

# Introduction to Capstone project



If there is a business that works in Morocco, it's the cafes.

They may be adjoining, whether in large avenues or in alleys, yet they are always full. There are cafes for all ranges, for all budgets, whether franchised or branded locally. The demand therefore still exists, fueled by this historic Moroccan culture of "take a coffee" to get some fresh air after a day of work or the weekend, to make an appointment or even to discuss business. The competition between cafes also exists, but does not seem to harm this business. Moreover, the cafe owners contacted confirm to be competing strongly by newcomers but still succeed in pulling out of the game.

This is precisely what has pushed many people to invest in this area. It must be said that with an investment, barely therefore, sustainable costs, profitability is very interesting.

## ***Small presentation of the budget to start a café in Morocco***

Still, we have to stand out, be creative and offer quality service as well as consumption. In this context, the investment can go from simple to double, depending on the means and the concept adopted. For starters, location is the first parameter to consider. In fact, a café must be located on a street or avenue with satisfactory attendance, in order to ensure a correct filling rate. Then come the other elements, namely the area, the layout and the equipment. Assuming a room with an area of 200m<sup>2</sup>, taken at the beginning of activity for rent, it takes about 2 MDH for the development work, which include the layout of the space in several parts (kitchen, counter, latrines ...). In addition, 1.5 MDH must be reserved for equipment that includes tables and chairs, glasses, cups, ashtrays, kitchen tools and utensils (forks, knives, spoons, blender, coffee machine, etc.). This, in addition to the refrigerator, an oven, a microwave ... at the same time, do not begrudge the means to ensure a warm and friendly space, focusing on decoration, TV screens, air conditioning ...

Charges reach 663,600 DH per year

In addition, at the beginning of the activity, a working capital (100,000 DH) is necessary for the machine to turn, if only for the first three months, to pay the wages and the goods. In all, the investment cost amounts to 3.6 MDH for our model. Once coffee is created and put in place, there are recurring expenses and other variables. If the owner has opted for the rental, he will have to pay at least 25,000 DH per month for the local, or 300,000 DH annually. For the payroll, it takes 4 servers that take turns from 8h to 21h, paid to 800 DH monthly each, an annual load of 38,400 DH, 2 cleaning women at 800 DH each (19,200 DH); 2 bartenders for an average salary of 3,000 DH each, or 72,000 DH per year. Beside, the service charges (water, electricity, internet) drain 60,000 DH per year, at the rate of 5,000 DH per month. Place now to the goods. "Black coffee" is the reference drink in coffee shops in Morocco.

It has always been popular and it is not about to change. Thus, we must rely on the consumption of one kg of coffee per day, at an average price of 100 DH. Note that depending on the quality, the price of the kg of coffee can start at 50 DH and point or even exceed 200 DH. Which therefore requires a budget of 36,000 DH of coffee annually. For their part, other goods (fruits, milk, sugar, water bottles, butane gas ..) require about 250 DH daily, or 90,000 DH per year.

Similarly, it is necessary to allocate an envelope for the maintenance of the premises and the renewal of degradable material, in this case cups, glasses, light bulbs ... of nearly 4,000 DH. In all, the charges amount to 663,600 DH annually.

Taking into account these charges and this business model, the revenues generated are interesting. In fact, according to the owners, the turnover that can generate a well-located café, with a satisfactory filling rate, reaches on average 3,000 DH per day, all consumptions included.

To illustrate by the simple basic consumption: coffee, 1 kg of coffee at 100 DH, can give 80 cups of coffee. Suppose a cup is charged at 10 DH, the daily revenue of the only coffee is 800 DH. As a result, revenue points to just over 1 million DH.

By deducting all current expenses, the profit reaches 416,400 DH, ie a gross margin of 40%. You should know that to build this business, the owners opt either for the legal form SARL or natural person. In addition, the business is subject to a number of taxes, such as the one related to the flow of drinks, which is 2% to 10% of revenue, as well as that relating to the license, the terrace and The tarpaulin. These are calculated on the basis of the occupation rate of the public domain and the dimensions of the tarpaulin. This, not to mention the urban and building tax.

## Problem

With this huge number of cafes in Morocco and this fierce competition between cafes owners, which place or neighborhood will be more appropriate to invest in a cafe to guarantee a good profitability and less competition ?!



## Interest

As we have already said in the introduction, cafes in Morocco are very successful businesses in terms of profitability in our country Morocco, so this project will be useful to everyone who wants to take a step in this business by investing his money to own a cafe. They will have a good vision about the market in terms of clients and their interest depending on their living areas. That way, they will have all the characteristics to select the appropriate place to start his project.

# Description of the Data



In order to start our project, we are going to need information about the moroccan market (the market of cafes) we will need :

- Neighborhoods in some moroccan cities
- Latitude and longitude of each neighborhood
- Number of cafes per neighborhood
- Habitation per neighborhood
- Fousquare location data

Our problem here is to choose the appropriate place or neighborhood to invest in a cafe in order to guarantee a good profitability, so to settle this problem, we will start by :



1. getting all the neighborhoods in the following morrocan cities :

- casablanca

from : <https://fr.wikipedia.org/wiki/Casablanca#Quartiers>

- Rabat

from : <https://fr.wikipedia.org/wiki/Rabat#Quartiers>

- Marrakech

From : <https://fr.wikipedia.org/wiki/Marrakech#Quartiers>

- Tangier

From : <https://fr.wikipedia.org/wiki/Tanger#Quartiers>

2. get the coordinates (latitude and longitude) of each neighborhood (from <https://www.latlong.net/> )

we will get a result dataframe like the following :

[6]:

	ville	quartier	Latitude	Longitude
0	Casablanca	Aïn Chock	33.532720	-7.617050
1	Casablanca	Aïn Sebaâ	33.601560	-7.545370
2	Casablanca	Hay Mohammadi	33.583580	-7.561269
3	Casablanca	Roches Noires	33.599420	-7.585870
4	Casablanca	Anfa	33.594150	-7.646590
5	Casablanca	Maârif	33.580260	-7.630220



3. Use the Foursquare location data to know the most visited venues and places per neighborhood and class them.

We will get the dataframe that look like :

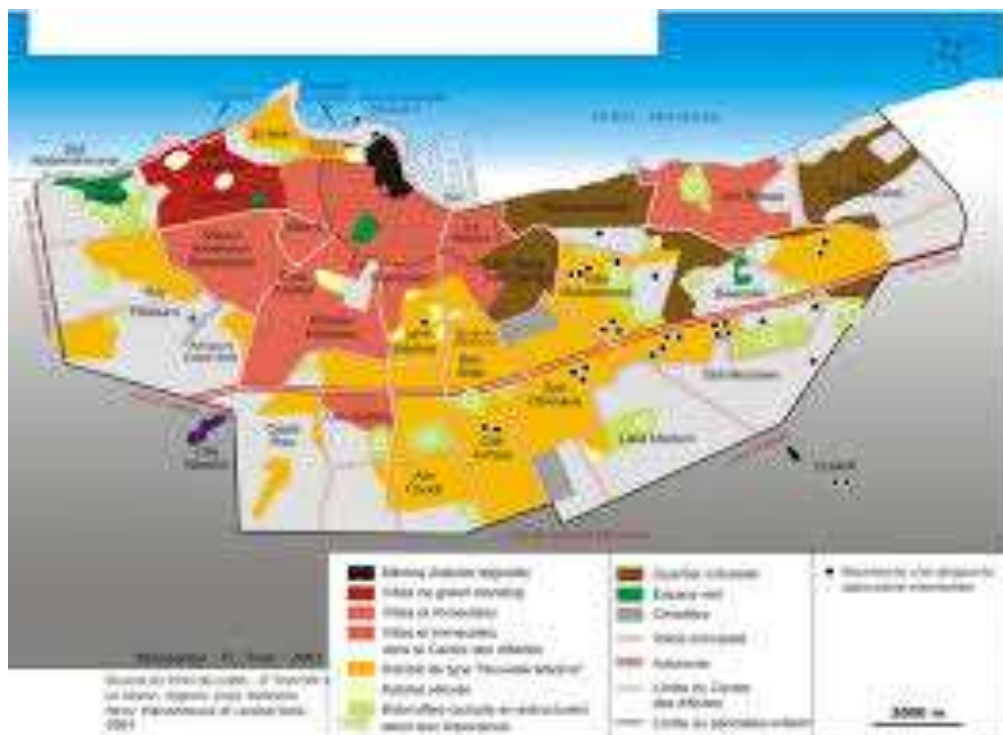
[52]:

	name	categories	lat	lng
0	Les Quatre Cerises	Bakery	33.534528	-7.611007
1	Idouar Ice	Coffee Shop	33.533901	-7.612866
2	Café ANTIK	Coffee Shop	33.532062	-7.616460
3	Fragola Gelato	Coffee Shop	33.535425	-7.609501
4	West Village Café	Café	33.533885	-7.614602

4. use Clustering to divide this areas by clusters depending to their most common visited places, and choose the cluster or clusters that contain cafes in first positions.
5. Use the data of the number of cafes and habitation per neighborhood to calculate the correlation between this variables in order to focus on places where we can do our investment

From :

[https://www.huffpostmaghreb.com/2017/05/29/casablanca-5e-ville-plus-densement-peuplee-monde\\_n\\_16865426.html](https://www.huffpostmaghreb.com/2017/05/29/casablanca-5e-ville-plus-densement-peuplee-monde_n_16865426.html)





# Result

After using the Foursquare data location to get the most visited venues in Casablanca by quartier (neighborhood) and sorting this venues in a descending order, we run our clustering algorithm to divide our neighborhoods by 3 clusters

We get the following results :



After analysing clusters we get:

13 neighborhoods are in the first cluster and had cafes in top 3 of their most visited venues :

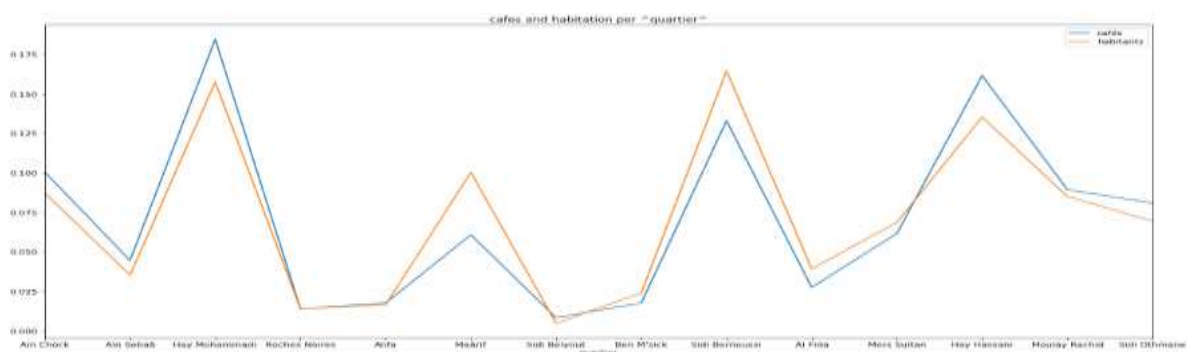
	quartier	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Aïn Chock	Fast Food Restaurant	Coffee Shop	Sushi Restaurant	Bakery	Café
1	Aïn Sebaâ	Tapas Restaurant	Fast Food Restaurant	Burrito Place	Wings Joint	Construction & Landscaping
3	Roches Noires	Café	Gym	Grocery Store	Restaurant	Construction & Landscaping
4	Anfa	Pub	Pizza Place	Café	Italian Restaurant	Diner
5	Maârif	Café	Seafood Restaurant	Japanese Restaurant	African Restaurant	Sushi Restaurant
6	Sidi Belyout	Café	Hotel	Restaurant	French Restaurant	Moroccan Restaurant
7	Ben M'sick	Café	Sandwich Place	Wings Joint	Construction & Landscaping	Grocery Store
9	Sidi Bernoussi	Café	Snack Place	Sports Club	Bistro	Wings Joint
11	Al Fida	Athletics & Sports	Café	Wings Joint	Convenience Store	Gym
						Construction &

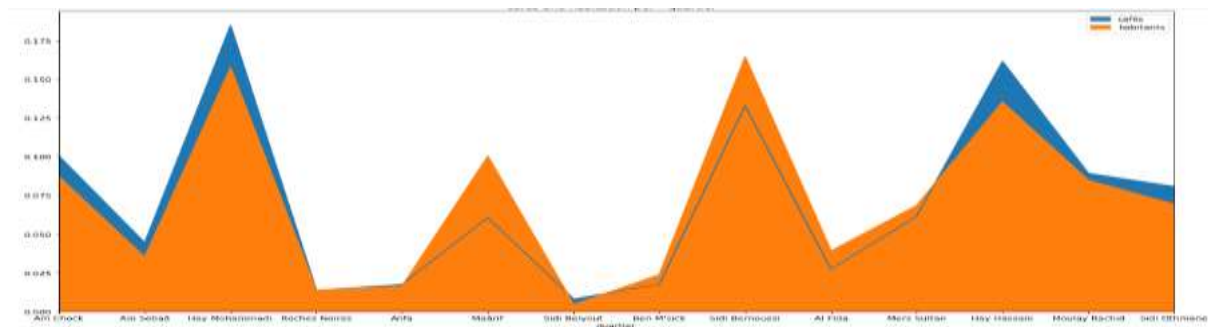
The other two clusters doesn't contain cafes at all

So cafes are not mostly visited by people in those neighborhoods

	quartier	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
2	Hay Mohammadi	Tram Station	Soup Place	Construction & Landscaping	Gym	Grocery Store
10	Sidi Moumen	Tram Station	Wings Joint	Gym	Grocery Store	Go Kart Track
8	Sbata	Construction & Landscaping	Tram Station	Gym	Grocery Store	Go Kart Track

We focus now only on the first cluster. we start new analysis based on number of cafes and habitation per neighborhood and we use matplotlib to plot the result





## Discussion of results

We can notice in the figures that we have a strong correlation between the two variables (number of cafes and habitation per neighborhood)

We can notice also that 'Maarif' has a small number of cafes depending to its habitation in comparison with other neighborhoods. So it will be a good place to start our project, the demand here is still incremental and cafes are the first interest of people of this neighborhood

	quartier	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Ain Chock	Fast Food Restaurant	Coffee Shop	Sushi Restaurant	Bakery	Café
1	Ain Sebaâ	Tapas Restaurant	Fast Food Restaurant	Burrito Place	Wings Joint	Construction & Landscaping
3	Roches Noires	Café	Gym	Grocery Store	Restaurant	Construction & Landscaping
4	Anfa	Pub	Pizza Place	Café	Italian Restaurant	Diner
5	Maarif	Café	Seafood Restaurant	Japanese Restaurant	African Restaurant	Sushi Restaurant
6	Sidi Belyout	Café	Hotel	Restaurant	French Restaurant	Moroccan Restaurant

I made also some researches about this quartier (neighborhood) and I found that it is one of the safest neighborhoods in Casablanca, and the infrastructure of this quartier is one of the best in this city



## Conclusion

In this project I analyzed the neighborhoods of Casablanca in order to determine the more appropriate one to start a business (a cafe), I used the most visited places and venues of each neighborhood and the correlation between the number of cafes and habitation per neighborhood in order to have a good vision to make the best choice for an investment with good profitability.