

Deciding where to move in Helsinki

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Background and aim

- When people decide where to move, they often search the internet for information about the areas they are interested in.
- Researching the surroundings can be time-consuming to do by hand.
- Outgoing people might want cafeterias, bars and restaurants nearby, while families might want parks and recreational centers near their home.
- Aim: to cluster the districts of Helsinki based on the most popular venues in that district and compare the obtained clusters.
- Based on the clusters, I can give recommendations on neighbourhoods for different tastes.

Data

- Data from the Helsinki Region Infoshare (HRI) service.
- Data containing addresses, coordinates and postal codes were merged with data on area names.
- Snapshot of the resulting, cleaned dataframe:

	Area	newLon	newLat
0	Pajamäki	24.862298	60.218664
1	Kivihaka	24.903746	60.209473
2	Meilahden sairaala-alue	24.910364	60.189822
3	Herttoniemi	25.024531	60.189653
4	Ruskeasuo	24.901674	60.202758

- 84 neighbourhoods in Helsinki

Methods

- Contacting Foursquare and retrieving venue information
 - Coordinates match venues and frequency of venue in the Foursquare API
- Finding the top 10 most common venues per neighbourhood
- K-means clustering
 - Finds clusters with similarities, in this case similarities in the venue ranking

Results

- There were 1556 rows of data and 240 unique venue categories in the obtained dataframe.
- I picked the top 10 venues in each neighbourhood into a dataframe:

	Area	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
0	Aurinkolahti	Beach	Grocery Store	Park	Playground	Bridge	Bus Stop	Canal	Gym / Fitness Center	Sri Lankan Restaurant	Restaurant
1	Eira - Hernesaari	Park	Scandinavian Restaurant	French Restaurant	Bakery	Pizza Place	Ice Cream Shop	Italian Restaurant	Boat or Ferry	Beach	Beer Bar
2	Etelä-Haaga	Bus Stop	Café	Supermarket	Sushi Restaurant	Pizza Place	Grocery Store	Zoo	Food	Flower Shop	Flea Market
3	Etelä-Lajasalo	Canal	Convenience Store	Bus Stop	Café	Zoo	Forest	Food & Drink Shop	Food	Flower Shop	Flea Market
4	Etelä-Vuosaari	Port	ATM	Business Service	Event Space	Forest	Food & Drink Shop	Food	Flower Shop	Flea Market	Fish Market

Results (cont)

- The K-means clustering with six clusters gave the best result:
 - Cluster 1: Close to bus stops and ethnic foods
 - Cluster 2: Bars, restaurants and coffee shops
 - Cluster 3: Quiet neighbourhood
 - Cluster 4: Outdoor activities and food
 - Cluster 5: Close to a lot of activities, foods and bus stops; busy neighbourhood
 - Cluster 6: Markets and foods

Conclusions

- There are differences in venue popularity in the neighbourhoods in Helsinki.
- People who are figuring out where to move in Helsinki can use the clusters I created to examine the popularity of venues in different neighbourhoods.
- They can then combine this information with housing prices, information about schools and other relevant information to make an informed decision about where to move.

References and code

- Helsinki region infoshare. https://hri.fi/en_gb/
- Notebook:
https://github.com/mariatornroos/Coursera_Capstone/blob/master/Capstone%20project_Helsinki.ipynb