Capstone Project – Final Report

Finding best locations for an advertisement campaign in Istanbul, Turkey

1. Introduction (The business problem and who would be interested)

ABC Limited is a touristic company in Istanbul, Turkey. It wants to start an advertisement campaign for its touristic tours targeting the tourists in Istanbul traveling without a previously arranged tour programs.

Its budget can cover the advertisements in only limited areas. We want to use the spatial data for Istanbul City and analyze it in order to infer the three most populated neighborhoods by tourists, that contain tourists who are willing to pay for the tours.

2. The Description of the Data and how it will be used to solve the problem

We will use the data from "Inside Airbnb site" which is sourced from publicly available information from the "Airbnb site".

http://insideairbnb.com/get-the-data.html

We can find the detailed listings data for Istanbul in "Inside Airbnb site" from the link:

http://data.insideairbnb.com/turkey/marmara/istanbul/2018-11-21/data/listings.csv.gz

Using Airbnb listing data rather hotels listing data has an advantage that most of the hotels' clients are coming to Istanbul in groups with pre-arranged tour programs, whereas the clients of Airbnb are usually arranging their own travels, accommodations, tour programs.

3. Methodology

We want to choose the five most prominent zipcodes of the most populated neighborhood by tourists, based on the distributions of the Airbnb properties and the per-night prices of them.

By exploring the dataset and subseting the relevant columns, we find

id	name	neighbourhood	zipcode	latitude	longitude	accommodates	price
4826	The Place	Üsküdar	34684	41.056499	29.053674	2	$562.00
20815	The Bosphorus from The Comfy Hill	Beşiktaş	34345	41.069842	29.045452	3	$102.00
25436	House for vacation rental furnutare	Beşiktaş	34400	41.077312	29.038906	3	$214.00
27271	LOVELY APT. IN PERFECT LOCATION	Cihangir	34433	41.032195	28.982163	2	$182.00
28277	Duplex Apartment with Terrace	Şişli	34373	41.044708	28.985674	4	$605.00

We count the properties in each neighborhood,

col_0	count
neighbourhood	
Şişli	2010
Taksim	1717
Sultanahmet	1335
Beşiktaş	1217
Cihangir	1107
Karaköy	874
Kadıköy	827
Üsküdar	574
Moda	503
Fatih	452
Kadıköy Merkezi	349
Ortaköy	168
Beyoglu	135
Eminönü	56
Aksaray	38

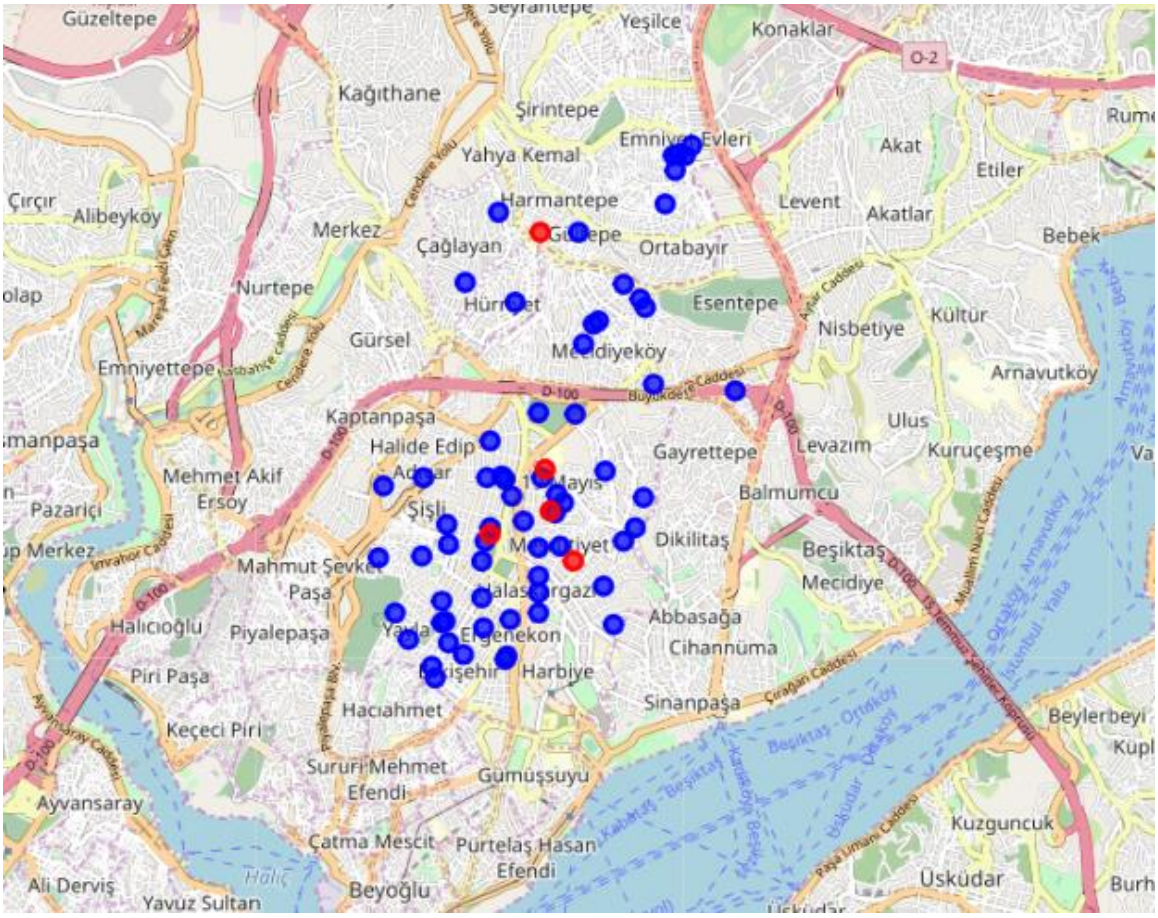
We notice that "Şişli" has the greatest number of properties listings in the dataset. We Subset the data for the most populated neighborhood by tourists, and we group the data by the 'zipcode' variable since we are interested in the areas not properties themselves. Then we sort the grouped data descending by price, and subset the five most expensive zipcodes according to the price column.

	zipcode	latitude	longitude	accommodates	price
zipcode					
34510	34510	41.055856	28.984007	5.000000	5999.000000
36360	36360	41.053761	28.992516	3.000000	1039.000000
34580	34580	41.057613	28.990124	5.000000	916.000000
34834	34834	41.079266	28.989058	5.000000	830.000000
34138	34138	41.060833	28.989740	2.923077	816.230769

section which represents the main component of the report where you discuss and describe any exploratory data analysis that you did, any inferential statistical testing that you performed, and what machine learnings were used and why.

4. Results

	Zipcode	Latitude	Longitude	Accommodates	Price
1	34510	41.055856	28.984007	5.000000	5999.000000
2	36360	41.053761	28.992516	3.000000	1039.000000
3	34580	41.057613	28.990124	5.000000	916.000000
4	34834	41.079266	28.989058	5.000000	830.000000
5	34138	41.060833	28.989740	2.923077	816.230769



5. Discussion

Based on the results, we noticed that the targeted locations are near Nişantaşı area which is very famous neighborhood in Istanbul. It is also recommended to advertise in the Metro Stations and the public transportations in this area as it would be crowded in the day.

6. Conclusion

We concluded the most prominent zipcodes of the most populated neighborhood by tourists. We have done our analysis based on the per-night-prices of the Airbnb properties, and we restricted our results to very small area. If we could increase the budget for the advertising campaign, we could find the most prominent area in each neighborhood using the same methodology and, in this way, we can expand the advertisement to all Istanbul.