Hunting Best Neighborhood for living in NYC

By: Surya Gurung

March 2020

Why hunt for best neighborhood?

- New City dweller s, Migrants, Home owners wants to find the best neighborhood to rent or own a place to start a happy and successful life in NYC.
- Real estate investors, financial institutions, and business investors are also going to be interested to find the best neighborhoods to own the real estate properties.
- This project will greatly simplify the tedious process of finding the best location for the new apartment and house in NYC.

Data Requirements & Sources

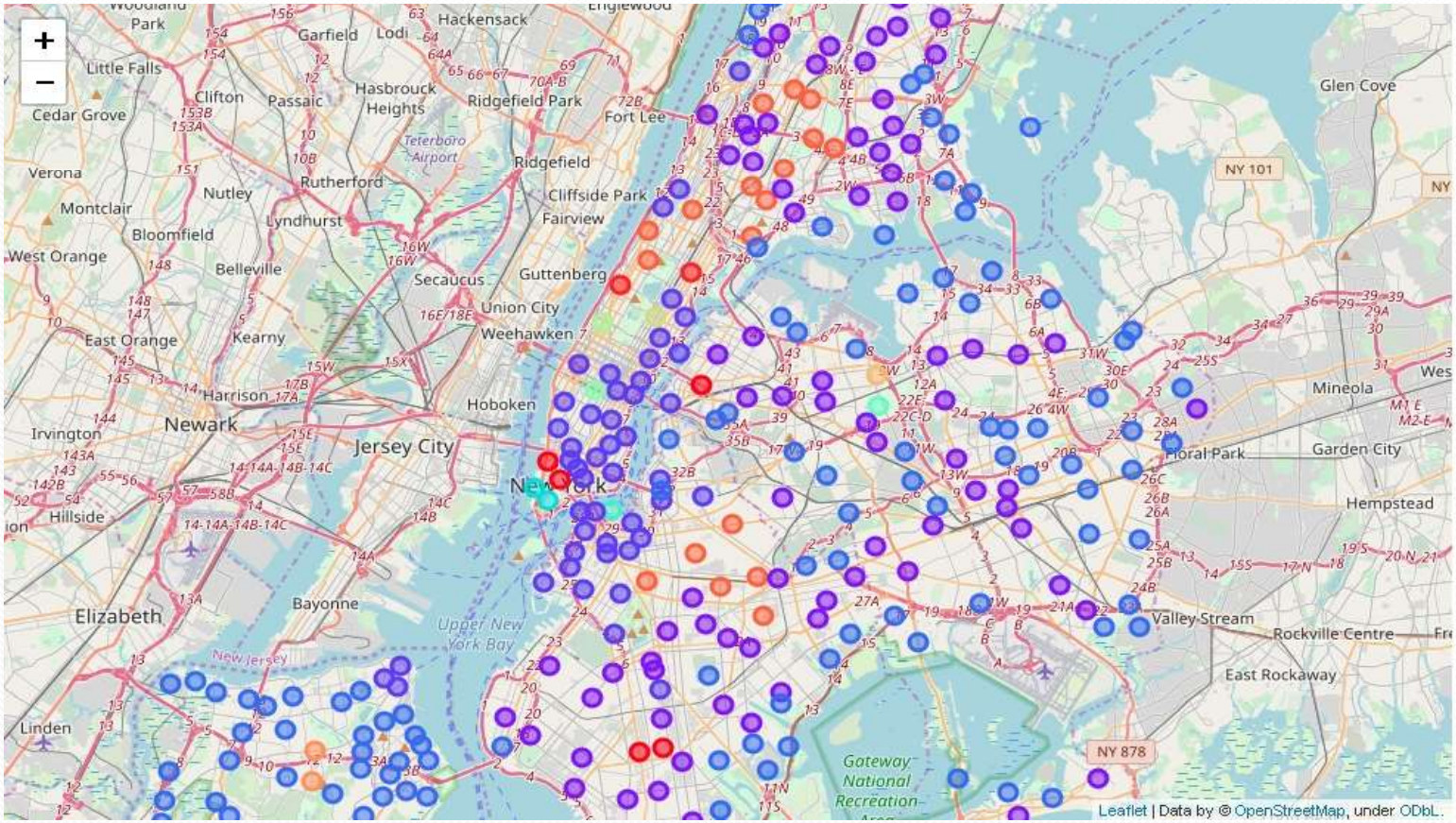
- Need the datasets representative of NYC neighborhoods.
- New York City neighborhood dataset
- NYC school locations dataset
- NYC schools quality review of Elementary & Middle School
- NYC schools quality review of High School
- NYC crime dataset
- Foursquare API

Data Collection & Preprocessing

- NYC neighborhood dataset with 299 neighborhoods.
- NYC school dataset with 1,638 schools with 3 types and 4 student ratings.
- NYC crime dataset with 461,711 crimes in 2019 and 3 level of crimes.
- Venue dataset with 20,215 venues, filtered to 8,541 venues.
- Final tidy NYC dataset after merging all dataset with 299 neighborhoods and 107 features.

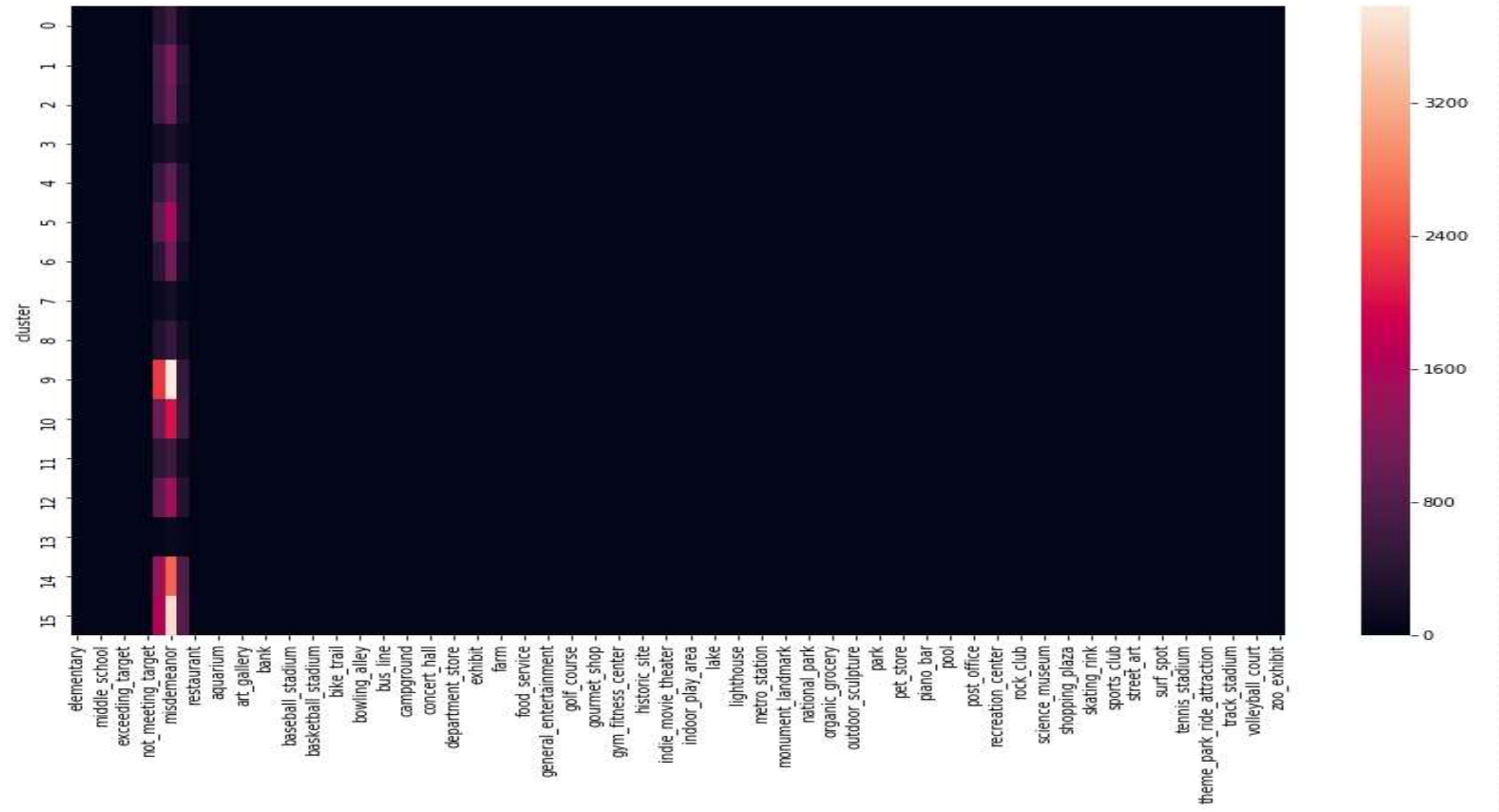
Modeling: K-Means clustering

- Hyperparameter tuning using Elbow method
- Performed k-means clustering with 16 clusters



Analysis

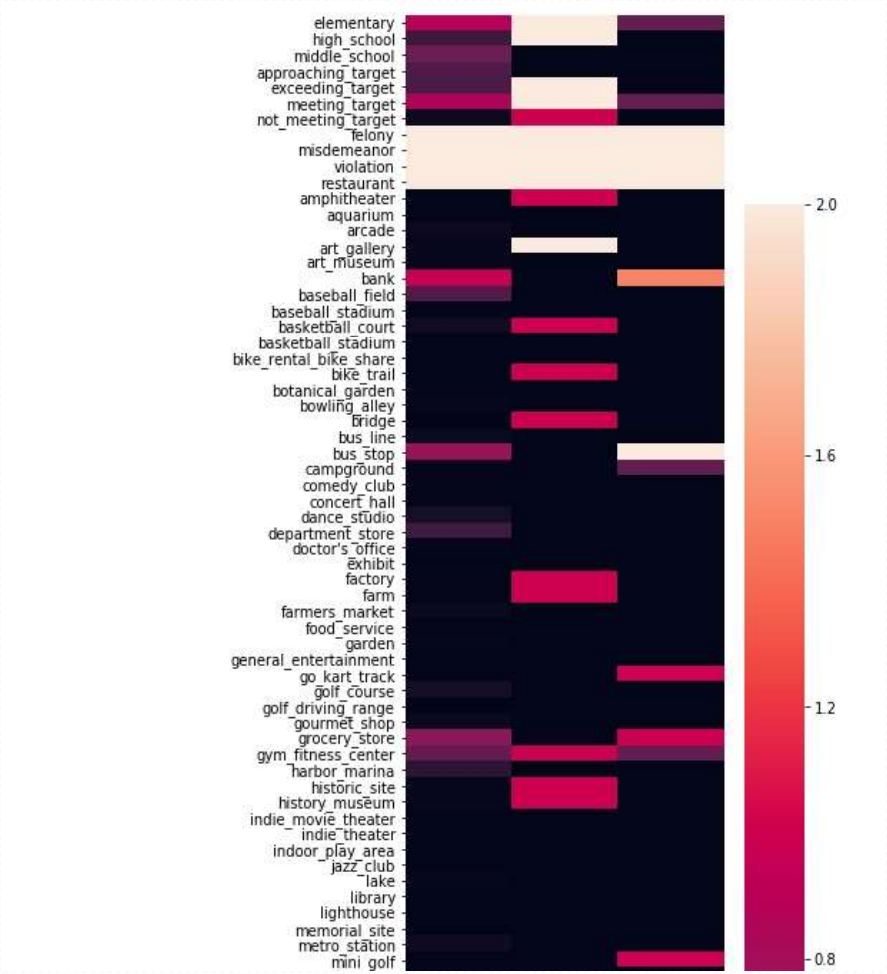
- Added cluster labels to dataset
- Visualize mean values of features in each cluster using heatmap

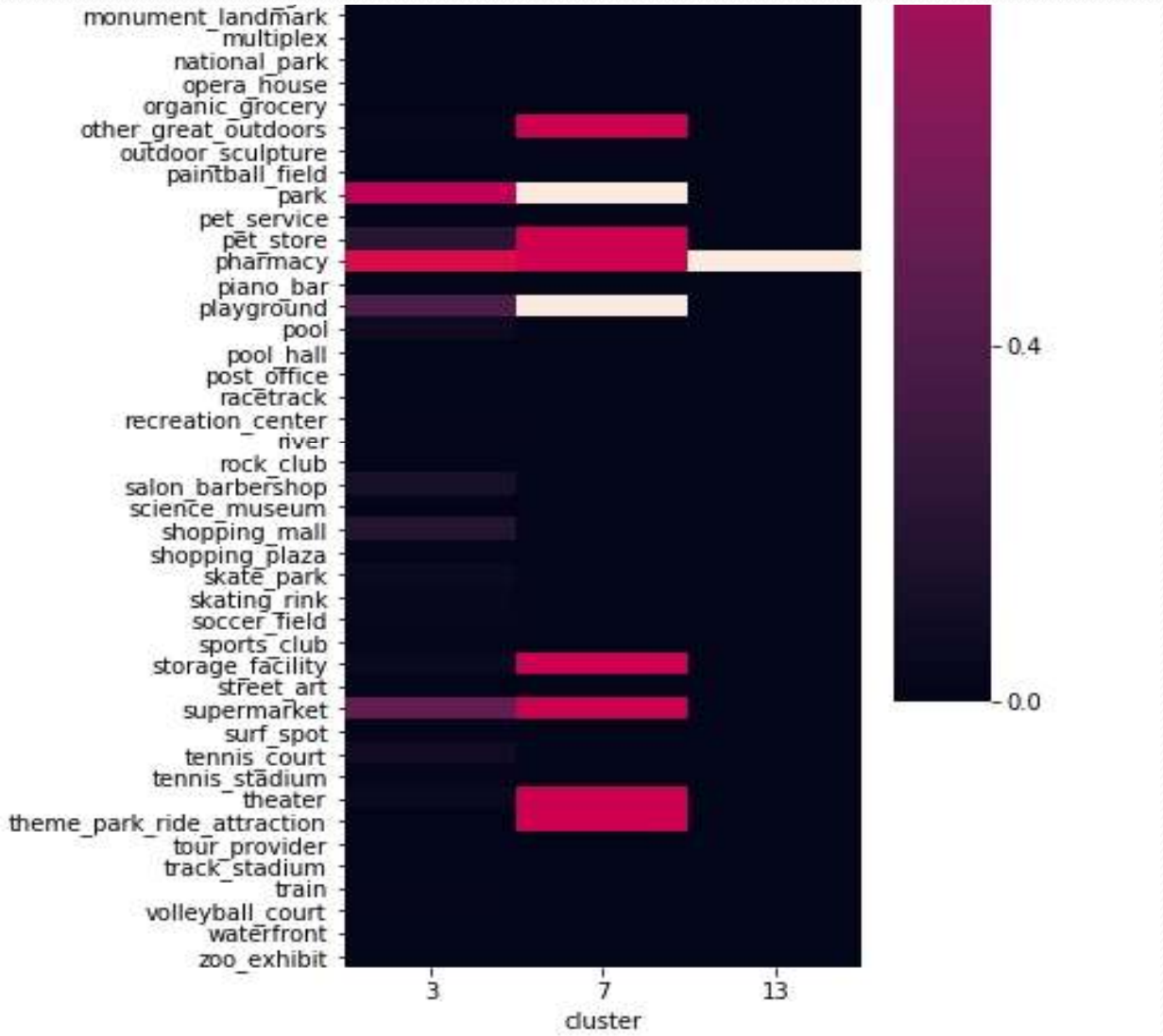


Narrow down clusters

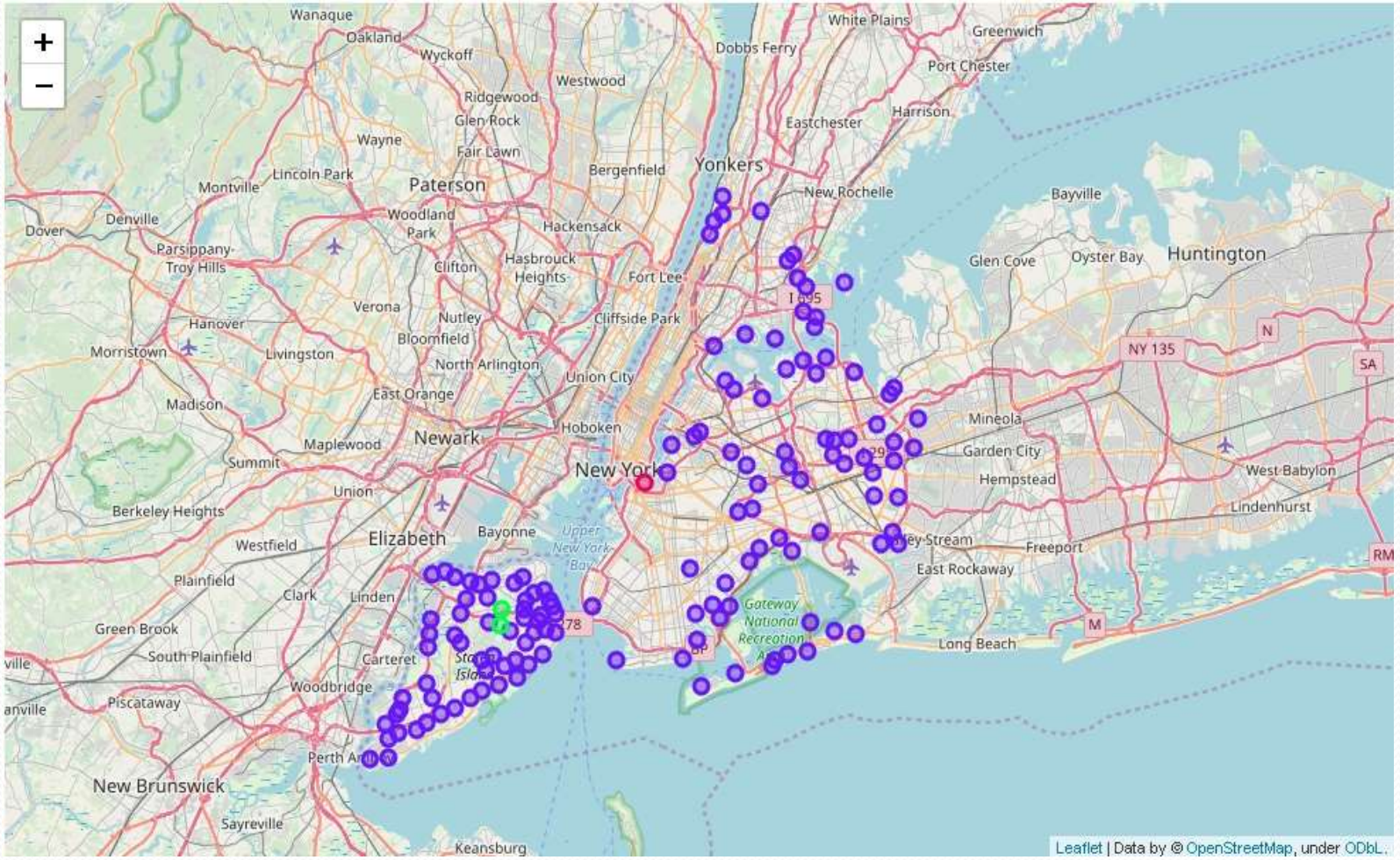
- Inspect each clusters.
- Clusters 3, 7, and 13 have least average crimes.
- Clusters 0,8 and 11 have little more crimes.
- Clusters 9, 10, 12, 14 and 15 have most crimes.
- Narrow down the cluster selection to 3,7 and 13
- Visualize selected cluseters with Heatmap

Visualize clusters 3, 7, & 13




monument_landmark
multiplex
national_park
opera_house
organic_grocery
other_great_outdoors
outdoor_sculpture
paintball_field
park
pet_service
pet_store
pharmacy
piano_bar
playground
pool
pool_hall
post_office
racetrack
recreation_center
river
rock_club
salon_barbershop
science_museum
shopping_mall
shopping_plaza
skate_park
skating_rink
soccer_field
sports_club
storage_facility
street_art
supermarket
surf_spot
tennis_court
tennis_stadium
theater
theme_park_ride_attraction
tour_provider
track_stadium
train
volleyball_court
waterfront
zoo_exhibit
3
7
13
cluster
0.4
0.0

Visualize Cluster Neighborhoods



Conclusion

- Neighborhoods in Clusters 3, 7, and 13 have the best neighborhoods with least crimes.
- Cluster 7 has a great neighborhood for living in very close proximity of the City.
- Most of the suburban neighborhoods are in Cluster 3 with 136 neighborhoods.
- Neighborhoods in Cluster 3 offers more variety of features than two Clusters