# Hospitals problem

# Applied Capstone for data science

# Introduction

My native country is Morocco with **HDI (Human developpement index) value** for 2018 is 0.676, which put the country in the medium human development category positioning it at 121 out of 189 countries and territories. Between 1990 and 2018, Morocco's **HDI value** increased from 0.458 to 0.676, an increase of 47.7 percent.

The problem to solve is to find the place where to build a hospital, so to find the neighbor where there is less hospital, I will do this for only one city as an example but we can do the same for all cities.

# Data section

We will need data about hospital in Marrakech city, in order to do our analysis about neighbors, to know the ones that have less hospitals and one with less hospitals.

So we will use Foursquare location data to solve the problem in combination with other data from official institute in Morocco.

-Data about health in Morocco : www.Hcp.ma

CLIENT_ID = '3CSQCV01OR0Q2HMF3DPX0JKDCIMOE3HEK5FB12W5KX1DGORO' # your Foursquare ID

CLIENT_SECRET = 'IDLYRFZO4FCPEWBB2QNJR5UA1UU115HMRNJDTU2DJUDZVGVE' # your Foursquare Secret

VERSION = '20180605'

LIMIT = 500 # limit of number of venues returned by Foursquare API

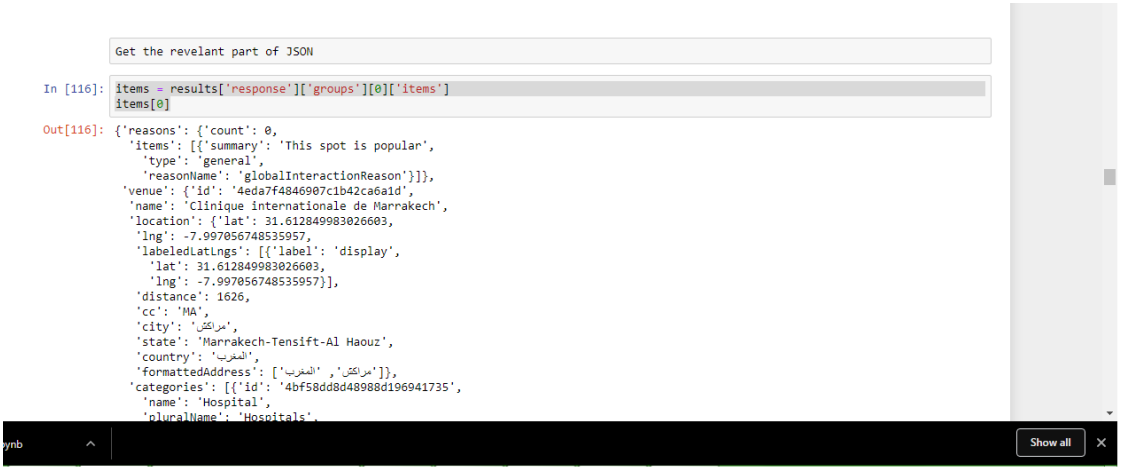
radius = 500

neighborhood_latitude=latitude

This category Id is used for URLS in foursquare in order to extract hospitals

Our URL become like this

“'https://api.foursquare.com/v2/venues/explore?&categoryId=4bf58dd8d48988d196941735&client_id={}&client_secret={}&v={}&ll={},{}&radius={}&limit={}'”




#4bf58dd8d48988d196941735 this categorie id is for hospital

url=

'https://api.foursquare.com/v2/venues/explore?&categoryId=4bf58dd8d48988d196941735&client_id={}&client_secret={}&v={}&ll={},{}&radius={}&limit={}'.format(

CLIENT_ID,

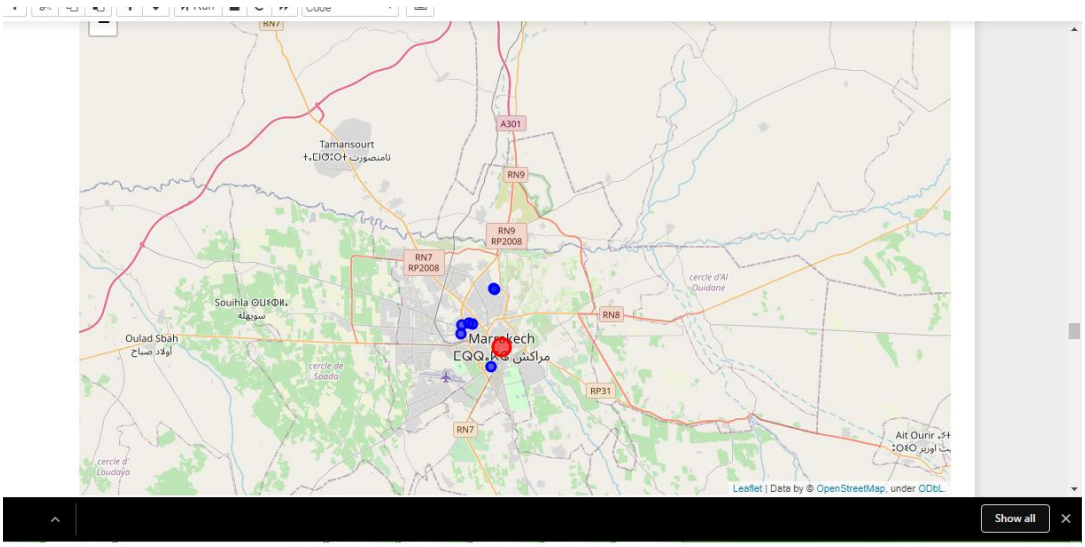
CLIENT_SECRET,

VERSION,

neighborhood_latitude,

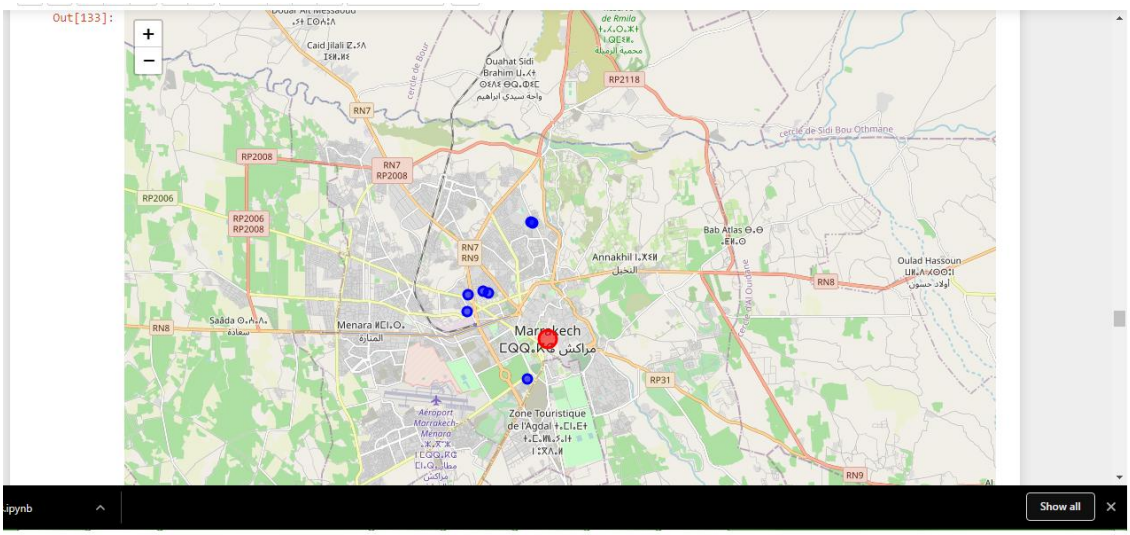
neighborhood_longitude,

```
    100000,
    50)
url1 =
'https://api.foursquare.com/v2/venues/explore?&client_id={}&client_secret={}&v={}&ll={},{}
&radius={}&limit={}'.format(
    CLIENT_ID,
    CLIENT_SECRET,
    VERSION,
    neighborhood_latitude,
    neighborhood_longitude,
    radius,
    LIMIT)
url# display URL
```



## RESULT

The resulting map is as follows:




It can be seen that there are two dominant clusters with red and orange marks. So, going to these places will offer somehow similar taste to their visitors. However other colors will serve different taste in terms of art venues.

## DISCUSSION

Different epsilon parameters in the DBSCAN Model return different number of clusters with similar results. The best result is as presented. However I believe that the results are quite satisfying.

## CONCLUSION

To sum up, the adventurer can go to purple cities such as Marrakech with a lot of theater opportunities at the center of the city.