



## **BATTLE OF NEIGHBOURHOODS**

### **THE REPORT**



## **COFFEE SHOP OR A BURGER JOINT?**

# 1. Introduction & Business Problem

Besiktas and Kadikoy are two popular towns of Istanbul, located opposite sides of the Bosphorus, tourists and locals pass most of their time within. The objective of this study is to provide some exploratory information to an entrepreneur who considers opening a coffee shop or a burger joint located in one of these towns.

## 2. Data

### 2.1. Getting the District Names and Their Locations by Webscrapping

For this project, a rest api developed on Heroku app named "il-ilce-rest-api" was used, to get the coordinates and district names of Besiktas and Kadikoy.

```
[39]: <bound method NDFrame.head of
0      Abbasaga Beşiktaş
1      Türkali Beşiktaş
2      Levent Beşiktaş
3      Gayrettepe Beşiktaş
4      Akatlar Beşiktaş
5      Etiler Beşiktaş
6      Ortaköy Beşiktaş
7      Arnavutköy Beşiktaş
8      Bebek Beşiktaş
9      Levazım Beşiktaş
0      Koşuyolu Kadıköy
1      Sütlüce Kadıköy
```

name	town
------	------

FIGURE 1. DISTRICTS OF TOWNS

Then non-english characters changed to English characters like "ş" to "s", "ç" to "c" in order to make queries on Google Geocoding API.

```
1]: #Converting Turkish characters to english characters
tr_chars = {'ç':'c', 'Ç':'C', 'ğ':'g', 'Ğ':'G', 'ı':'i', 'İ':'I', 'ö':'o', 'Ö':'O', 'ş':'s', 'Ş':'S', 'ü':'u', 'Ü':'U'}
bn.replace(tr_chars, regex=True, inplace=True)
```

FIGURE 2.CONVERTING TURKISH CHARACTERS TO ENGLISH CHARACTERS

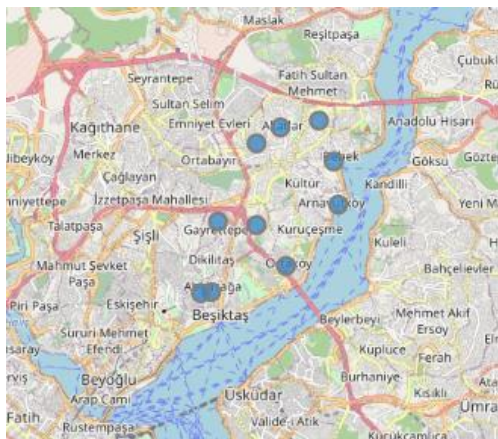
Thirdly, a dataset contains District Name, Town Name and API columns (to use as endpoints is obtained to gather locations of districts from Google Geocoding API).

	name	town	API
0	Abbasaga	Besiktas	Abbasaga%20Besiktas
1	Turkali	Besiktas	Turkali%20Besiktas
2	Levent	Besiktas	Levent%20Besiktas
3	Gayrettepe	Besiktas	Gayrettepe%20Besiktas
4	Akatlar	Besiktas	Akatlar%20Besiktas
5	Etiler	Besiktas	Etiler%20Besiktas
6	Ortakoy	Besiktas	Ortakoy%20Besiktas
7	Arnavutkoy	Besiktas	Arnavutkoy%20Besiktas
8	Bebek	Besiktas	Bebek%20Besiktas
9	Levazim	Besiktas	Levazim%20Besiktas
0	Kosuyolu	Kadikoy	Kosuyolu%20Kadikoy

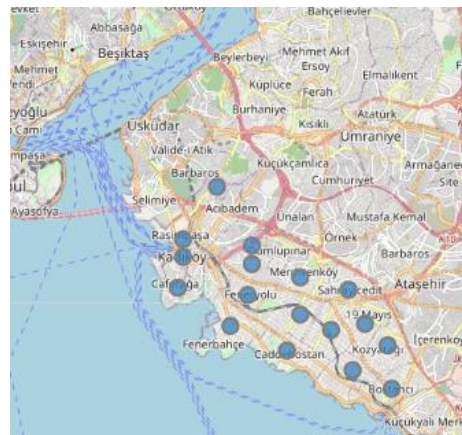
	name	town	API	lat	lng
0	Abbasaga	Besiktas	Abbasaga%20Besiktas	41.048010	29.004528
1	Turkali	Besiktas	Turkali%20Besiktas	41.047652	29.001618
2	Levent	Besiktas	Levent%20Besiktas	41.081829	29.018351
3	Gayrettepe	Besiktas	Gayrettepe%20Besiktas	41.064196	29.006711
4	Akatlar	Besiktas	Akatlar%20Besiktas	41.085614	29.025626
5	Etiler	Besiktas	Etiler%20Besiktas	41.087042	29.037264
6	Ortakoy	Besiktas	Ortakoy%20Besiktas	41.053970	29.027081
7	Arnavutkoy	Besiktas	Arnavutkoy%20Besiktas	41.068056	29.043056
8	Bebek	Besiktas	Bebek%20Besiktas	41.077744	29.041629
9	Levazim	Besiktas	Levazim%20Besiktas	41.063314	29.018351
0	Kosuyolu	Kadikoy	Kosuyolu%20Kadikoy	41.009087	29.038719

## 2.2. Map Visualizations of Dataframes

Using the dataframes gathered, locations of districts are marked on the map.



**FIGURE 3. DISTRICTS OF BESIKTAS**



**FIGURE 4. DISTRICTS OF KADIKÖY**

### 2.3. Gathering Data from Foursquare API nearby the Districts

By geocoordinates of districts, venues located in those districts are discovered via Foursquare API as dataframes.

	Town	DistrictName	Latitude	Longitude	VenueName	VenueLatitude	VenueLongitude	VenueCategory
0	Kadikoy	Kosuyolu	41.009087	29.038719	Aytunç Bentürk Dance Academy	41.008095	29.039437	Dance Studio
1	Kadikoy	Kosuyolu	41.009087	29.038719	Kaen Sushi	41.007456	29.038368	Sushi Restaurant
2	Kadikoy	Kosuyolu	41.009087	29.038719	Starbucks Reserve	41.009617	29.040705	Coffee Shop
3	Kadikoy	Kosuyolu	41.009087	29.038719	Day & Night Shisha   Pub	41.008470	29.039018	Pub
4	Kadikoy	Kosuyolu	41.009087	29.038719	Cara Cafe&Lounge	41.008746	29.039124	Café

FIGURE 5. VENUES IN KADIKOY BY DISTRICTS

55]:	Town	DistrictName	Latitude	Longitude	VenueName	VenueLatitude	VenueLongitude	VenueCategory
0	Besiktas	Abbasaga	41.04801	29.004528	SOLD Abbasaga	41.048235	29.005557	Coffee Shop
1	Besiktas	Abbasaga	41.04801	29.004528	Abbasaga Parkı	41.046537	29.006151	Park
2	Besiktas	Abbasaga	41.04801	29.004528	Çay Erdal'da İçilir	41.047688	29.005657	Café
3	Besiktas	Abbasaga	41.04801	29.004528	Neşe Manti Waffle	41.048212	29.002179	Manti Place
4	Besiktas	Abbasaga	41.04801	29.004528	Tarihi Oktay Kurabiye Fırını	41.045931	29.002947	Bakery

FIGURE 6. VENUES IN BESIKTAS BY DISTRICTS

Then Coffee Shops and Burger Joints are filtered from dataframes obtained above.

	Town	DistrictName	Latitude	Longitude	VenueName	VenueLatitude	VenueLongitude	VenueCategory
3	Kadikoy	Kosuyolu	41.009087	29.038719	Starbucks Reserve	41.009617	29.040705	Coffee Shop
9	Kadikoy	Kosuyolu	41.009087	29.038719	Esperto Di Caffè	41.008013	29.037773	Coffee Shop
21	Kadikoy	Kosuyolu	41.009087	29.038719	Daniel's Coffee	41.007338	29.038243	Coffee Shop
34	Kadikoy	Kosuyolu	41.009087	29.038719	Starbucks	41.011664	29.038764	Coffee Shop
42	Kadikoy	Kosuyolu	41.009087	29.038719	Starbucks	41.005932	29.037183	Coffee Shop
57	Kadikoy	Kosuyolu	41.009087	29.038719	Le Macaron Acibadem	41.007066	29.043734	Coffee Shop
94	Kadikoy	Kosuyolu	41.009087	29.038719	Starbucks	41.002990	29.034629	Coffee Shop
100	Kadikoy	Suadiye	40.963081	29.083810	No:7 Coffee House	40.962319	29.085144	Coffee Shop

FIGURE 7. COFFEE SHOPS IN KADIKOY

### 3. Methodology

Firstly, number of coffee shops and burger joints are calculated by district in towns on a new dataframe . Then, these dataframes are merged and plotted on a bar chart to discover the situation on these towns.

Secondly, ratio of number of coffee shops to number of burger joints are calculated in each district to see if there are too many shops in districts and where would be good location to open a venue.

Thirdly, each venue category are plotted on a map in different colors to see their locations easily and make a decision.

Finally, Venues are plotted on map as clusters to discover more.

### 4. Results

With data we gathered from Foursquare we discovered that there are 87 coffee shops and 12 burger joints in Kadikoy and 66 to 9 in Besiktas respectively.

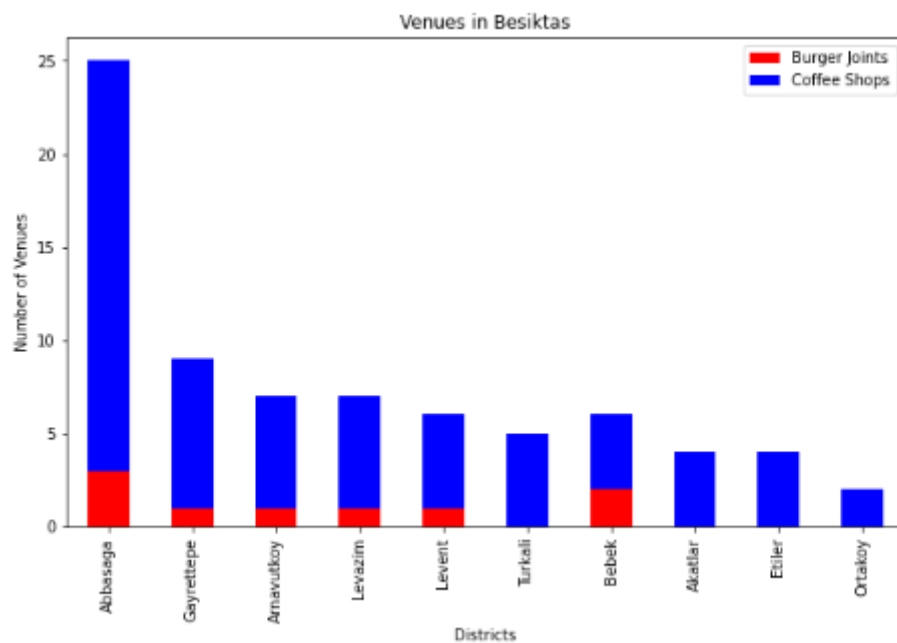


FIGURE 8. VENUES IN BESIKTAS

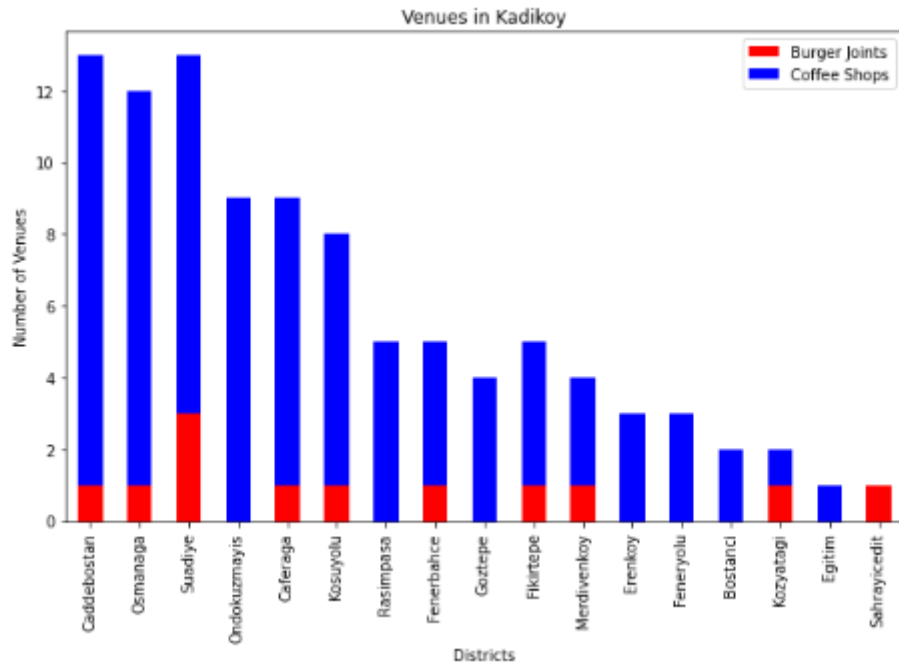


FIGURE 9. VENUES IN KADIKOY

[60]:

NumberofBurgerJoints		NumberofCoffeeShops		Ratio	
District					
Sahrayicedit	1.0	0.0	0		
Kozyatagi	1.0	1.0	1		
Merdivenkoy	1.0	3.0	3		
Suadiye	3.0	10.0	3.33333		
Fenerbahce	1.0	4.0	4		
Fikirtepe	1.0	4.0	4		
Kosuyolu	1.0	7.0	7		
Caferaga	1.0	8.0	8		
Osmanaga	1.0	11.0	11		
Caddebostan	1.0	12.0	12		
Rasimpasa	0.0	5.0	no burger joints		
Erenkoy	0.0	3.0	no burger joints		
Feneryolu	0.0	3.0	no burger joints		
Bostanci	0.0	2.0	no burger joints		
Ondokuzmayis	0.0	9.0	no burger joints		
Egitim	0.0	1.0	no burger joints		
Goztepe	0.0	4.0	no burger joints		

NumberofBurgerJoints		NumberofCoffeeShops		Ratio	
District					
Abbasaga	3.0	22	7.33333		
Gayrettepe	1.0	8	8		
Arnavutkoy	1.0	6	6		
Levazim	1.0	6	6		
Levent	1.0	5	5		
Turkali	0.0	5	no burger joints		
Bebek	2.0	4	2		
Akatlar	0.0	4	no burger joints		
Etiler	0.0	4	no burger joints		
Ortakoy	0.0	2	no burger joints		

FIGURE 10. RATIOS OF NUMBER OF VENUES BY CATEGORY



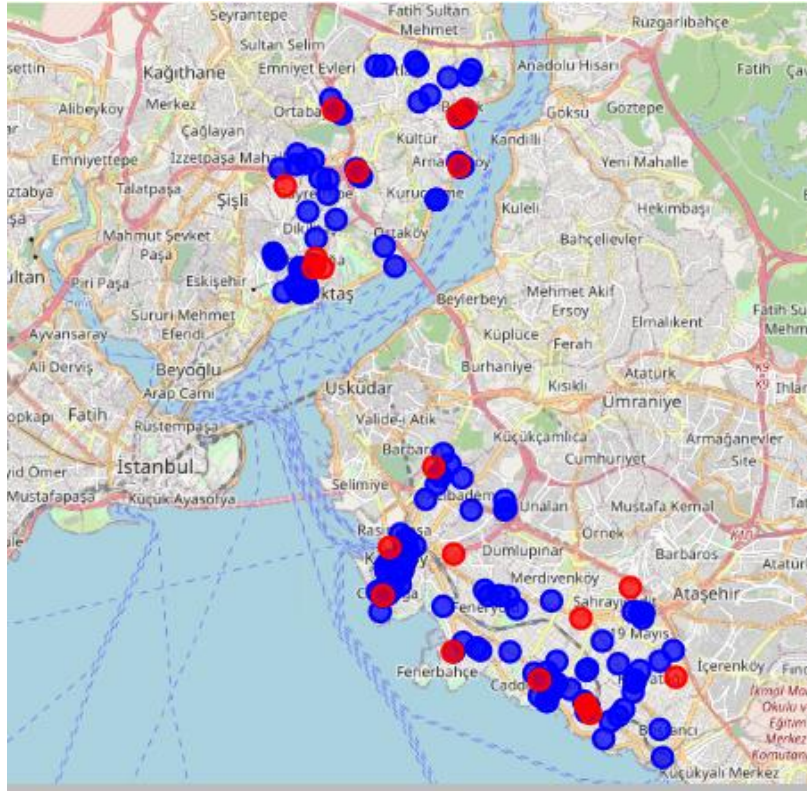


FIGURE 11. MAP OF VENUES IN BEŞIKTAŞ AND KADIKÖY BY CATEGORY

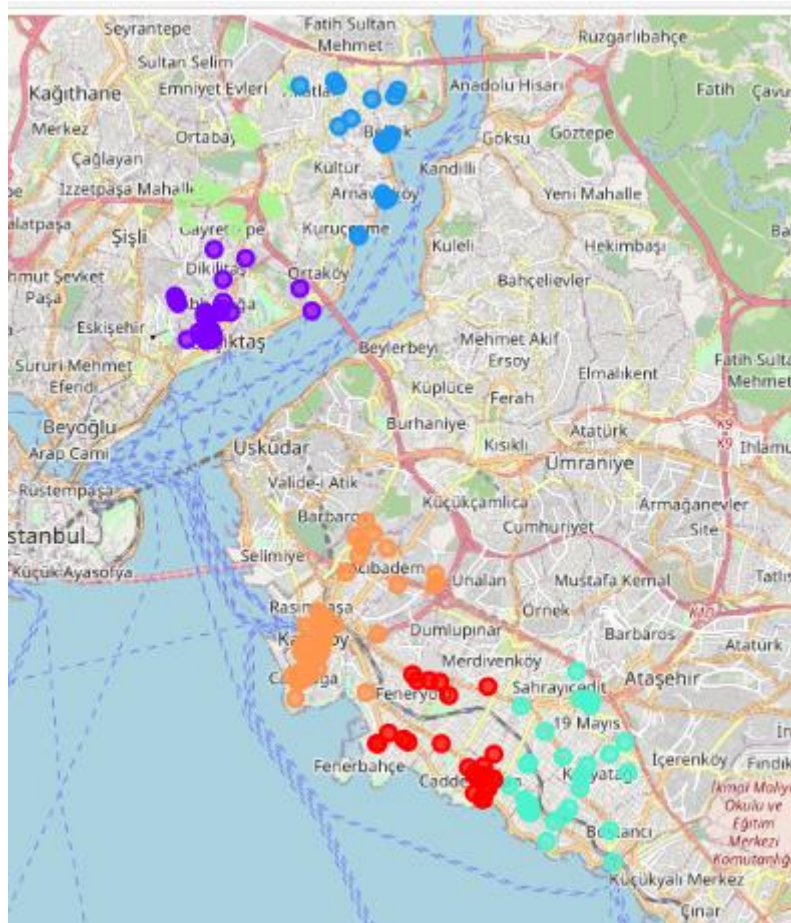


FIGURE 12. CLUSTERED MAP OF VENUES

## 5. Conclusion

Using the data available on Foursquare, we can tell that, there are more coffee shops than Burger Joints in all districts of Besiktas and Kadikoy. Moreover, even some districts have few or more coffee shops, there are not any burger joints. Also, in some districts ratio of Coffee Shops to Burger Joints are too high that it could be an opportunity to open a venue there. But of course it is a superficial study and further data should be analyzed with more methods.