Opening a new restaurant in Espoo

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Introduction¶

This project aims to help a restauranteur to understand the geography of Helsinki to identify strategic location options for a new restaurant to attract locals to enjoy lunch or dinner

The project will analyse Espoo, Finland, area and provide recommendations based on findings

Espoo is a diverse waterfront city with active culinary scene offering a wide variety of dining options, but most of them are in the centrally located areas. The opportunities outside central most Espoo should be identified as locals the aim would be to make dining out more convenient and easy. For many inhabitants the centrally located restaurants require some transportation and if they had an option of neighborhood bistro, that would potentially be greatly appreciated as has been found in neighborhood city of Espoo.

Data acquisition

The project will use following data sources:

- Foursquare API to retrieve information about current dining options in Espoo (based on category, location, style etc.). The packages to run this API query are not installed at this stage.
- Demographic data is retrieved from StatFi Espoo related dataset extracted from StatFi portal on postal code level
- Geographics locations and boundaries are for Helsinki postal codes are retrieved in .KML-file from Capitol Area opean data portal

Methodology

Fundamental descriptive data analysis methodologies were used to analyse the demographic information. Descriptive statistics were used to generate understanding of which areas were most dense in offering restaurants and what were the common denominating variables behind. Final feature selection was based on industry insights and correlation analysis. Preliminary area selection was based on area income and purchasing power.

Recommendations were based on content based recommendation and pairwise similarity comparisons using cosine similarity to compare the demographic variables and their respective similarity across Espoo postal code areas. The similar areas were listed and final recommendations were based on the similarity, number inhabitants and restaurants closely available for those inhabitants.

Results

The preliminary screening highlighted approximately 20 postal codes areas for further examination. The correlation analysis a set of features as most related to the total number of restaurants in the area. The correlation result (threshold: 0.65) are shown in Table 1:

Table 1 – Correlation results

20-24 years, 2019 (HE)	0.715461
25-29 years, 2019 (HE)	0.713755
Matriculation examination, 2019 (KO)	0.707352
One-person households, 2019 (TE)	0.718441
Young single persons, 2019 (TE)	0.737928
Young couples without children, 2019 (TE)	0.708602
Adult households, 2019 (TE)	0.683481
Households living in rented dwellings, 2019 (TE)	0.724378
Dwellings in blocks of flats, 2019 (RA)	0.749634
Workplaces, 2018 (TP)	0.750533
Services, 2018 (TP)	0.767706
I Accommodation and food service activities, 2018 (TP)	0.882087
L Real estate activities, 2018 (TP)	0.822632
Q Human health and social work activities, 2018 (TP)	0.673422
R Arts, entertainment and recreation, 2018 (TP)	0.765329
S Other service activities, 2018 (TP)	0.735247
Target Population Size	0.652943
Restaurants	1.000000

The feature set was used to generate benchmark set of the top restaurant areas in Espoo using the mean value of five postal code areas with highest amount of restaurants as shown in Table 2:

Table 2 – Mean values of restaurants dense areas

	mean
20-24 years, 2019 (HE)	906.6
25-29 years, 2019 (HE)	1275.6
Matriculation examination, 2019 (KO)	1153.4
One-person households, 2019 (TE)	3162.8
Young single persons, 2019 (TE)	971.2
Young couples without children, 2019 (TE)	487.0
Adult households, 2019 (TE)	3715.8
Households living in rented dwellings, 2019 (TE)	3760.2
Dwellings in blocks of flats, 2019 (RA)	6024.4
Workplaces, 2018 (TP)	6743.6
Services, 2018 (TP)	5947.6
I Accommodation and food service activities, 20...	306.6
L Real estate activities, 2018 (TP)	90.8
Q Human health and social work activities, 2018...	890.4
R Arts, entertainment and recreation, 2018 (TP)	217.4
S Other service activities, 2018 (TP)	209.8
Target Population Size	4722.6
Restaurants	31.2

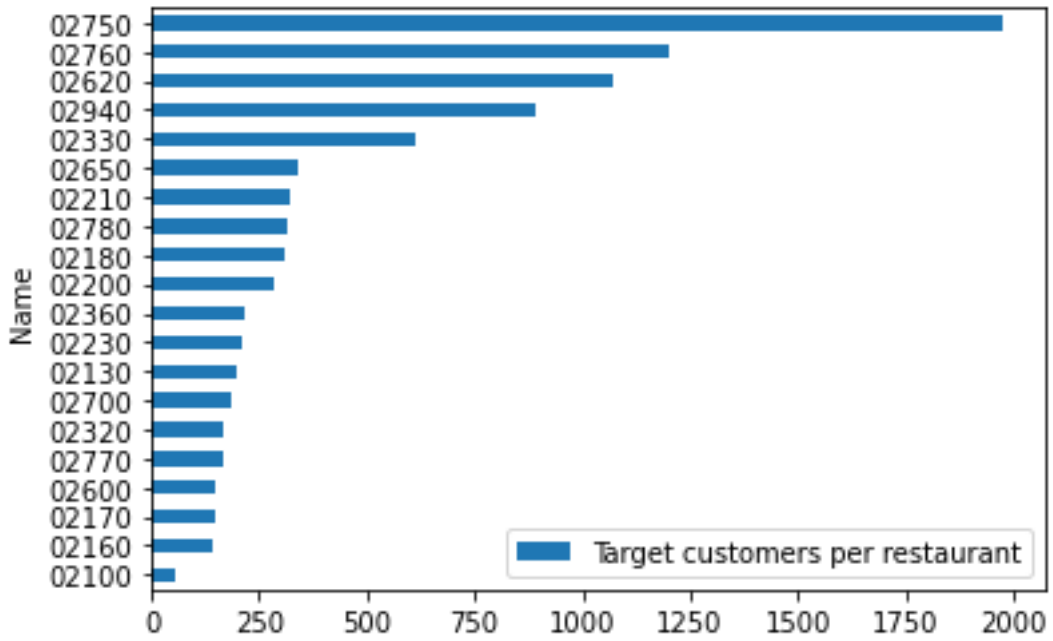
The mean value served as benchmark for cosine similarity analysis of the target areas. Similarity scores are presented in Table 3. Lowest similarity was recored at 0.849 while the closest proximity was recored at 0.988.

Table 3 – Number of restaurants and demographic similarity of target areas

	Name	Restaurants	Similarity
0	02100	31	0.947608
1	02130	8	0.932129
2	02160	4	0.958738
3	02170	9	0.934010
4	02180	5	0.887716
5	02200	13	0.960192
6	02210	11	0.912099
7	02230	37	0.939744
8	02320	27	0.868545
9	02330	5	0.953928
10	02360	11	0.878388
11	02600	39	0.954608
12	02620	2	0.868938
13	02650	13	0.946819
14	02700	11	0.983516
15	02700	11	0.983516
16	02750	1	0.885091
17	02760	4	0.849241
18	02770	22	0.986911
19	02780	11	0.952247
20	02940	3	0.896727

The final recommendation is based on number of prospective customer per restaurants in the postcode area (Figure 1):

Figure 1 – Target customers per resturant



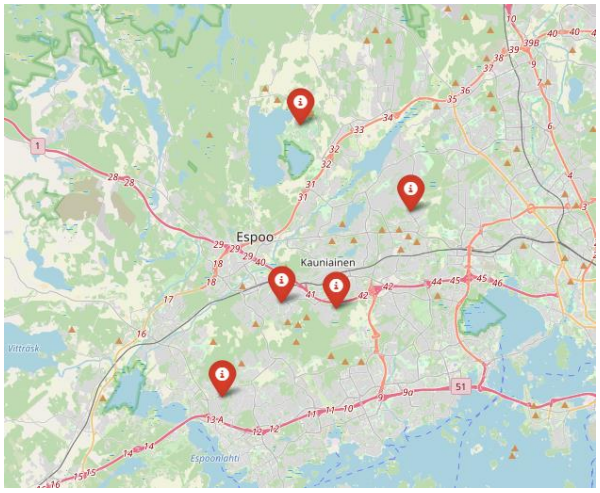
The recommended areas are presented in Figure 2:

Figure 2 – Recommened areas based on target customer

	Name	Target customers per restaurant
18	02750	1975.000000
19	02760	1200.250000
12	02620	1073.000000
22	02940	890.666667
9	02330	615.600000

Discussion

The top five areas identified are relatively similar based on demographics, but located in different parts of the city of Espoo. Here further analysis is required to really define the type of the restaurant and final location:



- The final decision of the size and type of the restaurant should be based on market research conducted locally to avoid any misunderstandings that may lead to misinvestments
- Property availability and pricing were not subject to this analysis

Conclusion

The five areas provide unique opportunities for restaurants business. The final decision of the size and type of the restaurant should be based on market research conducted locally to avoid any misunderstandings that may lead to misinvestments. Furth The final decision of the size and type of the restaurant should be based on market research conducted locally to avoid any misunderstandings that may lead to misinvestments

er geographic analysis could also include tourist attractions and traffic flows. In addition to this business space availability has to be considered.