

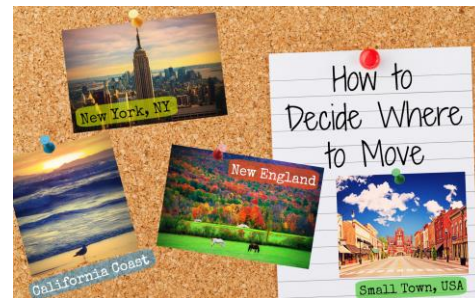
# The Battle of Neighborhoods

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# Introduction

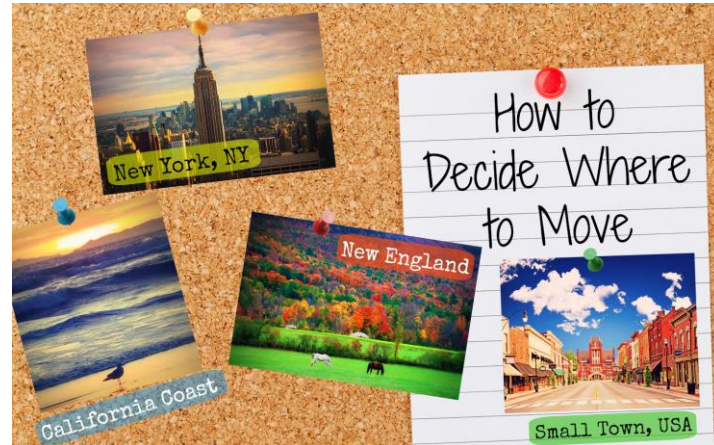
Alex is a software engineer who is based in New York city (US) and he is a user of Foursquare with a lot of posts and shares. Now, he wants to move to Toronto (Canada) and he really wants to find a neighborhood which is similar to his current place.

Is it possible to create a system that helps our users to find out the similarities between the two countries so that they can decide where to settle down?



# Objective

Develop a system that can show the similarities in terms of neighborhoods in order to help a Foursquare user decide where to move near the center of Toronto.



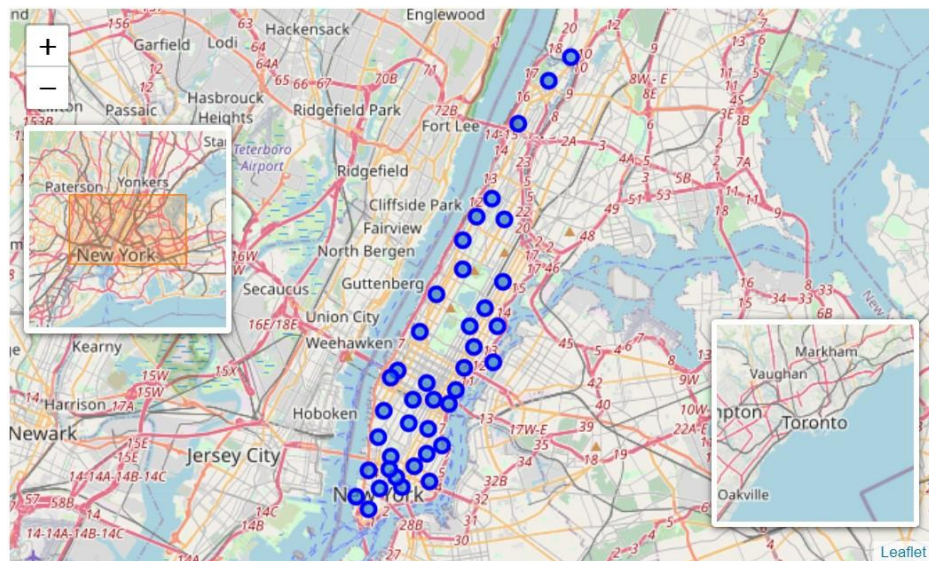
# Approach

- Neighborhoods are downloaded
- Venues are requested using Foursquare API
- The categories of venues are encoded using One Hot
- K-means algorithm is used for finding similarities
- The elbow method is used for select K

# Results

# Geographic locations

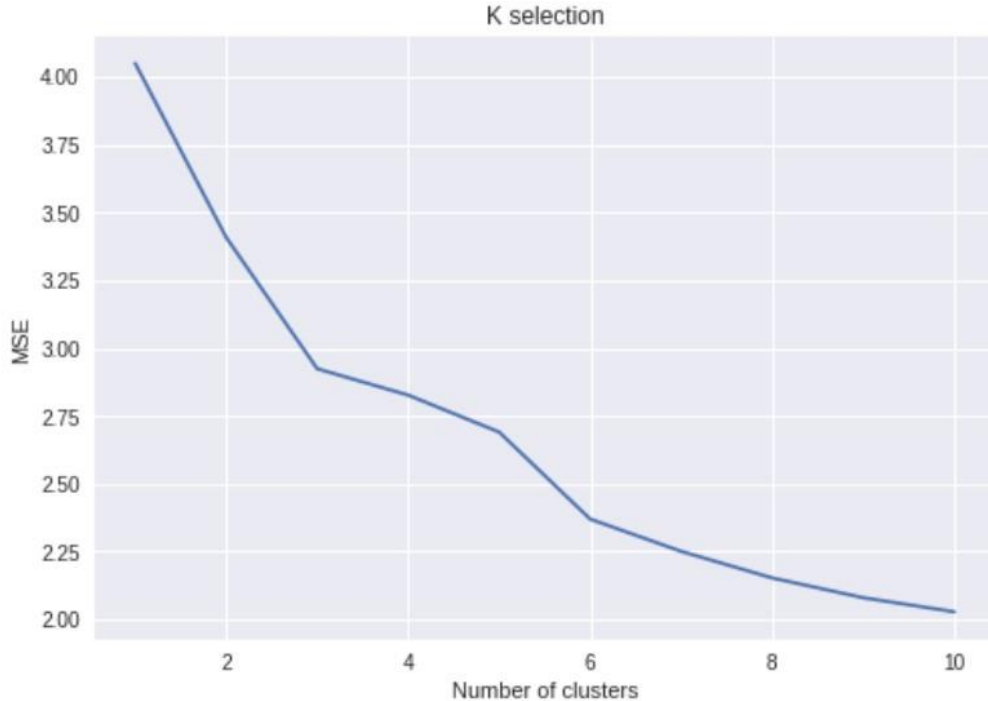
## New York neighborhoods



## Toronto neighborhoods



# Selection of K

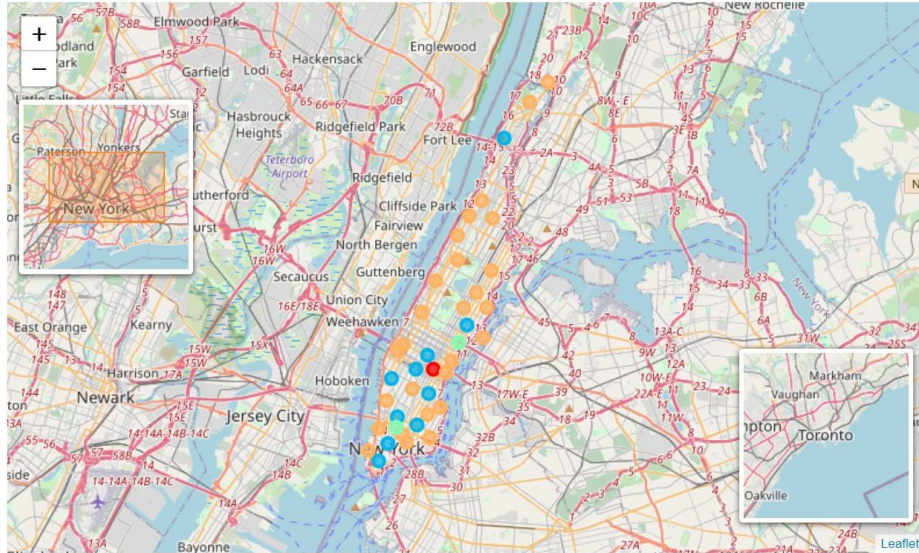


The best number of cluster is 5. That is, where the elbow is located. After that, the mean squared error decrease without big changes.

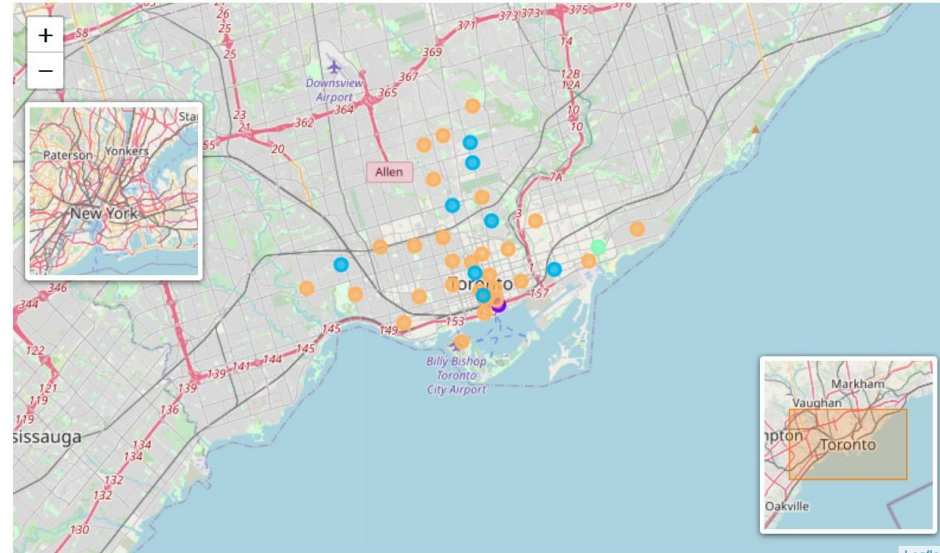


# Geographical Locations (clusters)

New York



Toronto





# Proportion of data segments

Total number of tiles is 400

Cluster I: 284

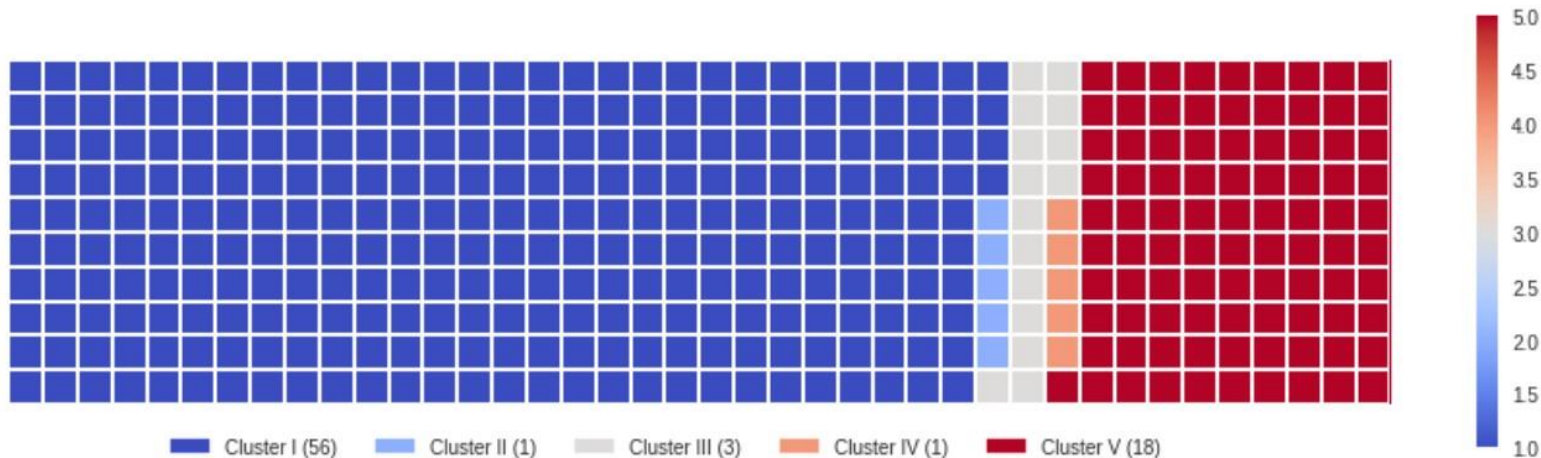
Cluster II: 5

Cluster III: 15

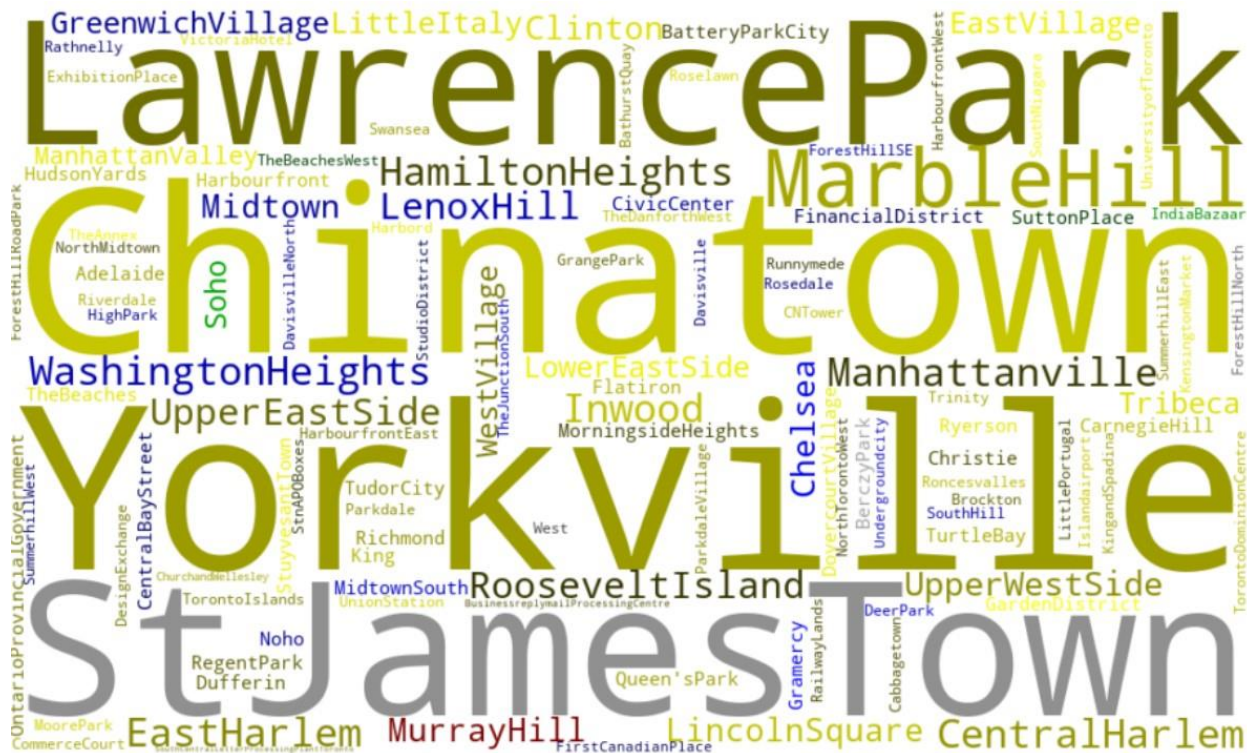
Cluster IV: 5

Cluster V: 91

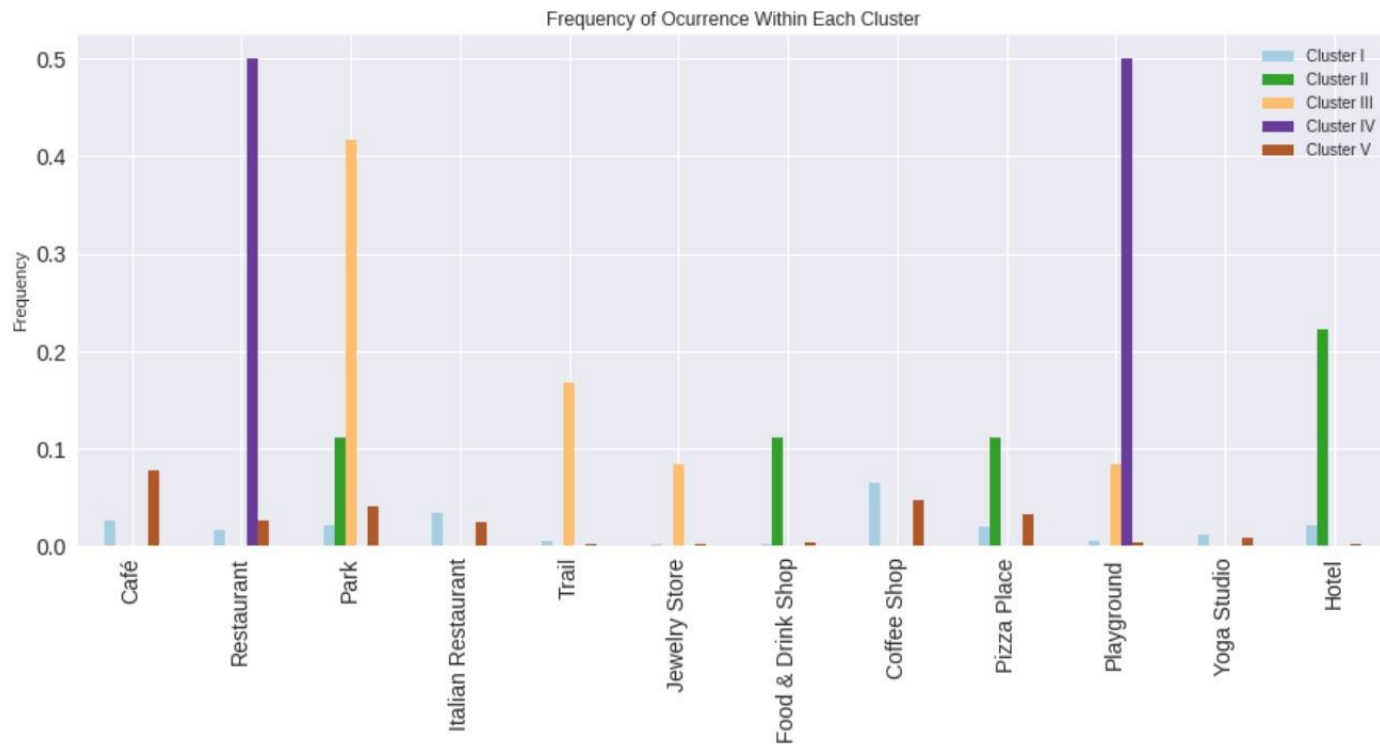
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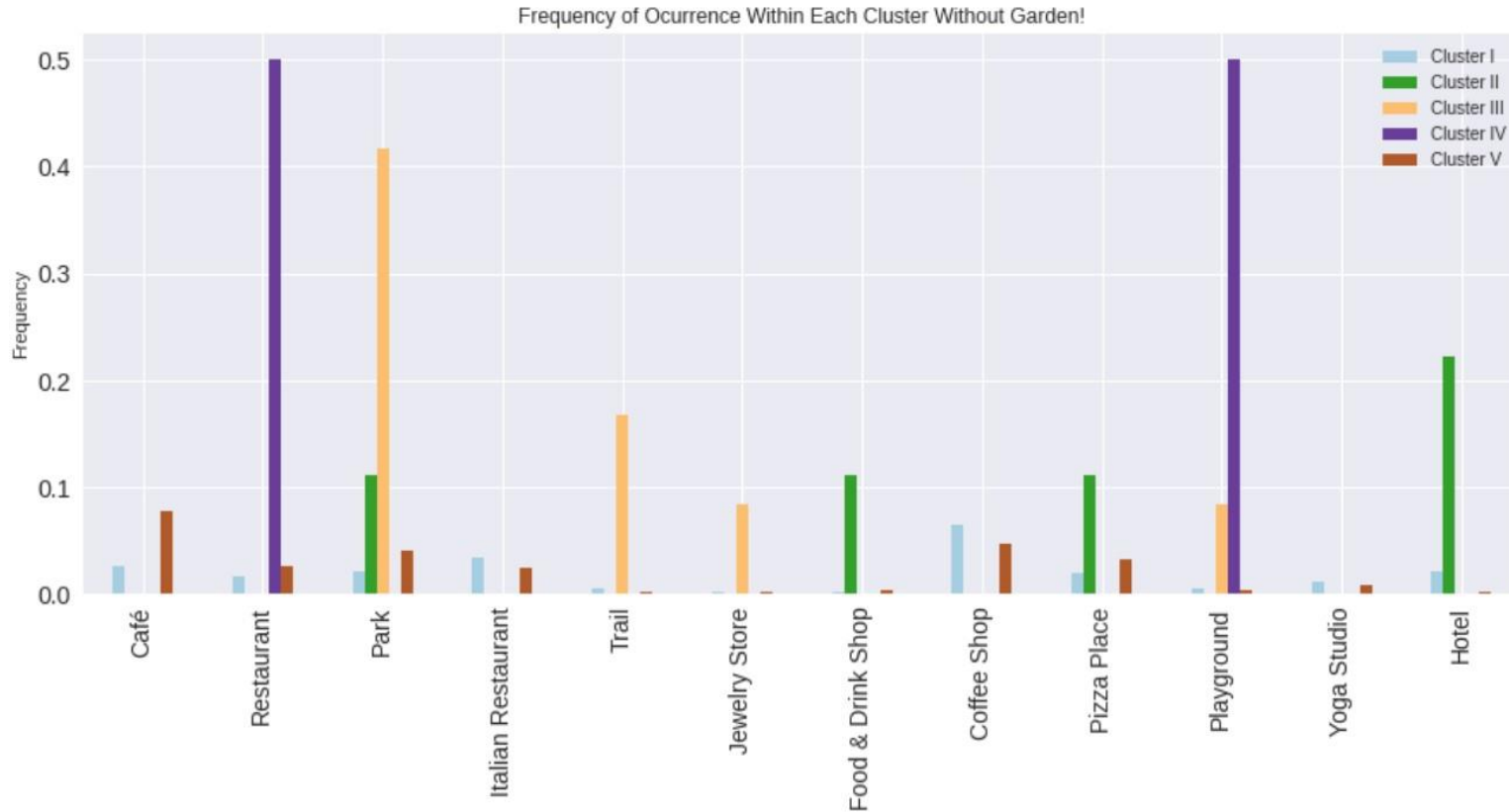
## Neighborhoods segment (words cloud)



# Bar chart (frequently visited venues)



# Bar chart (without garden)



# Conclusion

- Cluster I: Neighborhoods that have around coffee shops, Italian restaurants and parks.
- Cluster II: Neighborhoods that have around hotels, food & drink shops and parks.
- Cluster III: Neighborhoods that have around coffee parks, trails and jewelry stores.
- Cluster IV: Neighborhood that have around restaurants and playgrounds.
- Cluster V: Neighborhoods that have around café and parks.