance, commerce, culture, media, entertainment, the arts, and international trade. The metro area is by far the largest urban economy in Florida and the 12th largest in the United States.

- Miami is the sixth most densely populated major city in the United States.

- Miami is split roughly into north, south, west and Downtown areas.

- The cuisine of Miami is a reflection of its diverse population, with a heavy influence from Caribbean and Latin American cuisine. By combining the two with American cuisine, it has spawned a unique South Florida style of cooking known as Floribbean cuisine.

Business Problem

A group of investors wants to open a number of fine dining restaurants in the United States of America. New York and Miami are the cities they are mostly interested in. New York's current market was analyzed before so now its time for Miami, Florida.

By using available data and taking into consideration multiple parameters for every neighborhood in Miami, we will make recommendations to the investors about the possible ideal spots for their restaurant and its suggested cuisine .

In general, anyone interested in opening a new restaurant in Miami should be interested ,because he could get very useful information about Miami's current market.

Data

Data	Source
Miami neighborhood information	https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Miami
Venues	Foursquare
Florida demographic information	https://datausa.io/profile/geo/miami-fl/
Miami demographics	https://en.wikipedia.org/wiki/Miami
Miami average earnings by Neighborhood	Google

Miami population demographic profile

Relationship between demographics and cuisine
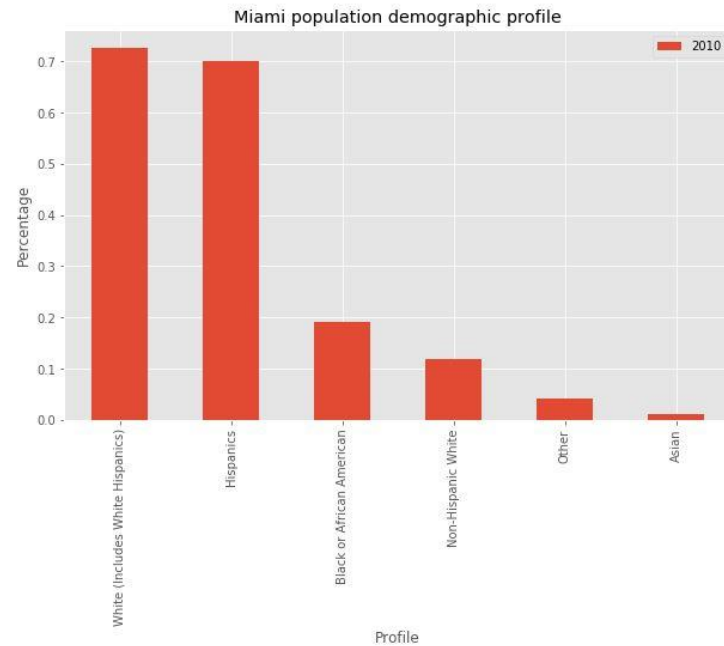
▶ Miami's population is on its majority Hispanic. However, that's not enough for us in order to make a proper suggestion to the investors.

▶ Due to data limitations about Miami's demographic info, we'll examine Florida's detailed information.

Top 5 Nationalities in Florida in 2018

Relationship between demographics and cuisine
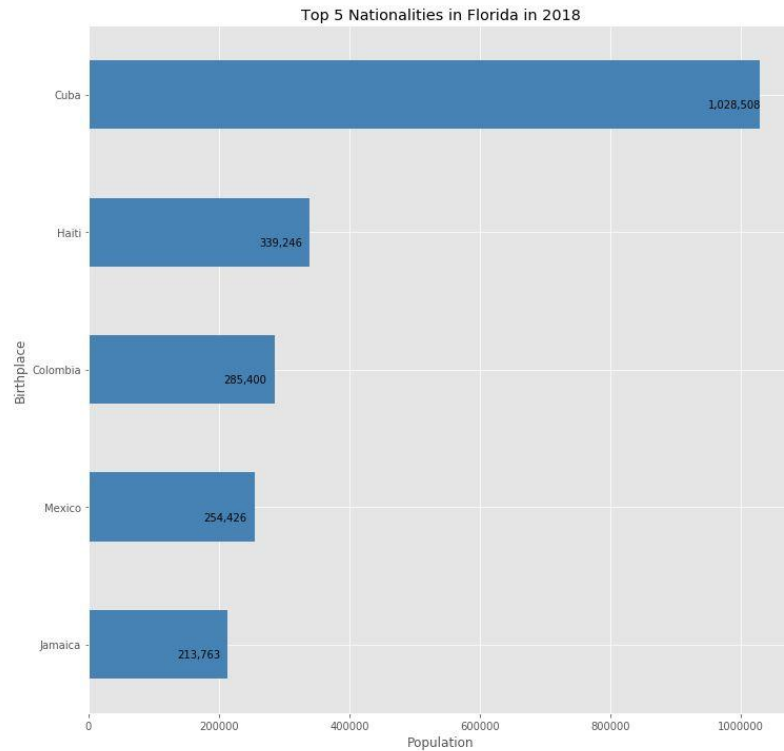
▶ Over 1 million people living in Florida have Cuban origins, almost 3 times more than people born in Haiti which is the second most common birthplace. As a result, Cuban cuisine is our choice for further investigation using Foursquare API.

# Relationship between restaurant's type and earnings

Our stakeholders want to invest in a fine dining restaurant. So, it's necessary to consider financial data such as Miami's citizens' average net earnings by neighborhood in order to locate the wealthiest.

Boxplot data	Earnings
Mean	40.506,45$
Std	19.734,83$
Min	22.292$
25%	26.585,75$
50%	36.589,5$
75%	42.240,75$
Max	107.222,0$

Box plot of earnings in Miami

Top 5 Miami Neighborhoods average earnings
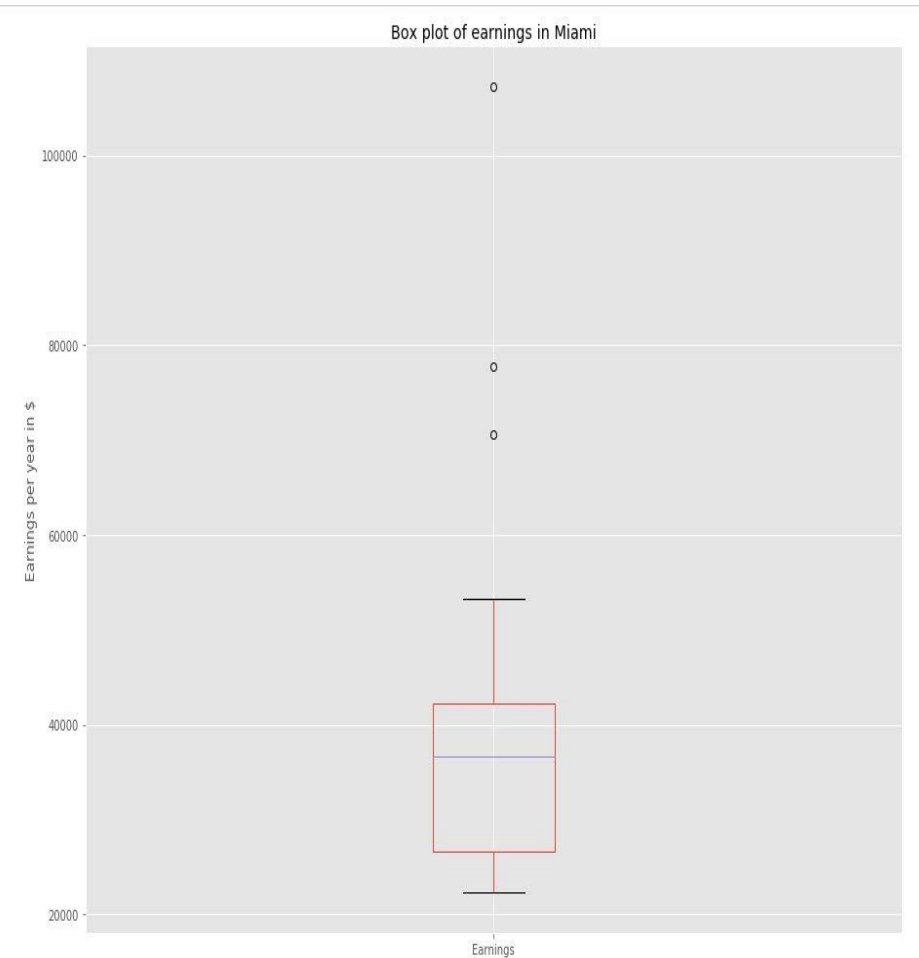
Relationship between restaurant's type and earnings

▶ The insight provided from this dataset will help us choose the ideal neighborhood after k-means clustering. Our suggested neighborhood should be above 75% in net earnings.
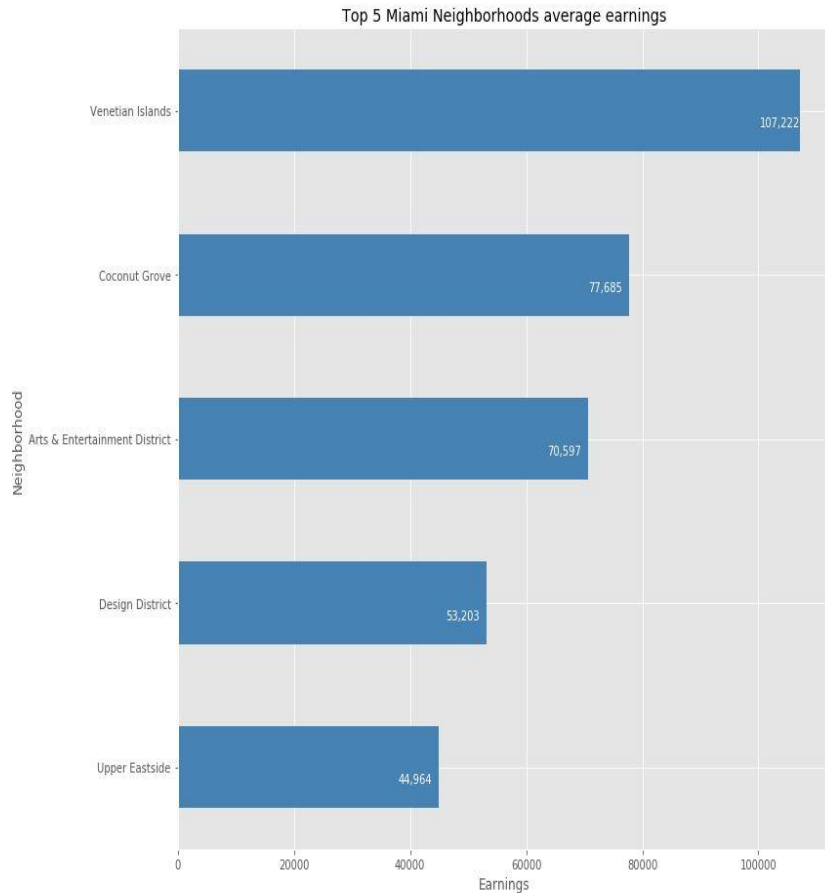
Foursquare venues and clustering

Label	Value	Number of neighborhoods	Map label color
Cluster 1	Low frequency	21	Red
Cluster 2	High frequency	2	Purple
Cluster 3	Medium frequency	2	Green

▶ Venues data acquisition using foursquare API.

▶ Following we will use k-means clustering, to partition our data in 3 clusters, using the frequency of existing Cuban restaurants among the venues in each neighborhood as the main parameter.

▶ 3 clusters: High , medium and low freq.

Foursquare venues and clustering

- High frequency : Arts & Entertainment District and Edgewater.

- Medium : Wynwood and Midtown.

- Low: The rest.

Results

Results

- Edgewater is the neighborhood with the highest frequency, and Arts and Entertainment has the second highest.

- Arts and Entertainment district is third on top5 list with 70.597$ and above the target of 75% which in Miami is 42.240 dollars.

- Arts and Entertainment district is our suggestion for being the ideal neighborhood for a new fine dining Cuban restaurant.

Neighborhood	Earnings
Edgewater	37.205$
Arts & Entertainment	70.597$

Conclusion

▶ By using open available online data, we suggested Arts &Entertainment district (also known as Omni) as the ideal neighborhood for the investment.

▶ The final decision will be taken by the stakeholders after examining more data like real estate prices, wages, public transport, parking, crime rates etc.