

# Capstone Project

## Final Assignment

### **The Battle of Neighborhood**

### **Business perspective in Tirana, Albania**

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## **1. Introduction**

### **1.1 Background**

Tirana has been the capital city of Albania since 1920, as well as being the largest city by area and population. It is located in the center of the country, enclosed by mountains and hills. Mount Dajti elevates on the east side, whereas a slight valley on the northwest overlooks the Adriatic Sea in the distance. Due to its proximity to the Mediterranean Sea, the city is particularly influenced by a Mediterranean seasonal climate. In fact, it is among the most humid and sunniest cities in Europe, with 2,544 hours of sun per year.

Tirana is today the center of the political and administrative life of Albania, developing and growing on a daily basis. The city has become vital to the country's prosperity, housing almost all state institutions and being the meet point for all major diplomatic representatives. Furthermore, Tirana has become the largest center of education of the country and home of the new political and economics movements. The touristic sector is dominant in the country. Tirana is a city filled with hotels, restaurants, bars, pubs, youth and artistic centers that provide an active and diverse cultural life for locals and foreigners alike. The city continues to be an important center of national and international activities, such as seminars, conferences, festivals, spectacles, and more, making it a well-known and inviting city. Tirana has truly turned into a city that never sleeps.

The aim of this project is to understand what type of businesses are the most developed in Albania. As the available data on Foursquare concerning places in Albania are scarce, we will limit this report to the touristic sector. The targeted stakeholders would firstly be people from around the world interested in visiting any city in Albania and secondly entrepreneurs that would like to understand what kind of businesses already exist in Tirana. Hence, the two main stakeholders are Individuals looking for more information regarding investment and exploring opportunities in Tirana the analysis conducted will enable tourists to have a wider and more complete overview of which city has the most to offer. Additionally, entrepreneurs will be provided with an accurate analysis on the most attractive activities and places of Tirana. In this way, we will provide a more comprehensive picture of what business opportunities are missing in the city.

The first task would be to analyze the places of high interest for tourists, based on the information available on Google.

We will make use of our data science tools to analyze, focus and explore the data for the 15 most visited places in Tirana, according to Google's rating.

## 1.2. Data

Available data about Tirana scarce and very new. First, I wanted to understand Tirana's position in terms of population and density, compared to other capital cities globally.

The used to assess Tirana's situation is presented below.

Firstly, research on Google was conducted in order to find primary information on the most visited cities globally. This was in order to avoid personal information bias. The research terms used were "capital cities + tourist". The first results found are cities in countries such as Italy, France, United Kingdom, India and Egypt.

Secondly, the search terms used were changed to "tourist + capital cities + world". This led to the following results:

1. London, United Kingdom
2. Tokyo, Japan
3. Paris, France
4. Rome, Italy
5. Washington D.C., United States of America
6. Berlin, Germany
7. Buenos Aires, Argentina
8. Bangkok, Thailand
9. Cape Town, South Africa
10. Wellington, New Zealand

Tirana was not in the top 10. The capital city is ranked as the 753<sup>rd</sup> city in the world based on its population. With an area of 41.8 km<sup>2</sup>, a population of 418,495, and a density of 10,011.84, Tirana is the most populated city in Albania.

We will make some analysis based on the data provided by:

- finding the most populated city in the country  
(csv file: <https://simplemaps.com/data/al-cities>).
- extract the latitude and longitude of the cities.

Based on the data downloaded from <https://simplemaps.com/data/al-cities>, we see that the capital city, is the most populated one, followed by Durres and Vlore.

→ Analyses the top 15 places of the city is very interesting because it will tell us the trends of each city. Based on the google research, I created a .csv files that lists the 15 most visited places in Tirana with their latitude and longitude.

## 2. Analysis

### I. Folium. MAP

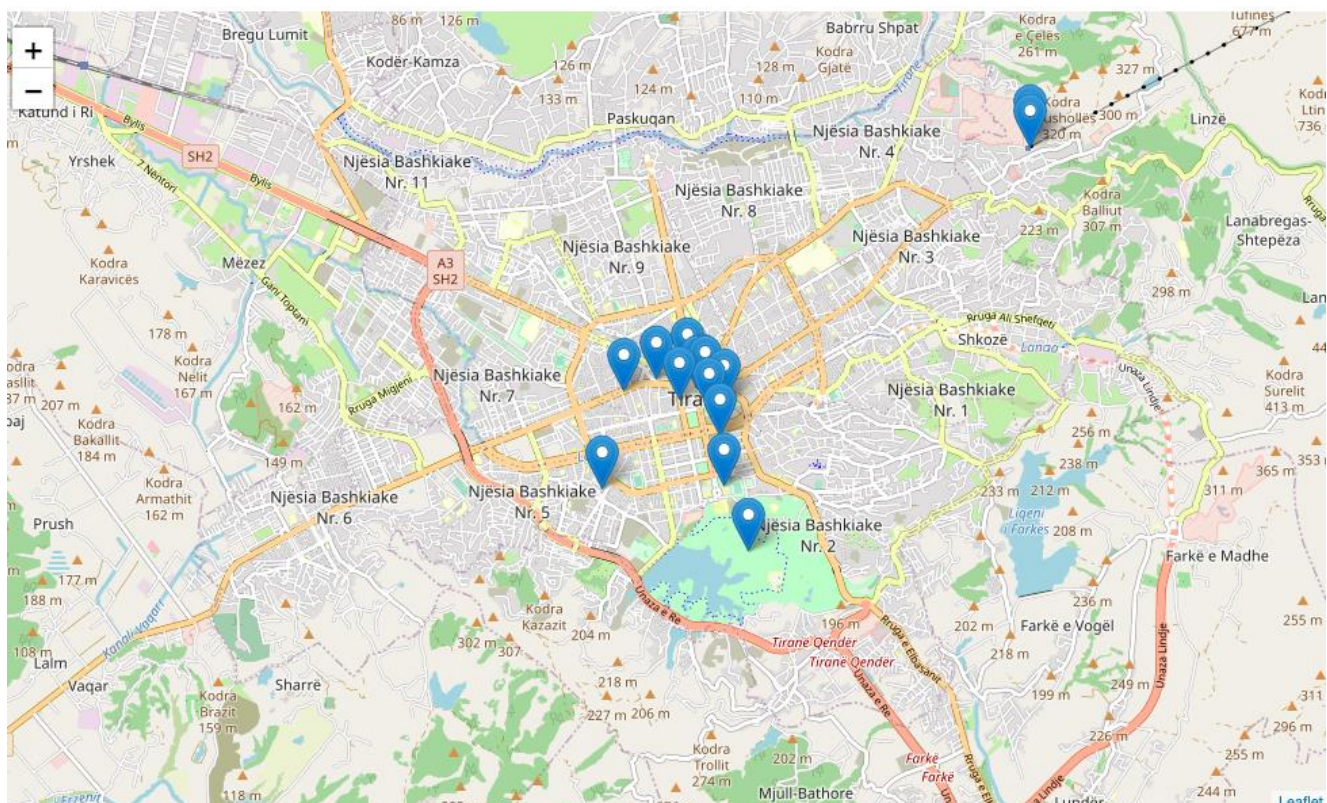
As already mentioned, this analysis can be applied to different cities around the world but in our case, the focus was on the capital city of Albania.

The research started with Google, using the terms: "Tirana + tourist"

With this query, Google gave us the different places about the different places that the users (tourists) have visited and rated. I decided to go on with the first 15<sup>th</sup> most visited and well ranked places in Tirana. I created a data file for simplicity with the name of the places, their latitude and longitude.

Using folium. map, I created a map and showed the location of the different place with popups in blue.

	Places	Latitude	Longitude
0	Skanderbeg Square	41.3277	19.8186
1	National History Museum	41.3294	19.8174
2	Et hem Bej Mosque	41.3278	19.8194
3	Grand Park of Tirana	41.3123	19.8251
4	National Arts Gallery	41.3256	19.8202
5	Bunk'Art	41.3516	19.8608
6	Tirana Castle	41.3264	19.8221
7	House of Leaves	41.3267	19.8164
8	Dajti Ekspres	41.3507	19.8609
9	National Archaeological Museum	41.3184	19.8220
10	The Clock Tower of Tirana	41.3277	19.8197
11	GALERIA E. RIRA	41.3182	19.8067
12	Natural Sciences Museum Sabiha Kasimati	41.3274	19.8093
13	High Scardus Trail	41.3286	19.8135
14	Pyramid of Tirana	41.3232	19.8216



## II. Using Foursquare

In order to use the resources of Foursquare, the research of the main venues was restricted to those located at a maximum of 200m each from the 15 places, limiting the result to 100. The reason to limit to radius of the research to 200m is because Tirana is a small place and as I can see in the first map, 10 out of 15 places are close to each other. By limiting the radius, duplicates were prevented. A table with 114 different venues was obtained

(114, 8)

Out[431]:

	Place	Place Latitude	Place Longitude	Venue	Venue id	Venue Latitude	Venue Longitude	Venue Category
0	Skanderbeg Square	41.3277	19.8186	Sheshi Skënderbej	4ee607ed6c25be9631df8781	41.328422	19.817920	Plaza
1	Skanderbeg Square	41.3277	19.8186	Bunk'Art 2	58bc234cdad263186b39f062	41.327083	19.819536	History Museum
2	Skanderbeg Square	41.3277	19.8186	Kulla e Shahatit (Clock Tower of Tirana)	521b518311d28ce84184a759	41.327794	19.819679	Historic Site
3	Skanderbeg Square	41.3277	19.8186	Bar Kafe Opera	4c864848c5a99521841d9b05	41.328817	19.819218	Café
4	Skanderbeg Square	41.3277	19.8186	Teatri Kombetar i Operas dhe i Baletit / Natio...	5178d1ecfe7037a1ebf6e238	41.328863	19.818840	Concert Hall
5	National History Museum	41.3294	19.8174	Sheshi Skënderbej	4ee607ed6c25be9631df8781	41.328422	19.817920	Plaza
6	National History Museum	41.3294	19.8174	Rockstock	50d388ace4b004f08c29ccd0	41.329637	19.818719	Rock Club

This research gives the different venues for each of the 15 places. Then a table was created, with an emphasize on the different venue categories that are predominant in each of the places.

	Place	Venue Category
0	Skanderbeg Square	Plaza
1	Skanderbeg Square	History Museum
2	Skanderbeg Square	Historic Site
3	Skanderbeg Square	Café
4	Skanderbeg Square	Concert Hall
5	National History Museum	Plaza
6	National History Museum	Rock Club

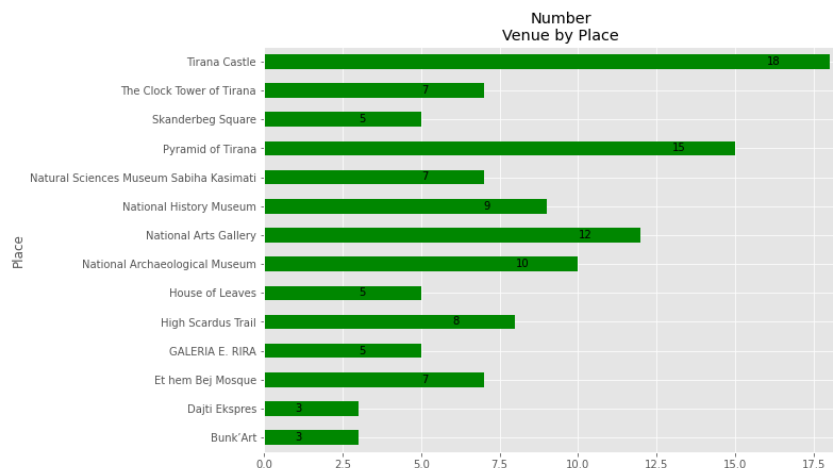
For each place, the total number of different venue categories were grouped and counted, in order to understand which of place were the more developed and had had more investment. The places where more investments had been made are located around:

1. Tirana Castle,
2. Pyramid of Tirana and,
3. National Art Gallery.

Place	
Bunk'Art	3
Dajti Ekspres	3
Et hem Bej Mosque	7
GALERIA E. RIRA	5
High Scardus Trail	8
House of Leaves	5
National Archaeological Museum	10
National Arts Gallery	12
National History Museum	9
Natural Sciences Museum Sabiha Kasimati	7
Pyramid of Tirana	15
Skanderbeg Square	5
The Clock Tower of Tirana	7
Tirana Castle	18

This histogram shows the total number of venues located around each place. It is clearly visible that around Tirana Castle there are a lot of venues. This is understandable because of the importance that history has for the country and its people, as well as the geographical lactation of the castle.

According to our data, there are 38 different and unique venues it total.





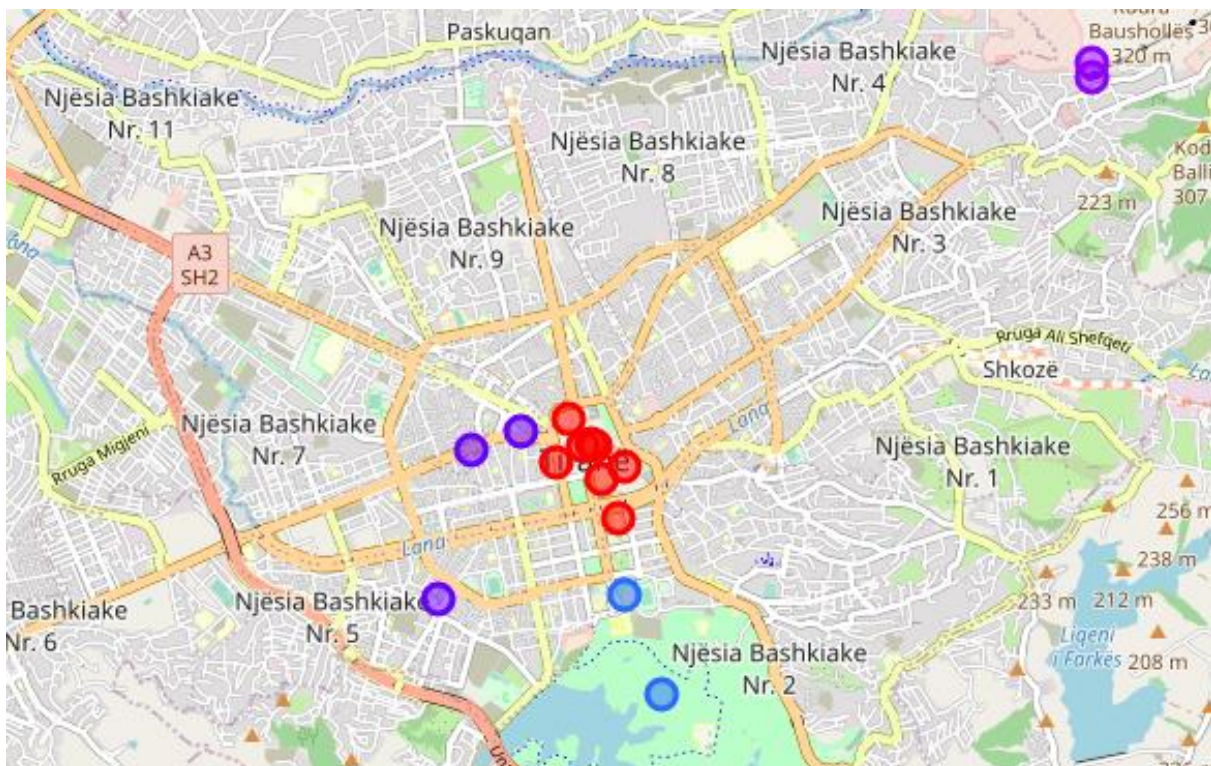
In the following images we can see the three most common venues for the first 5 places of the list.

Around Bunk'Art, Dajti Ekspres, Et Hem Bej Mosque, Galeria E.RIRA, High Scardus Trail and House of Leaves, there are many restaurants, café's, historic site, cable car and wine bar's. This can help tourists understanding what is at their disposal when they go to a certain place and can help investors analyze and understand what type of business is missing in a certain area.

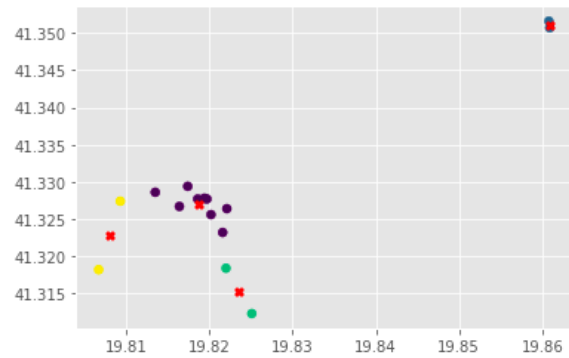
	Place	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue	11th Most Common Venue	12th Most Common Venue	13th Most Common Venue
0	Bunk'Art	Mediterranean Restaurant	Cable Car	Historic Site	Wine Bar	Diner	Hostel	History Museum	Garden	Fast Food Restaurant	Electronics Store	Concert Hall	Italian Restaurant	Coffee Shop
1	Dajti Ekspres	Mediterranean Restaurant	Cable Car	Historic Site	Wine Bar	Diner	Hostel	History Museum	Garden	Fast Food Restaurant	Electronics Store	Concert Hall	Italian Restaurant	Coffee Shop
2	Et hem Bej Mosque	Concert Hall	Café	History Museum	Historic Site	Plaza	Italian Restaurant	Hotel	Cocktail Bar	Coffee Shop	Cable Car	Diner	Bridal Shop	Electronics Store
3	GALERIA E. RIRA	Café	Wine Bar	Steakhouse	Italian Restaurant	Diner	Hostel	History Museum	Historic Site	Garden	Fast Food Restaurant	Electronics Store	Coffee Shop	Concert Hall
4	High Scardus Trail	Café	Coffee Shop	Pizza Place	Bar	Lounge	Wine Bar	Hostel	History Museum	Historic Site	Garden	Fast Food Restaurant	Diner	Electronics Store
5	House of Leaves	Coffee Shop	Theater	History Museum	Bridal Shop	Seafood Restaurant	Diner	Hostel	Historic Site	Garden	Fast Food Restaurant	Electronics Store	Wine Bar	Concert Hall

### III. Clustering the results

The results were grouped based on the latitude and longitude. This process can help focusing in a specific area. Tourists can plan to visit a certain area and see what will be at their disposal, and investors can have the choice between different location and business opportunities. The ideal number of clusters would be 4.



We can see that there is a concentration around the center of the city, which is normal. Outside the city center there are fewer venues near the analyzed places.



In the cluster n°0 there are the National Arts Gallery, House of Leaves, Pyramid of Tirana, Et hem Bej Mosque, National History Museum and Skanderbeg Square etc. The dominant venues are the historic sites, bars and restaurants.

	Places	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Skanderbeg Square	History Museum	Historic Site	Café	Plaza
1	National History Museum	Rock Club	Italian Restaurant	History Museum	Concert Hall
2	Et hem Bej Mosque	Café	History Museum	Historic Site	Plaza
4	National Arts Gallery	Pub	Bar	Cocktail Bar	Garden
6	Tirana Castle	Hotel	Japanese Restaurant	Pub	Italian Restaurant
7	House of Leaves	Theater	History Museum	Bridal Shop	Seafood Restaurant
10	The Clock Tower of Tirana	Café	History Museum	Historic Site	Plaza
14	Pyramid of Tirana	Italian Restaurant	Café	Pub	Hotel

In cluster n°1 there is Bunk'Art and Dajti Ekspres. The dominant venues are again historic sites, cable cars, wine bars and diners.

	Places	Latitude	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
5	Bunk'Art	41.3516	Cable Car	Historic Site	Wine Bar	Diner
8	Dajti Ekspres	41.3507	Cable Car	Historic Site	Wine Bar	Diner

Cluster n°2 is composed by High Scardus Trail, Natural Sciences Museum Sabiha Kasimati and GALERIA E. RIRA. Coffee shops and restaurants are also very active.

	Places	Latitude	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
11	GALERIA E. RIRA	41.3182	Wine Bar	Steakhouse	Italian Restaurant	Diner
12	Natural Sciences Museum Sabiha Kasimati	41.3274	Coffee Shop	Hostel	Restaurant	Turkish Restaurant
13	High Scardus Trail	41.3286	Coffee Shop	Pizza Place	Bar	Lounge

In cluster n°3 there are the National Archaeological Museum and Grand Park of Tirana. For the Grand Park there are no data provided by Foursquare. This can mean that economic activities are forbidden by the government near the park.

	Places	Latitude	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
3	Grand Park of Tirana	41.3123	0	0	0	0
9	National Archaeological Museum	41.3184	Fast Food Restaurant	Multiplex	Soccer Stadium	Café





## ***Results***

From our chart of the Euclidian error, for each cluster we find that cluster 4 is the best candidate as it is the closest to a perfect cluster. This cluster is located in the center of Tirana, and groups 8 out of 15 of the most visited places according to the Google research. The most common venues in Tirana are Restaurants, Bar and cafés.

## ***Discussion and Conclusion***

The method is based on assumptions; however, it is a good, simplified model. In a future version a wider selection of categories could be included to create the clusters, however, the differences would be marginal. In addition, it is possible to use other clustering methods to perform experimental data analysis.

Foursquare permitted to analyze more in depth the different categories of venues that can be found in Tirana. Based on the different information, it is possible to see what sites the tourists would visit the most, as well what are the areas investors must pay special attention to. Since 200m around Grand Park of Tirana there is no such things as restaurants, it is possible to guess that outside the park there will be shops, cafes and restaurants. The area around the park has huge business potential. Another point to emphasize is that downtown there are a lot of restaurants and bars, which can help us understand that the city center is very active, and we can find various types of attractions.

This kind of analysis can be used for all cities, capital ones or not, big or small, as long as enough information is available on Foursquare.

Thank you for reading my analysis.