

Searching for the optimal Coffee Shop location in Baku, Azerbaijan

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1. Introduction

1.1. Background

Baku is the capital and largest city of Azerbaijan, as well as the largest city on the Caspian Sea and of the Caucasus region. Every year thousand of new places open up. And with the great influx of foreign tourists, the demand for coffee shops grow exponentially.

Therefore, now would be the most advantageous time to open up a coffee shop. This is why a group of friends have requested my assistance to determine the place for their potential new coffee shop.

1.2. Problem

As was stated earlier, Baku is a big city. Not only that, but it also very uneven in terms of venue placement. A proper location selection is a crucial step that cannot be overlooked. Especially, when places like coffee shop can only exist if it is reachable to its customers. This project aims to help the stakeholders through analyzing raions of which Baku consists and the venues already existing in it.

2. Data acquisition and cleaning

2.1. Data sources

This project requires two separate datasources: one to determine the arbitrary separations within the city and the other to search for venues within those separations.

Initially, the MapCrow website was selected to be source for the first part. One of the advantages of using MapCrow was having both names of the raions and their coordinates within a single form. However, later on it became obvious that it misses a few key raions and, therefore, is unfit for our purposes.

Because of lack of credible data on the internet, only Wikipedia was deemed to be reliable enough. The downside to that is that Wikipedia uses only administrative division - there is no information on even smaller, neighborhood-like divisions that exist informally in Baku. For my own personal use I would prefer to create these divisions manually, using what would be considered a domain knowledge. But then I would not be able to prove the concept for a reader. And so I decided to go with more general, but sourceable administrative divisions by Wikipedia.

The second datasource is Foursquare. It has free-to-use API that allows to explore venues near given coordinates. This will give us the venues within raions and their respective categories.

2.2. Data cleaning

Firstly, project can only benefit from venues that have categories assigned. Therefore, function used to populate venues included a filter to omit all venues without assigned category.

After that, a general count was taken and it became apparent that some raions are simply not fit to be considered primary locations for any coffee-type of venue. These are mostly industrial or

residential areas with not enough density to be commercially viable spot. These raions were removed from dataset based on the amount of venues. Again, normally these raions would not be considered anyway, but now it is shown through data.

3. Methodology

3.1. Top spots

Having all the venues Foursquare had provided me with by each raion in conversation, I employed a function to transform this data into a table with top 10 venue categories shown for each raion.

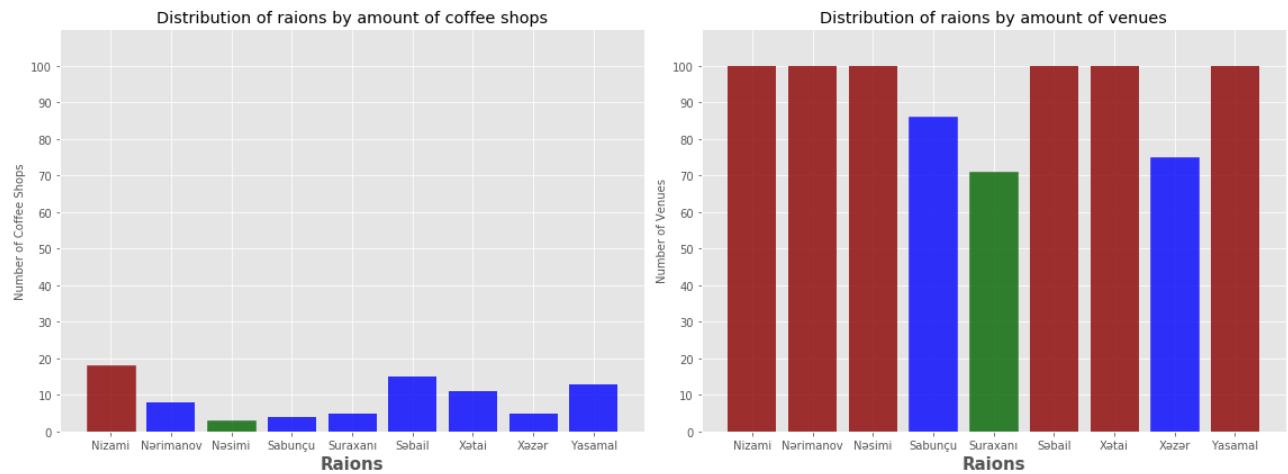
Hood	Top 1	Top 2	Top 3	Top 4	Top 5	Top 6	Top 7	Top 8	Top 9	Top 10
Nizami	Park	Coffee Shop	Café	Hotel	Restaurant	Bakery	Historic Site	Lounge	Middle Eastern Restaurant	Hookah Bar
Nərimanov	Hotel	Restaurant	Park	Lounge	Coffee Shop	Turkish Restaurant	Café	Italian Restaurant	Tea Room	Multiplex
Nəsimi	Restaurant	Hotel	Park	Lounge	Turkish Restaurant	Middle Eastern Restaurant	Gym / Fitness Center	Comfort Food Restaurant	Shopping Mall	Italian Restaurant
Sabunçu	Restaurant	Department Store	Park	Café	Fast Food Restaurant	Tea Room	Hotel	Shopping Mall	Soccer Stadium	Supermarket
Suraxani	Department Store	Restaurant	Café	Fast Food Restaurant	Diner	Tea Room	Shopping Mall	Pub	Movie Theater	Comfort Food Restaurant
Səbail	Park	Café	Coffee Shop	Hotel	Restaurant	Plaza	Caucasian Restaurant	Historic Site	Hookah Bar	Italian Restaurant
Xətai	Park	Hotel	Coffee Shop	Lounge	Restaurant	Café	Tea Room	Italian Restaurant	Turkish Restaurant	Shopping Mall
Xəzər	Beach	Hotel	Restaurant	Seafood Restaurant	Café	Lounge	Pool	Modern European Restaurant	Eastern European Restaurant	Plaza
Yasamal	Park	Coffee Shop	Restaurant	Café	Hotel	Plaza	Historic Site	Lounge	Italian Restaurant	Middle Eastern Restaurant

Then I separated the count of only coffee shops per each raion to illustrate the proportions of coffee places to all venues existing in a raion:

Hood	Coffee places
Nizami	18
Nərimanov	8
Nəsimi	3
Sabunçu	4
Suraxanı	5
Səbail	15
Xətai	11
Xəzər	5
Yasamal	13

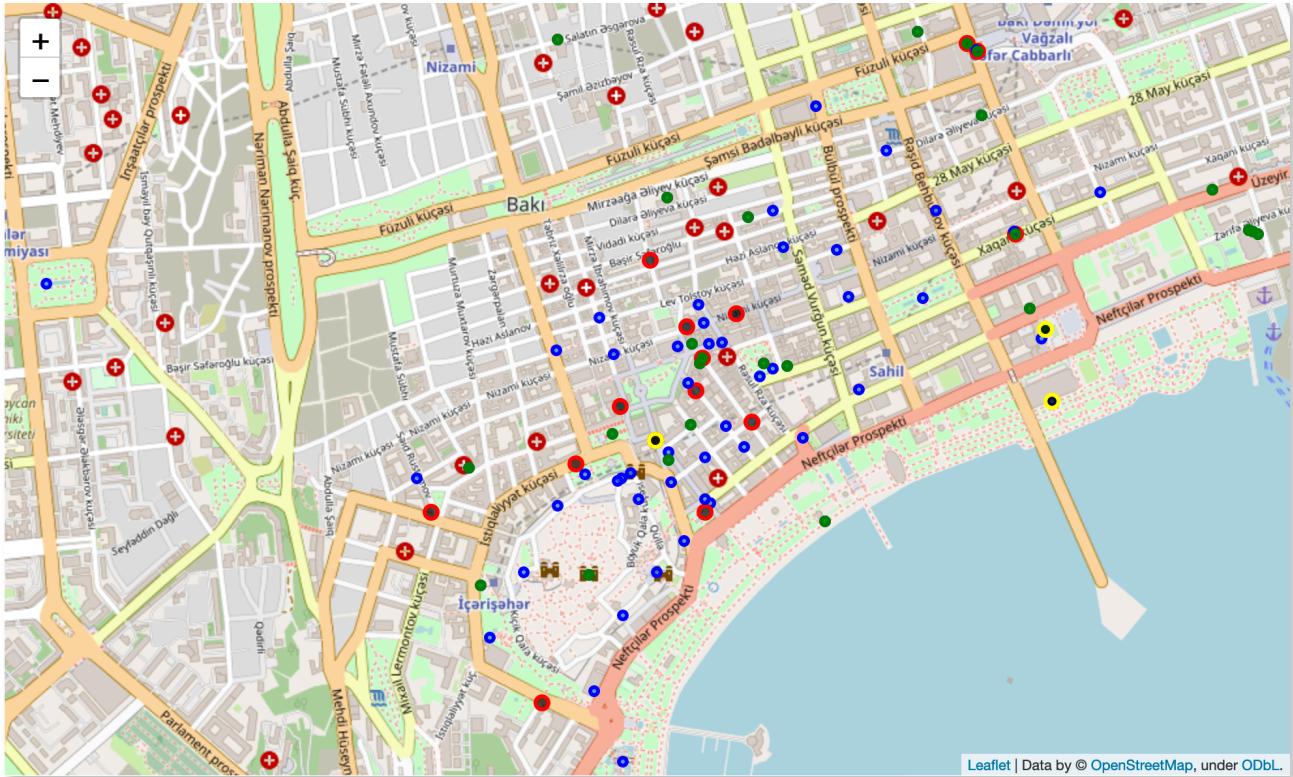
3.2. Coffee vs. everything else

Now having all the venues, their categories and the number of each category per raion allowed me to built a simple graphics to illustrate the differences between raions.

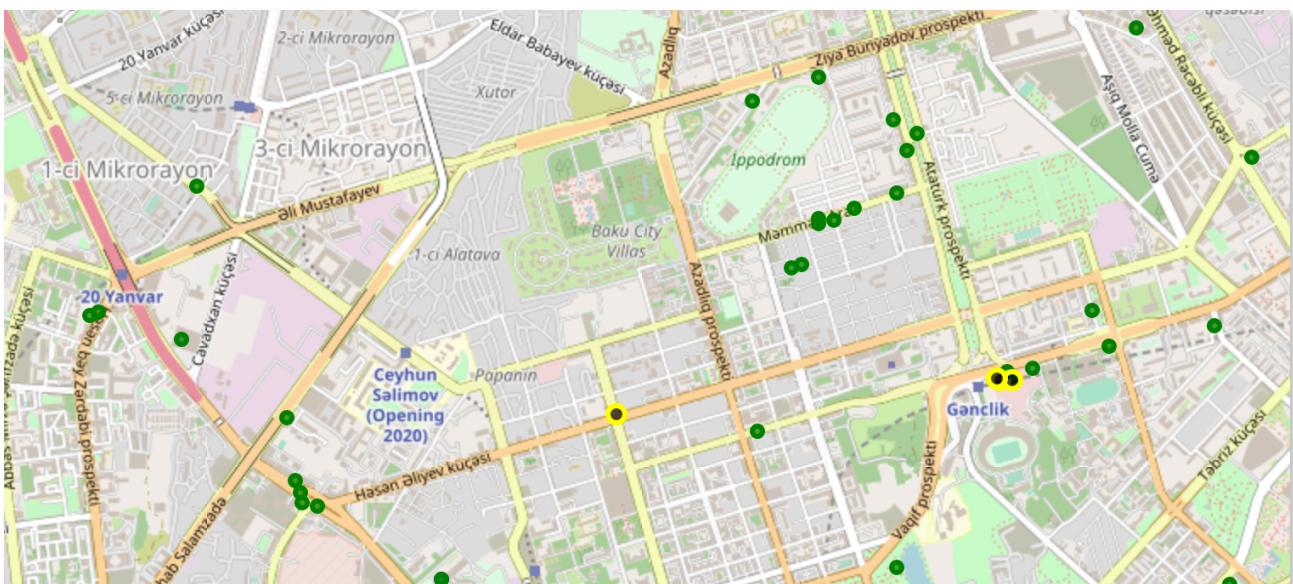


- 1) The suburb with the most coffee shops while also being densely populated by other type of venues is **Nizami**
- 2) The densely populated raion with the least amount of coffee shops is **Nasimi**

This means that if we wish to place our new place in a popular place, but without much contention - **Nasimi** should be our main choice. If, however, we subscribe to the following line of thinking - so many coffee shop owners can't be wrong - then **Nizami** is the way to go: not only it is highly populated, but also is the home for most coffee places in Baku.



It is also depicted on the map, where I have overlapped general venues with coffee shops and have separated them both by venue categories (coffee vs non-coffee) and raions. The segment above illustrates that Nizami raion is most densely populated by both general places of business and coffee shop specifically.



While this segment shows that Nasimi raion, while still being pretty popular, has a few clusters without potential competitors.

4. Results and discussion

Our analysis showed that Baku remains a relatively hidden to modern technologies city. While we have managed to find through out data exploration a significant amount of venues in each raion - enough to make some conclusions, it still capped out at 100 venues per raion. That is extremely low for such a densely populated city. That means that Foursquare is not reliable source of data

for such analysis in Baku. For the lack of alternative solutions, let's just assume that this is the honest truth.

Then, getting back to our initial statement, there are two ways to approach location selection:

1) Try the highest place of contention in hopes that success of your competitors means that there will be enough business for everyone

2) Try your luck at picking dense enough cluster without competition at all in hopes that there are none just because no one else thought about it before

For the first option there is only one suggestion to be made - and this the one fairly obvious just by looking at the concentration of markers. It is also obvious location to anyone who has ever visited (or, better yet, lived) in Baku - that is the tourist city center. This is Nizami raion

For the second one there are a few clusters to be considered, each easily seen on the map, belonging to Nasimi raion. It is hard to specify anything with more precision without actually scouting the location on foot.

5. Conclusion

Purpose of this project was to help a group of friends to make an informed decision on where to open their new coffee shop. Since there were no agreement on how to approach such a selection, this project tried to accommodate two of their main tactics and provide them with enough data and easy to understand information to make such decision.

Final decision on optimal coffee shop 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. It is not possible to know all the variables without manually scouting each location.