# *Report : Arabic restaurants analysis  on the coastal front in  Kuwait*

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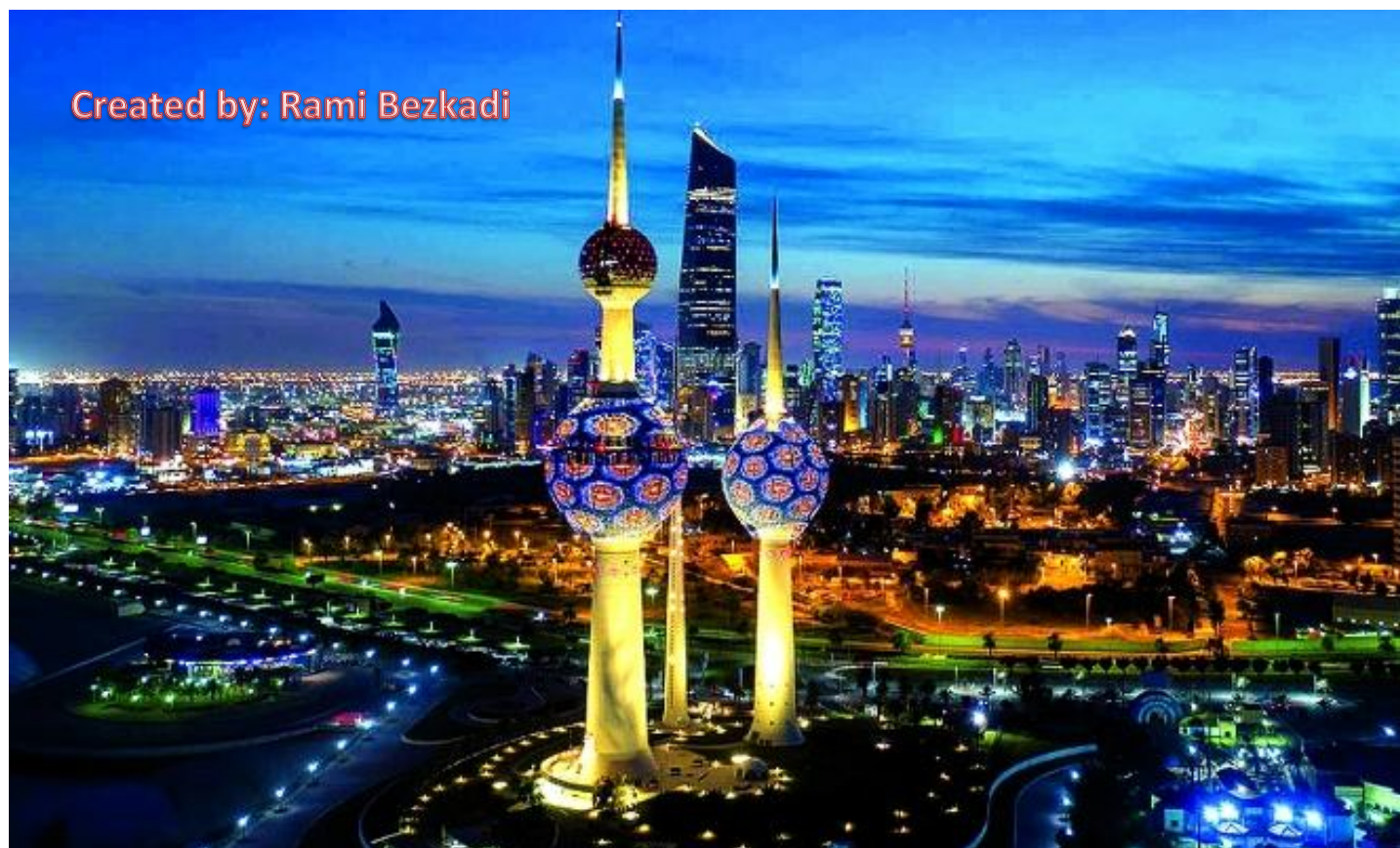
# Introduction:

Kuwait: a modern city with many nationalities and peoples.

It has many restaurants of all flavors.

The thing that distinguishes Kuwait is that it is a connected city. In other words, there are many provinces and regions in contact. Separated from each other by street.

Kuwait has a beautiful waterfront, and there are several residential areas and neighborhoods overlooking the sea.

There are some of these areas for housing of Kuwaiti nationality, some of them are for immigrants, and some are for governmental and diplomatic headquarters, such as the Capital District and the Al -Daiya District.

# Business Problem:

- In this project we will try to find an optimal location for a restaurant. Specifically, this report will be targeted to stakeholders interested in opening
  an Arabic restaurant in **Kuwait** .

- Since there are lots of Arabic restaurants in Kuwait we will try to detect locations that are not already crowded with restaurants. We are also particularly interested in areas with no Arabic restaurants in vicinity. We would also prefer locations as close to sea front as possible, assuming that first two conditions are met.

- We will use our data science powers to generate a few most promising neighborhoods based on this criteria. Advantages of each area will then be clearly expressed so that best possible final location can be chosen by stakeholders.
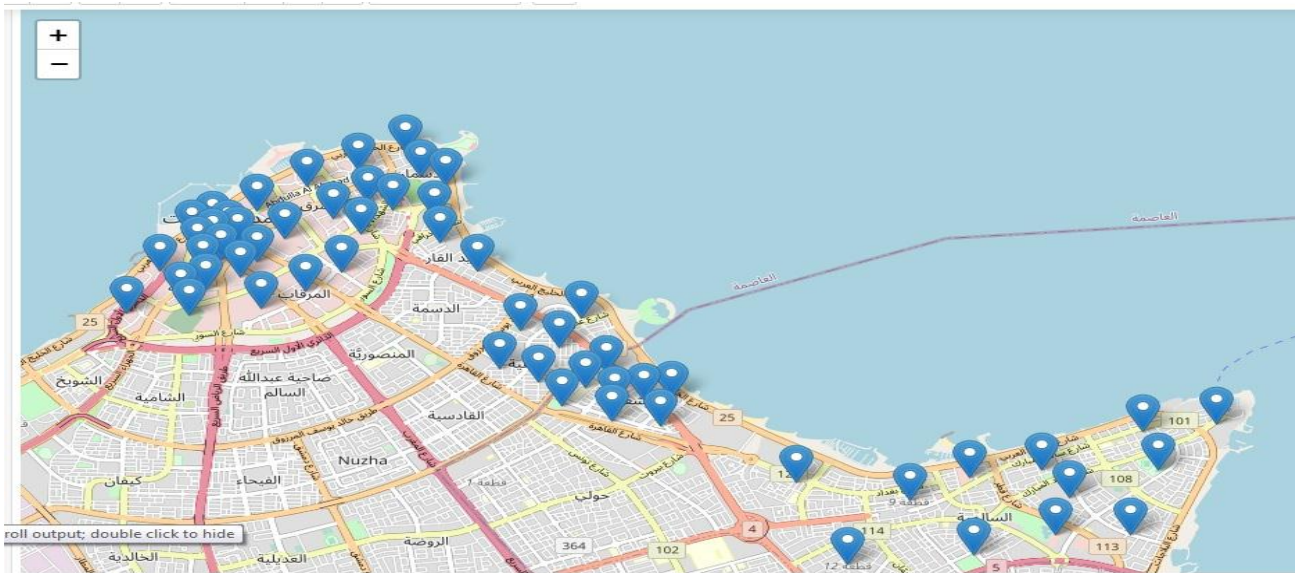
# Data :

**Based on definition of our problem, factors that will influence our decision are:**

**number of existing restaurants in the neighborhood (any type of restaurant) number of and distance to Arabic restaurants in the neighborhood, if any . Following data sources will be needed to extract/generate the required information: the information is not easy available on internet . [here](#)**

**centers of candidate areas will be generated algorithmically and approximate addresses of centers of those areas will be obtained using Nominatim geocoding number of restaurants and their type and location in every neighborhood will be obtained using Foursquare API , and [Foursquare](#) categories**

At first, we used Geo to map the coordinates of each neighborhood and place it on the map of Kuwait

|  | Borough | Neighborhood | Latitude | Longitude |
|---|---|---|---|---|
|  | Qibla | kuwait , Qibla , block 1 | 29.376559 | 47.970216 |
|  | Qibla | kuwait , Qibla , block2 | 29.377828 | 47.972750 |
|  | Qibla | kuwait , Qibla , block 3 | 29.373951 | 47.970914 |
|  | Qibla | kuwait , Qibla , block 4 | 29.375175 | 47.972843 |

After cleaning the data from unnecessary data , We put the data that we obtained in DataFrame and then we only selected a group of restaurants, and there were 162 restaurants in these neighborhoods.

Here we will determine the heat map to determine the density of the presence of Arabic restaurants.



The thermal map shows the density of restaurants on the seafront . Red is the most density.

Number of Arabic Resturants for each Borough in Kuwait City
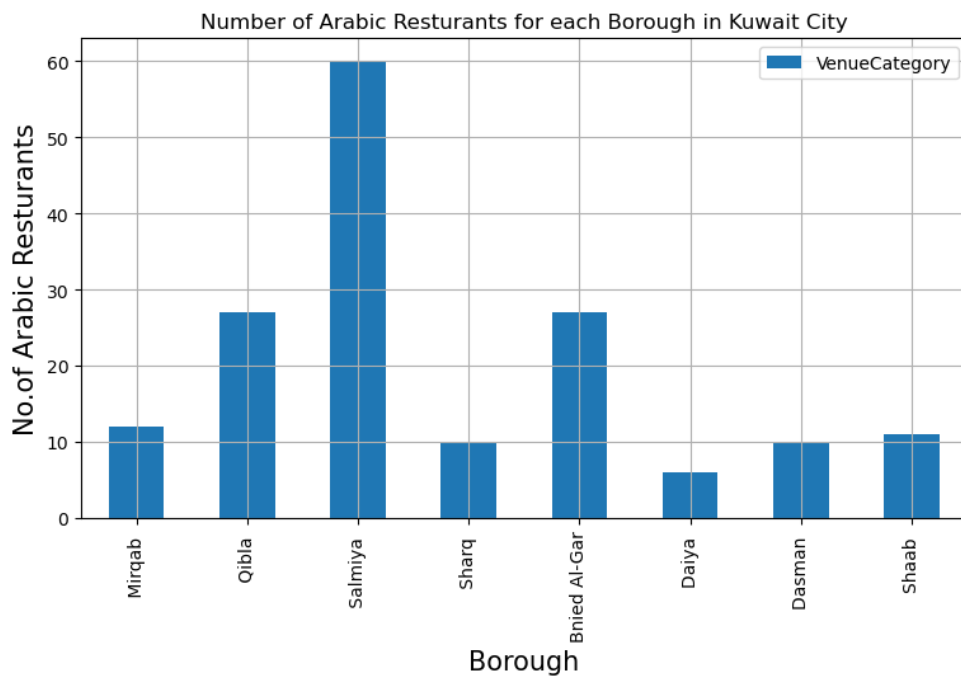
The distribution of restaurants in borough clearly shows that the largest number of restaurants is located in Salmiya . Of course , it is the largest area and there is

a large diversity of expatriate and Kuwaiti residents

Number of Arabic Resturants for each Neighborhood in Kuwait City
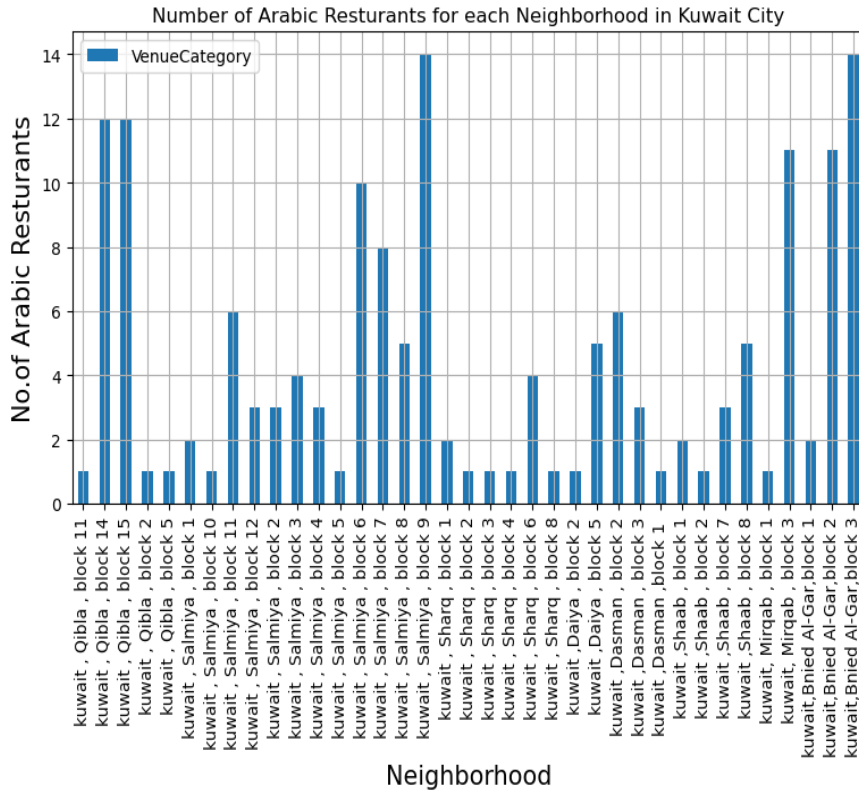
The distribution of restaurants in neighborhood clearly shows that the largest number of restaurants is located in Salmiya – block 9 and Bnied AlGar- block 3 . Of course , we search on the less neighborhood
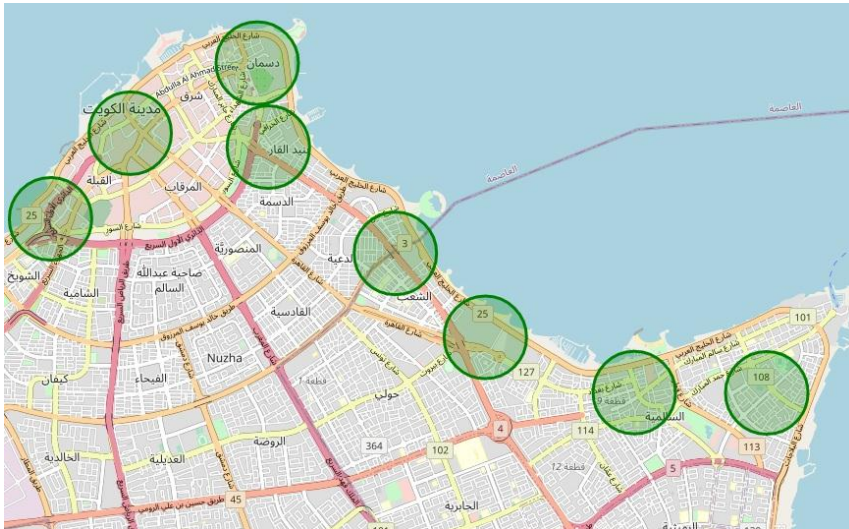
We used cluster to distribute restaurant locations here with 8 clusters (of course we experimented with 2 to 8 clusters). And we made a circle with a radius of 700 meters
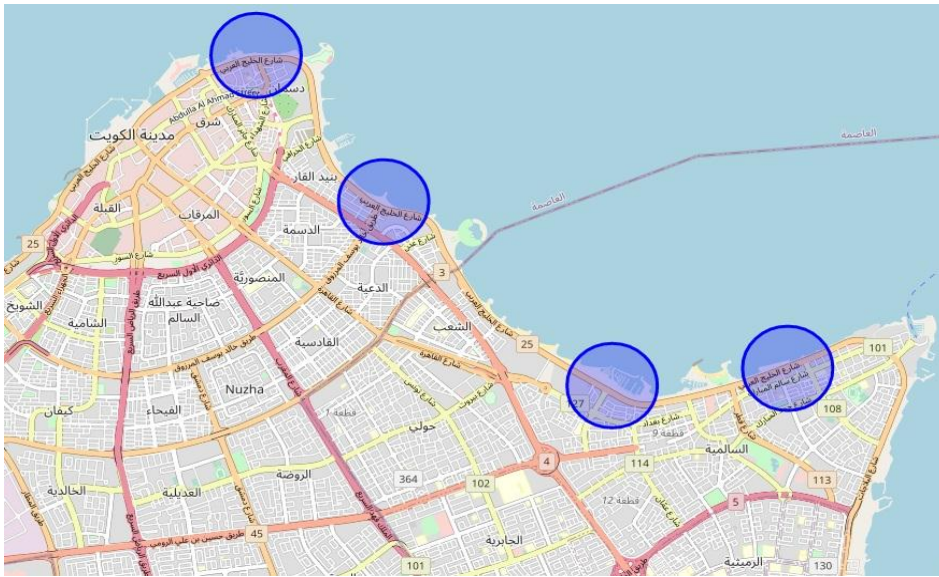


4 candidate areas were determined to be restaurant locations, according to the lowest density

# Conclusion :

Purpose of this project was to identify seafront in kuwait (particularly Arabic restaurants) in order to aid stakeholders in narrowing down the search for optimal location for a new Arabic restaurant. By setting the density distribution of restaurants on the map from the Foursquare data, we first identified public neighborhoods and then through heat maps we found the top four regions.

Final decision on optimal restaurant location will be made by stakeholders based on specific characteristics of neighborhoods and locations in every recommended zone, taking into consideration additional factors like attractiveness of each location (proximity to park or water), levels of noise / proximity to major roads, real estate availability, prices, social and economic dynamics of every neighborhood etc.