Battle of Neighborhoods

Introduction

- its main idea to help the stake holders to achieve the desired results, so as to help them spend their time and money in some other productive means rather keep them trapped in an infinite loop of extensive search engines.
- help the stakeholders take a better decision on choosing the best neighborhood out of many neighborhoods to build/buy their houses in Seattle city based on the distribution of various facilities in and around that neighborhood. As an example, this project would compare 2 randomly picked neighborhoods and analyses the top 5 most common venues in each of those two neighborhoods based on the number of visits by people in each of those places.

Methodology

- HTTP requests would be made to this Foursquare API server using zip codes of the Seattle city neighborhoods to pull the location information (Latitude and Longitude).
- Foursquare API search feature would be enabled to collect the nearby places of the neighborhoods. The number of places per neighborhood parameter would reasonably be set to 50 and the radius parameter would be set to 1000.
- Folium- Python visualization library would be used to visualize the neighborhoods cluster distribution of Seattle city over an interactive leaflet map.
- Unsupervised machine learning algorithm K-mean clustering would be applied to form the clusters of different categories of places residing in and around the neighborhoods.

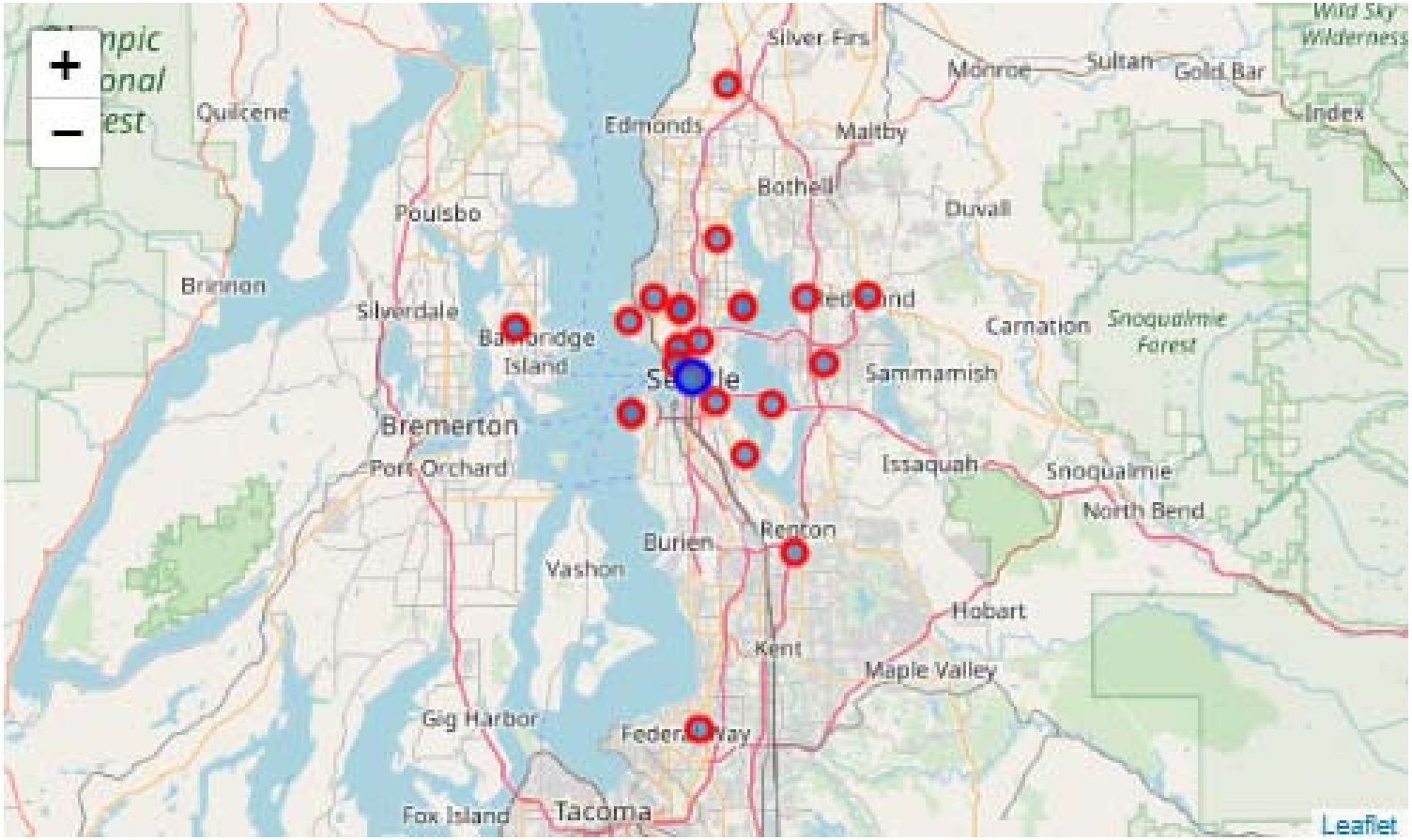
Data

	Neighborhood	PostalCode
0	Federal Way	98003
1	Bellevue	98005
2	Kirkland	98033
3	Lynnwood	98037
4	Mercer Island	98040
5	Redmond	98052
6	Renton	98055
7	Seattle	98101
8	Downtown	98101
9	Capital Hill	98102
10	Greenwood	98103
11	Freemont	98103
12	Greenlake	98103
13	International District	98104
14	Pioneer Square	98104
15	University District	98105
16	Laurelhurst	98105
17	Ballard	98107
18	South Lake Union	98109
19	Queen Anne	98109
20	Bainbridge Island	98110
21	Madrona	98110
22	West Seattle	98116
23	Alki Beach	98116
24	Columbia City	98118
25	Belltown	98121
26	Northgate	98125
27	Mount Baker	98144
28	Magnolia	98199

Obtaining latitude and longitude

	Neighborhood	PostalCode	Latitude	Longitude
0	Federal Way	98003	47.316504	-122.322397
1	Bellevue	98005	47.615044	-122.171758
2	Kirkland	98033	47.668830	-122.192387
3	Lynnwood	98037	47.841952	-122.288181
4	Mercer Island	98040	47.582423	-122.233123

create map of Seatle



obtaining info from FOURSQUARE and resuming

```
----Bainbridge Island----
          venue  freq
0   Skate Park   1.0
1  Yoga Studio   0.0
2    Multiplex   0.0
```

```
----Ballard----
             venue  freq
0          Brewery  0.08
1  Ice Cream Shop  0.06
2     Gaming Cafe  0.04
```

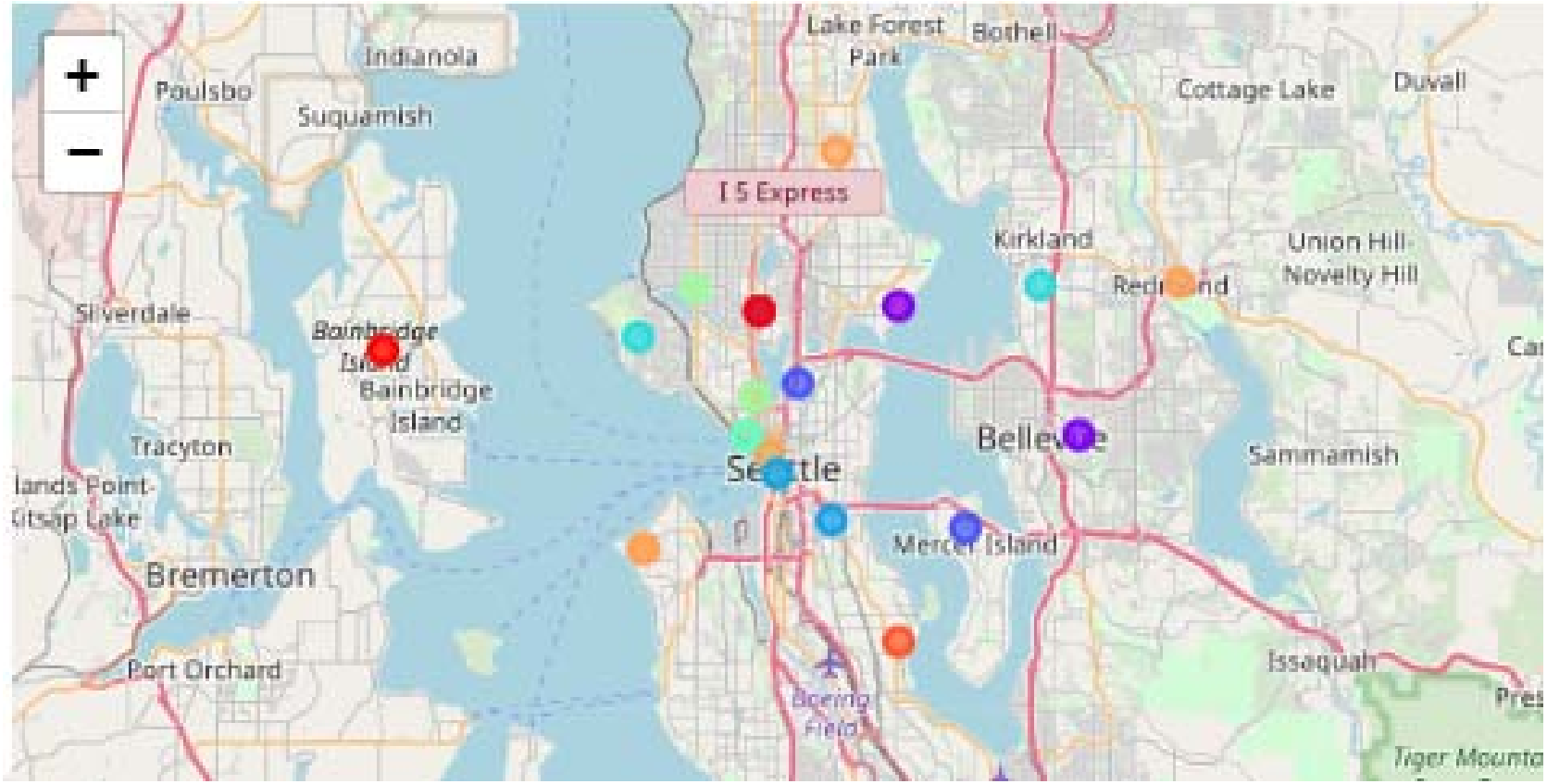
```
----Kirkland----
                venue  freq
0     Sandwich Place  0.12
1   Asian Restaurant  0.12
2  Convenience Store  0.06
```

```
----Laurelhurst----
       venue  freq
0       Café  0.13
1   Pharmacy  0.13
2      Beach  0.13
```

obtaining info from FOURSQUARE and resuming

	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
0	Alki Beach	Ice Cream Shop	Coffee Shop	Park	Italian Restaurant	Beach	Thai Restaurant	Seafood Restaurant
1	Bainbridge Island	Skate Park	Winery	Dog Run	Fast Food Restaurant	Farmers Market	Exhibit	Event Space
2	Ballard	Brewery	Ice Cream Shop	Pet Store	Coffee Shop	Cocktail Bar	Mexican Restaurant	Gaming Cafe
3	Bellevue	Park	Coffee Shop	Carpet Store	Rental Car Location	Furniture / Home Store	Martial Arts Dojo	Residential Building (Apartment / Condo)
4	Belltown	Bar	Breakfast Spot	Sushi Restaurant	Gastropub	Beer Bar	Steakhouse	Bakery

Cloustering



Conclusion

	Cluster1	Cluster2	Cluster3	Cluster4	Cluster5
0					Federal Way
1		Bellevue			
2					Kirkland
4			Mercer Island		
9			Capital Hill		
10			Greenwood		
11			Freemont		
12	Greenlake				
14				Pioneer Square	
16		Laurelhurst			
21	Madrona				
27				Mount Baker	
28					Magnolia

With this tool you can select the best neighborhood according to your preferences and hobbies, in this way you can obtain using cloustering techniques the neighborhoods similar to your preferences.