Finding the best location for a new vegetarian restaurant in the city of Helsinki, Finland

Author: Niko Juntunen

Forming the main problem

- Demand for veg restaurants is growing in the area

- The competition is already high

- Where is the best location for a new restaurant at the moment

Finding the answer

- We need location data including the venues of the area.

- The data is available in Foursquare

- Data of subdivision of Helsinki is availabe in Wikipedia.

- By utiliazing the available data we can solve the main problem.

Data acquisition and cleaning

- **The suddivision data was scraped from Wikipedia:**

    https://fi.wikipedia.org/wiki/Helsingin_alueellinen_jako

- **The data was cleaned in order to create list of actual neighborhoods**

- **After cleaning the subdivision included 143 neighborhoods**

- **Latitudes and longitudes were added with Geopy**

- **Venues for the locations where requested from Foursquare**

Analysing the Data

- ## Counting the venues with Groupby:

[18]

Neighborhood	Unnamed: 0	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Ala-Malmi	19	19	19	19	19	19	19
Alppikylä	15	15	15	15	15	15	15
Alppila	19	19	19	19	19	19	19
Arabianranta	16	16	16	16	16	16	16
Aurinkolahti	19	19	19	19	19	19	19

- ## Inspecting the venue categories from one hot encoded dataframe:

Tram ...ation	Tunnel	Turkish Restaurant	Used Bookstore	Vegetarian / Vegan Restaurant	Venezuelan Restaurant	Video Store	Vietnamese Restaurant	Warehouse Store	Waterfront	Wine Bar	Wine Shop	Wings Joint	Women's Store	Yoga Studio	Zoo	Zoo Exhibit
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
0	0	0	0	0	0	0	1	0	0	0	0	0	0	0	0	0

Venues frequensies

- **Inspecting the frequensis of venues for each location:**

```
----Kamppi----
                     venue  freq
0                 Beer Bar  0.05
1                 Wine Bar  0.05
2                      Bar  0.04
3     Gym / Fitness Center  0.04
4               Art Museum  0.04


----Kannelmäki----
                venue  freq
0               Trail  0.14
1         Pizza Place  0.14
2       Grocery Store  0.14
3          Taxi Stand  0.14
4                Park  0.14


----Karhusaari----
                  venue  freq
0              Bus Stop  0.29
1         Boat or Ferry  0.29
2     Recreation Center  0.14
3                  Park  0.14
4                Lounge  0.14
```
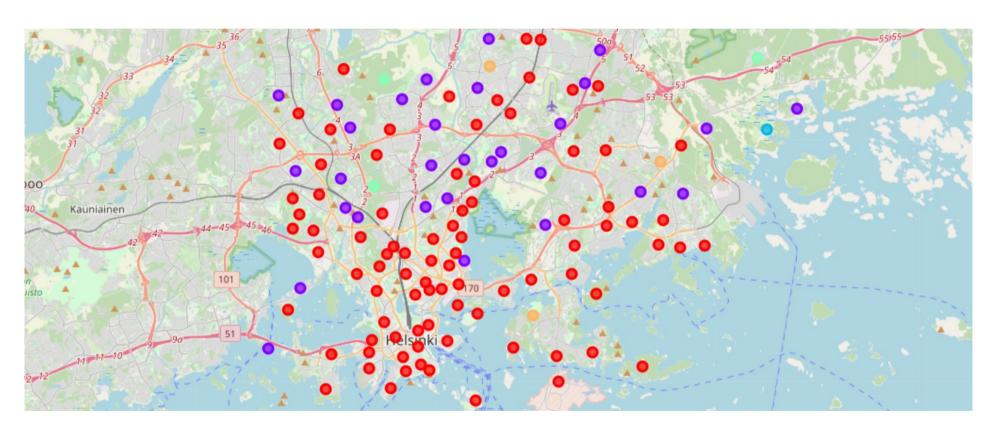
Sorting the venues by their frequensies:

	Neighborhood	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	Ala-Malmi	Gym / Fitness Center	Himalayan Restaurant	Coffee Shop	Restaurant	Fast Food Restaurant	Beer Bar	Liquor Store	Basketball Court	Pharmacy	Thai Restaurant
1	Alppikylä	Bus Stop	Supermarket	Plaza	Convenience Store	Pharmacy	Grocery Store	Hotel	Shopping Mall	Karaoke Bar	Football Stadium
2	Alppila	Theme Park Ride / Attraction	Park	Pub	Sushi Restaurant	Track Stadium	Trail	Gym	Bar	Grocery Store	History Museum
3	Arabianranta	Tram Station	Furniture / Home Store	Park	Arts & Crafts Store	Himalayan Restaurant	Pizza Place	Plaza	Café	Art Museum	Art Gallery
4	Aurinkolahti	Beach	Harbor / Marina	Grocery Store	Beer Bar	Park	Gym / Fitness Center	Restaurant	Bus Stop	Sri Lankan Restaurant	Playground

Finding out that Punavuori seems to be popular location for restaurants and bars:

	Neighborhood	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
83	Punavuori	Scandinavian Restaurant	Beer Bar	Italian Restaurant	Pizza Place	Bakery	Park	Sushi Restaurant	Coffee Shop	Restaurant	Bar

- **Visualizing the clustered locations:**

The final results

- Locations near the base location of study are homogenous.

- One location stands out when looking for a place that has lot of venues and restaurants, but not vegetarian ones.

- The location found is near our base location.

- The best location for a new vegetarian restaurant in Helsinki is Punavuori.

_____