

How to predict the best business to open in Rome

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Introduction

Background

In this new era Italy has been hit by recession since of the beginning of the last decade. Many Italians entrepreneurs struggled a lot to keep their business activity alive. The same happened to the entrepreneurs in Rome despite is the capital.

Introduction

The purpose of my project is to help everyone who wants to open a new business in this beautiful city to understand which kind of business and where about in Rome is best to invest.

Interest

Every entrepreneurs who loves this city and wants to invest on a new business activity whatsoever.

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Data Acquisition and Cleaning

Data sources

The data sources used for this project are:

- The html table content taken from the website https://it.wikipedia.org/wiki/Municipi_di_Roma that displays the list of boroughs in Rome
- A csv file called “datiRoma.csv” from my directory loaded and imported in the Jupyter notebook as data asset that displays the latitude and longitude of every borough
- Foursquare API to get the list of every venue on each borough

Data cleaning

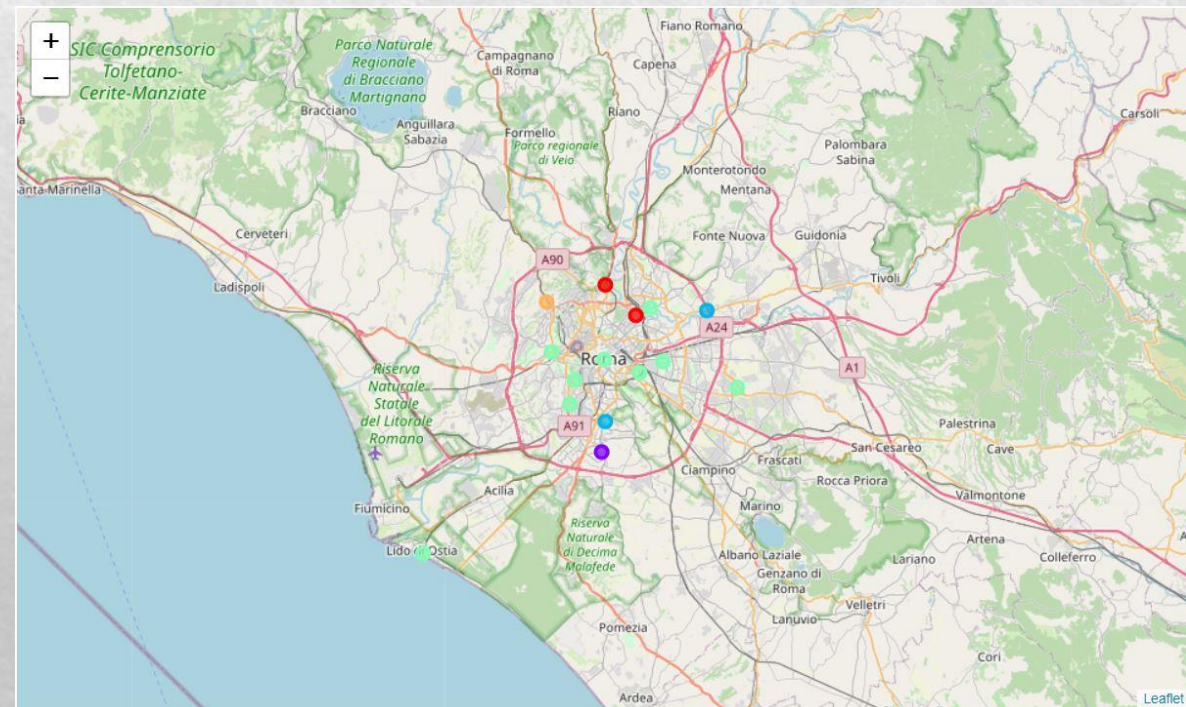
Using Python 3.6 as kernel for my Jupyter notebook I used several libraries such as:

- Wikipedia page table loaded and transformed as dataframe
- Csv file imported from my pc, transformed as dataframe and merged with the above dataframe
 - Folium map showing the boroughs circle markers
- Creating clusters showing the closest boroughs based on the venue’s categories discriminace

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Methodology

- My methodology starts importing all the python libraries needed for my Jupyter notebook project: pandas; bs4; requests; numpy; geopy.geocoders; pandas.io.json; folium; KMeans; matplotlib.cm; matplotlib.cm
- I proceed loading a Roma borough's table with the names of All boroughs, population, area and density from the wikipedia page https://it.wikipedia.org/wiki/Municipi_di_Roma. The BeautifulSoup python library will be used to get the info from the html source and the pandas library will be used to model the dataframe needed for the next steps
- After manipulating the data from the html wikipedia page I use another source from a csv file stored on my pc. To do that I load this on my jupyter notebook and using the pd.read_csv pandas code I get the boroughs, latitude and longitude info. I end merging the two dataframes using pd.merge
- I now use the geolocator library to get the coordinates of Rome and using the folium map I finally display the map of Rome with the Circle markers showing the boroughs location



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Results

The produced results show the numbers below:

- There are 84 unique venue's categories in the analysed roman boroughs
 - The "I Centro Storico" borough shows the highest venues unique numbers (71) followed by "X Ostia/Acilia"(45)
- "Café" together with "Plaza" are the most common venues categories(10)
- Two of the clusters shows only 1 borough each "XIV Monte Mario" and "IX Eur"
 - Considering the boroughs with the first 3 highest density "Café" doesn't appear only in the borough "I Centro Storico" the one in the city centre which sees the "Historic site" as the most common venue

	Borough	Population	Area	Density	Latitude	Longitude
0	I Centro Storico	170 328	20,09	8 478,25	41.893056	12.482778
1	II Parioli/Nomentano	168 410	19,66	8 566,12	41.929958	12.518931
2	III Monte Sacro	205 832	98,03	2 099,68	41.936080	12.535116
3	IV Tiburtino	175 921	48,94	3 594,63	41.933491	12.598746
4	V Prenestino/Centocelle	245 073	26,92	9 103,75	41.890665	12.548488
5	VI Roma delle Torri	257 556	113,88	2 261,64	41.869657	12.632731
6	VIII Appia Antica	130 784	47,15	2 773,79	41.841228	12.484290
7	IX Eur	183 343	183,31	1 000,18	41.814879	12.479980
8	X Ostia/Acilia	231 701	150,74	1 537,09	41.730660	12.280531
9	XI Arvalia/Portuense	155 652	71,48	2 177,56	41.855282	12.444762
10	XII Monte Verde	141 141	73,07	1 931,59	41.876099	12.450100
11	XIII Aurelio	133 367	66,93	1 992,63	41.899141	12.424158
12	XIV Monte Mario	192 000	133,55	1 437,66	41.940965	12.418627
13	XV Milvio	160 795	187,31	858,44	41.955435	12.484851
14	VII Appio-Latino/Tuscolana/Cinecitta	NaN	NaN	NaN	41.881700	12.522800

	Borough	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	I Centro Storico	Historic Site	Hotel	Temple	Monument / Landmark	Italian Restaurant	Pub	Scenic Lookout	Bar	Plaza	Garden
1	II Parioli/Nomentano	Ice Cream Shop	Plaza	Dessert Shop	Bookstore	Café	Italian Restaurant	Pastry Shop	Park	Pub	Restaurant
2	III Monte Sacro	Cocktail Bar	Pizza Place	Hotel	Café	Pub	Mexican Restaurant	Historic Site	French Restaurant	Steakhouse	Plaza
3	IV Tiburtino	Café	American Restaurant	Hotel	Fast Food Restaurant	Italian Restaurant	Motorcycle Shop	Shoe Store	Wine Bar	Fountain	Dessert Shop
4	IX Eur	Hotel	Pizza Place	Restaurant	Dessert Shop	Wine Bar	Food	Convenience Store	Convention Center	Department Store	Falafel Restaurant
5	V Prenestino/Centocelle	Gym	Supermarket	Italian Restaurant	Market	Noodle House	Café	Sandwich Place	African Restaurant	Pizza Place	Asian Restaurant
6	VI Roma delle Torri	Pizza Place	Plaza	Theater	Hotel	Supermarket	Bus Station	Shopping Mall	Fish Market	Convenience Store	Convention Center
7	VII Appio-Latino/Tuscolana/Cinecitta	Italian Restaurant	Trattoria/Osteria	Hotel	Photography Lab	Asian Restaurant	Thai Restaurant	Pizza Place	Hostel	Plaza	Bistro
8	VIII Appia Antica	Café	Italian Restaurant	Plaza	Japanese Restaurant	Bistro	Salad Place	Mexican Restaurant	Wine Bar	Food	Department Store
9	X Ostia/Acilia	Pizza Place	Italian Restaurant	Seafood Restaurant	Beach	Ice Cream Shop	Café	Cocktail Bar	Restaurant	Fast Food Restaurant	Hotel
10	XI Arvalia/Portuense	Pizza Place	Supermarket	Café	Gym / Fitness Center	Gym	Clothing Store	Plaza	Bistro	Italian Restaurant	Fast Food Restaurant
11	XII Monte Verde	Pizza Place	Café	Restaurant	Ice Cream Shop	Italian Restaurant	Gym / Fitness Center	Garden	Food	Market	Plaza
12	XIII Aurelio	Hotel	Café	Italian Restaurant	Plaza	Supermarket	Steakhouse	Gym / Fitness Center	Fast Food Restaurant	Clothing Store	Department Store
13	XIV Monte Mario	Plaza	Park	Chinese Restaurant	Italian Restaurant	Supermarket	Wine Bar	Food	Department Store	Dessert Shop	Falafel Restaurant
14	XV Milvio	Bookstore	Trattoria/Osteria	Café	Restaurant	Basketball Court	Brewery	Sandwich Place	Light Rail Station	Fountain	Dessert Shop

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Discussion and Conclusion

My analysis helped me to discover some useful info to make predictions on which kind of business would be worth it to open in Rome and where about. I would consider specific features as density of population, characteristic of the borough based on the top most common venue categories and the cluster analysis. Finally checking All the top most common categories as overall on each borough helps to understand which are the most common businesses opened in the city

We can now say that based on the analysis made, "I Centro Storico" would be a great borough where to open a "Café" business. We came up with this conclusion due to the borough to be the third one in order for highest density in the city, and the first one in order of highest density where the venue category "Café" doesn't appear between the top 10 most common venue category. It means there is still place there to succeed in this business. "Café" is also the most recurrent business in the roman boroughs(10), it means romans like it and also as the most centred borough of the city this sees millions of tourists coming every year to visit the historic area.