background:

Toronto city is multicultural city where people from different countries live and enjoy visiting different restaurants which provide different cuisines from their original home countries.

Problem:

This diversity in cuisines makes knowing the number of restaurants and their variety of cuisines is so important for either investors who are looking to open new restaurant or for new immigrants who are looking to live in neighborhoods which have high number of restaurants and variety of cuisines.

Interest:

This report is an attempt to address the challenge which faces mainly two groups of people:

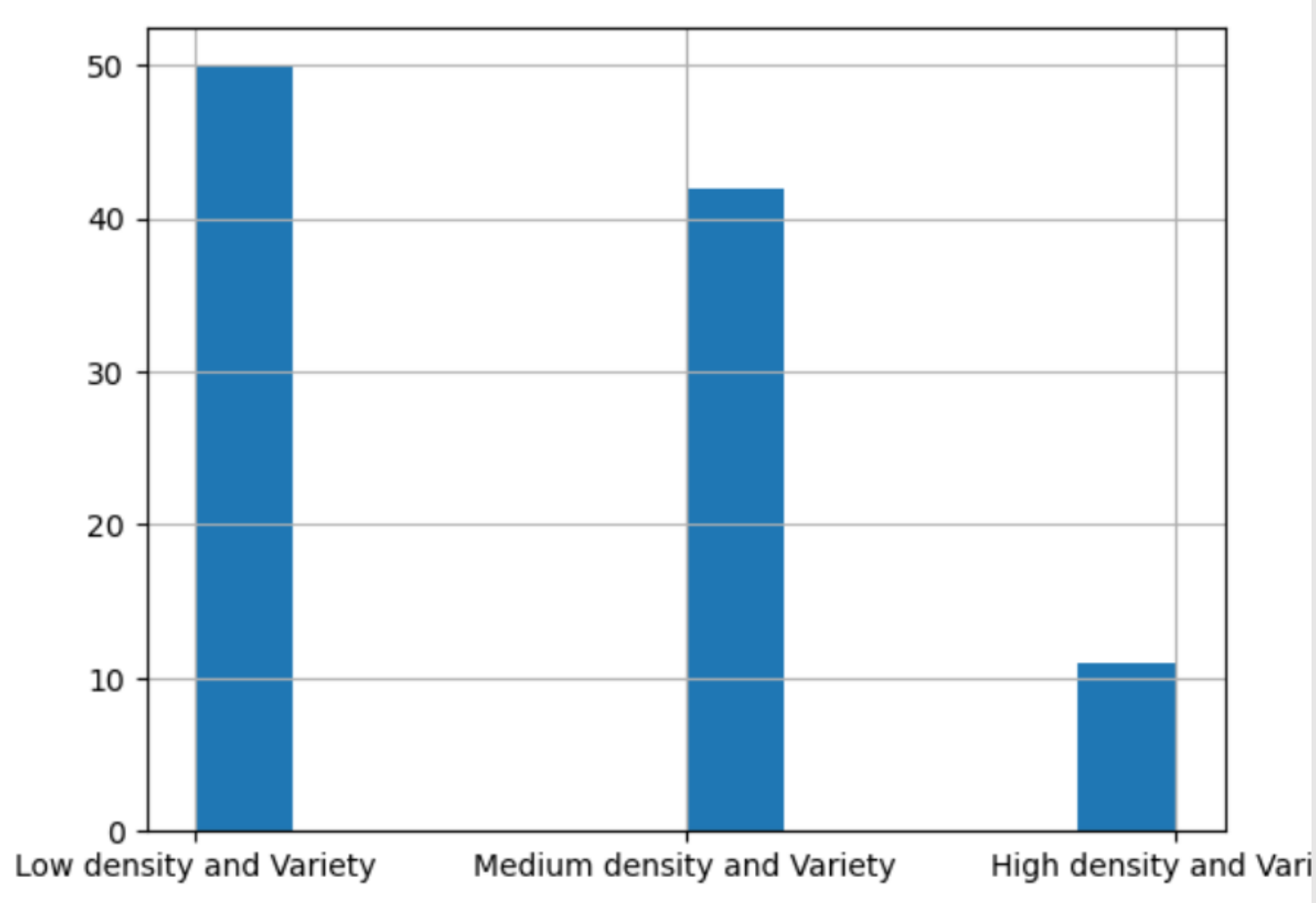
Group 1 The investors who plan to open new restaurant in one of Toronto city neighborhoods and don't know exactly which neighborhoods they can choose it considering how big and diversity Toronto city is.

Group 2 The immigrants who are looking to live in neighborhoods with adequate number of restaurants and variety of cuisines.

Group 3 In addition to these two groups this report may be sound interesting for people who are interested in such type of research from different fields like Data science filed, city planning ..etc.

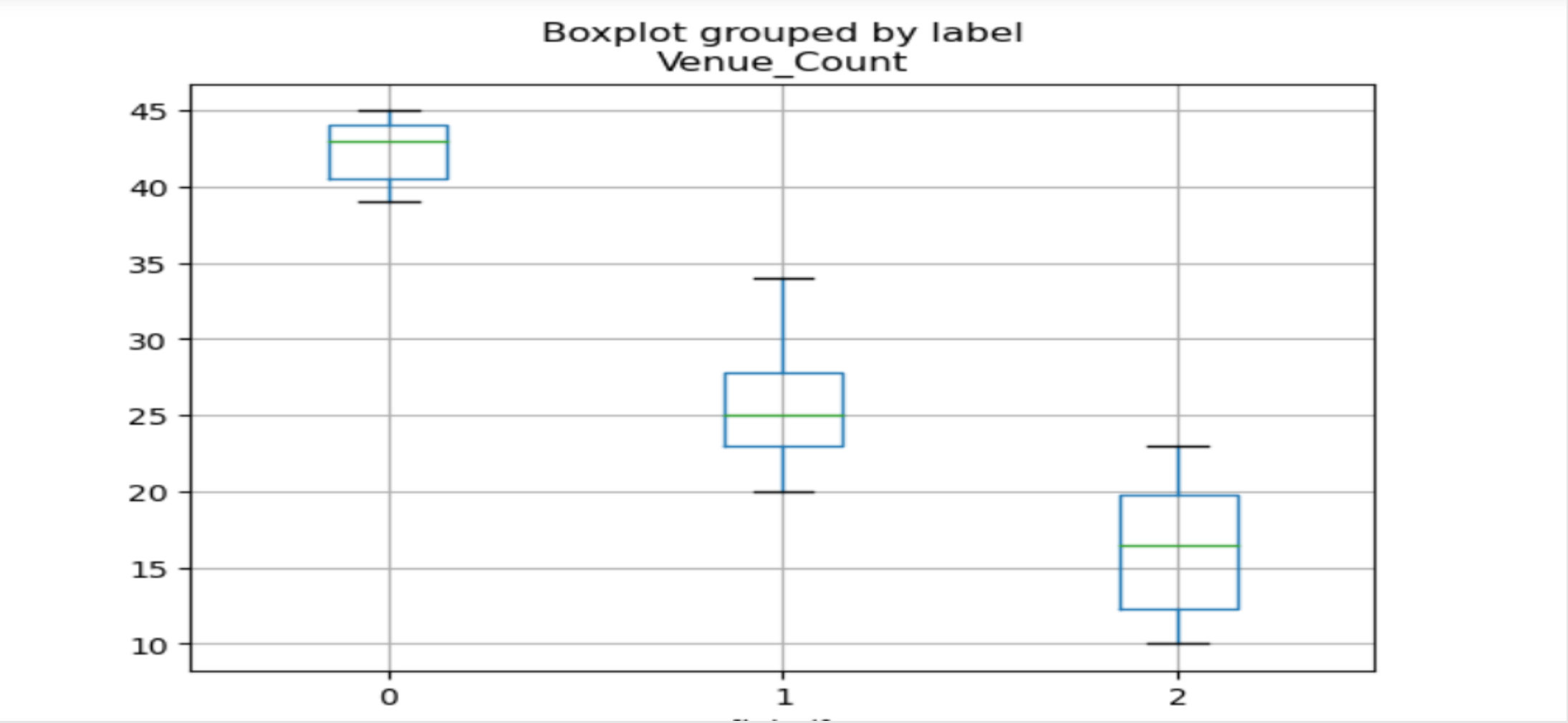
Proposed Solution:

Toronto neighborhoods will be clustered based on number of restaurants and variety of cuisines by using Data science unsupervised model to provide clear insight about Toronto neighborhoods from perspective of their restaurants and cuisines.

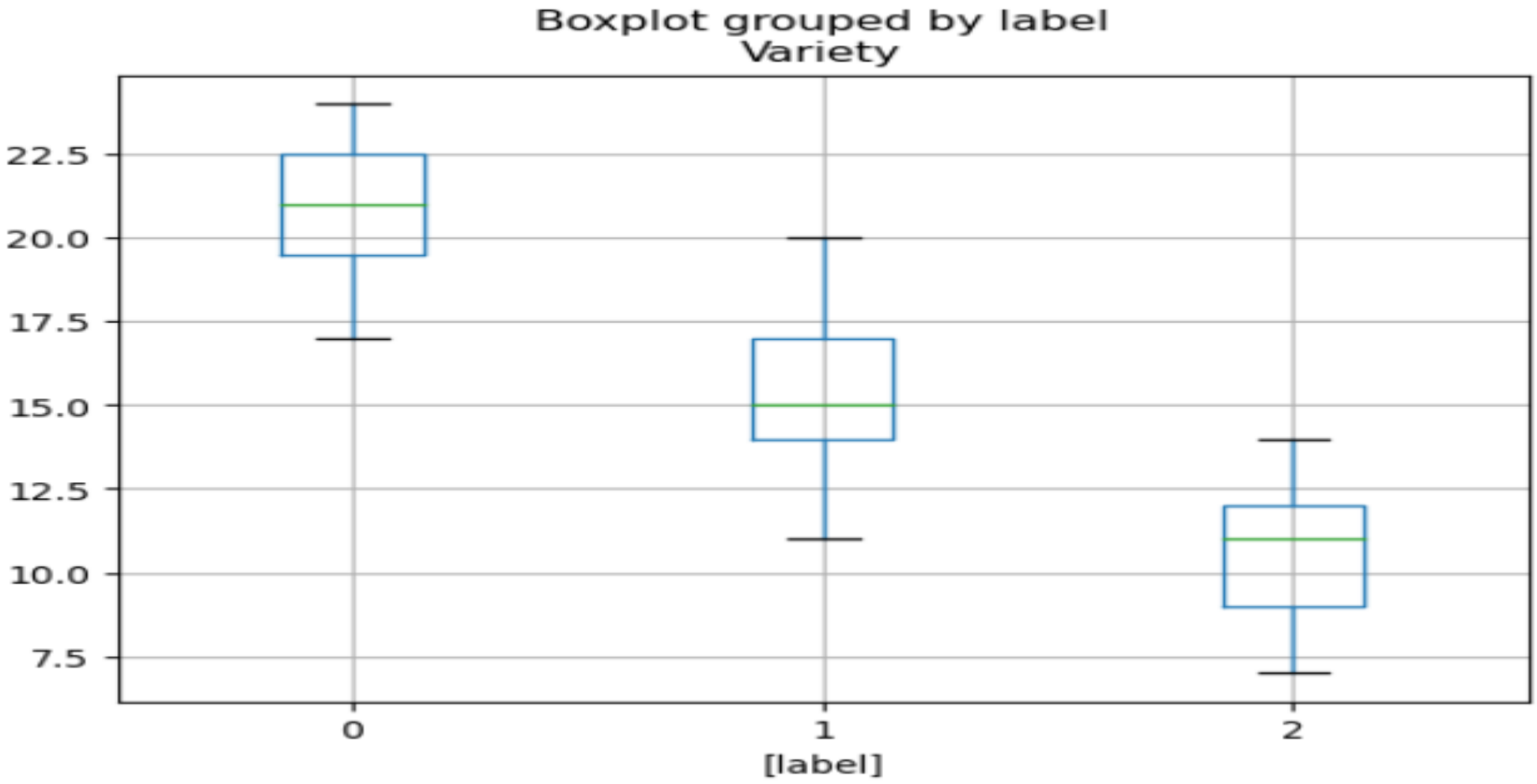


Number of Neighborhoods per cluaster

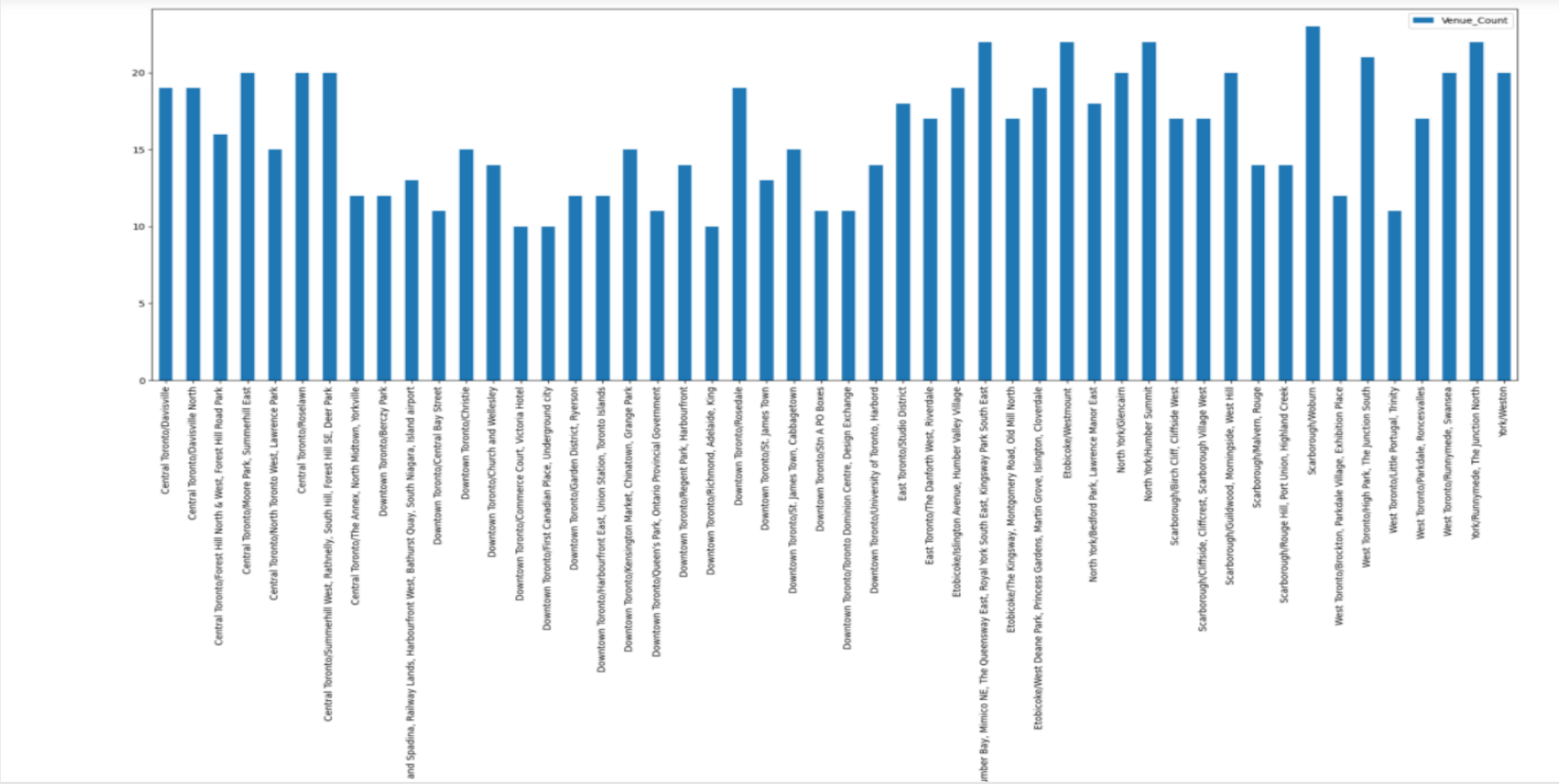
Boxplot (Cluster Vs No. Restaurants)



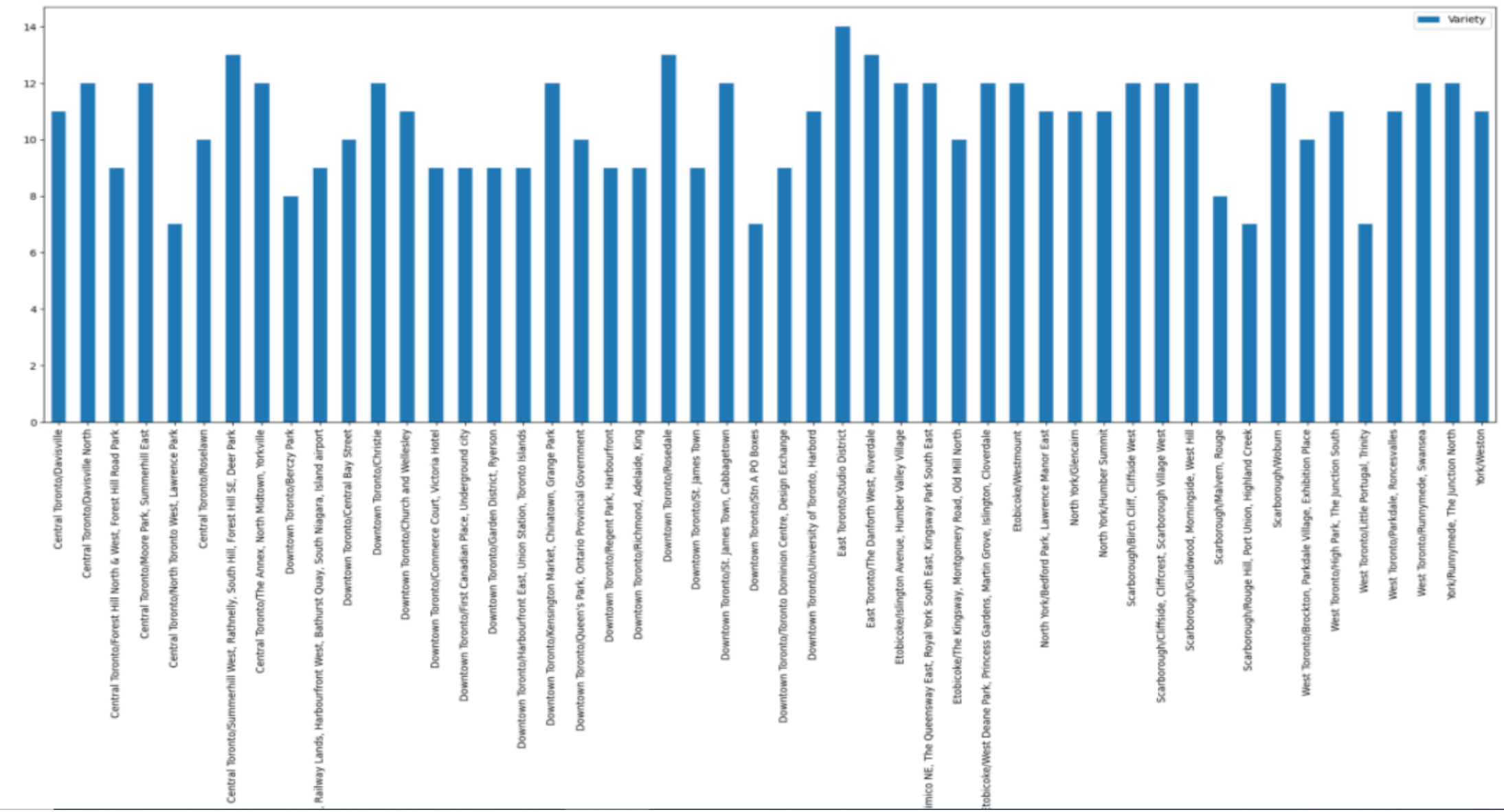
Boxplot (Cluster Vs Variety)



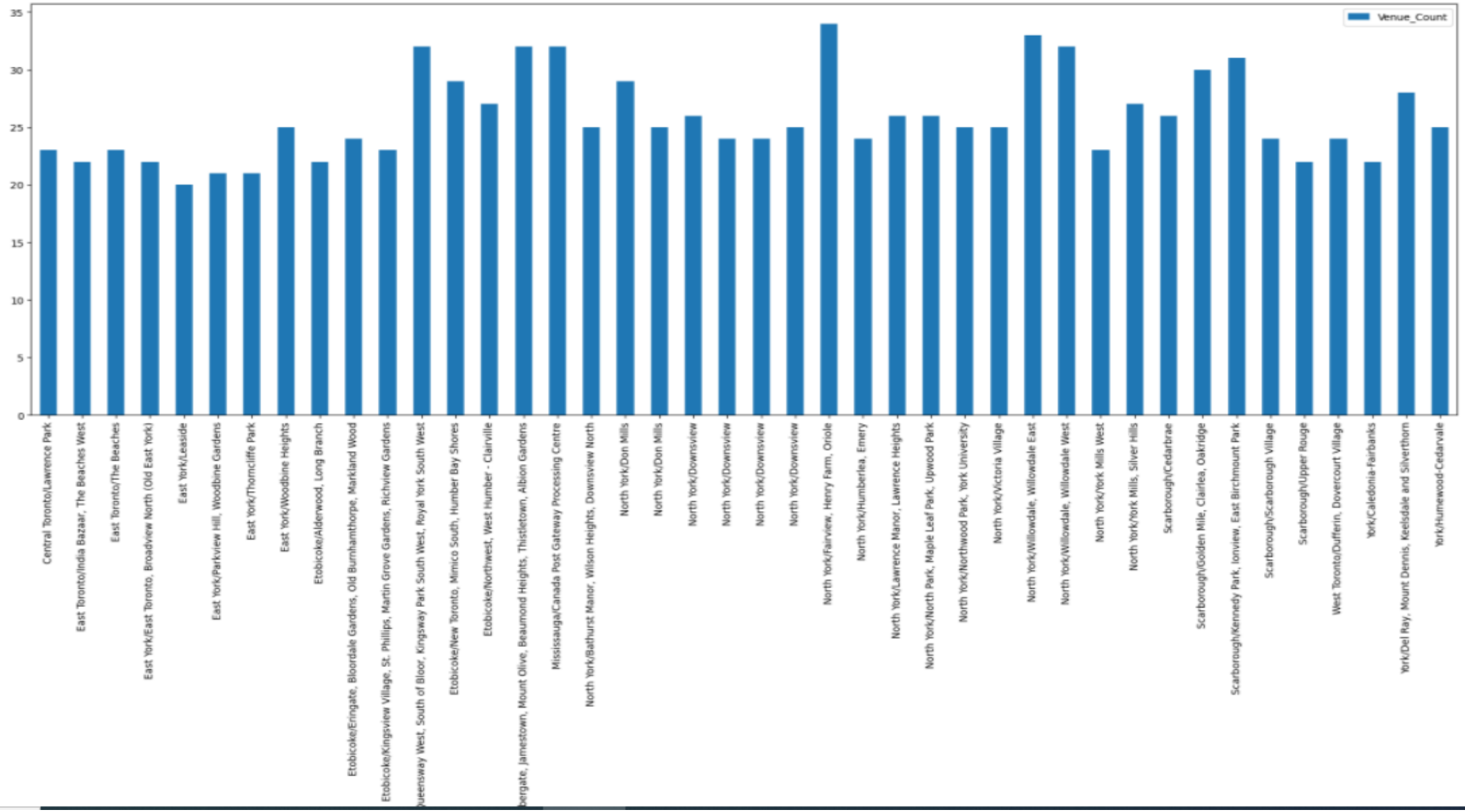
Neighborhoods Vs No.Restaurants | Low Density Cluster



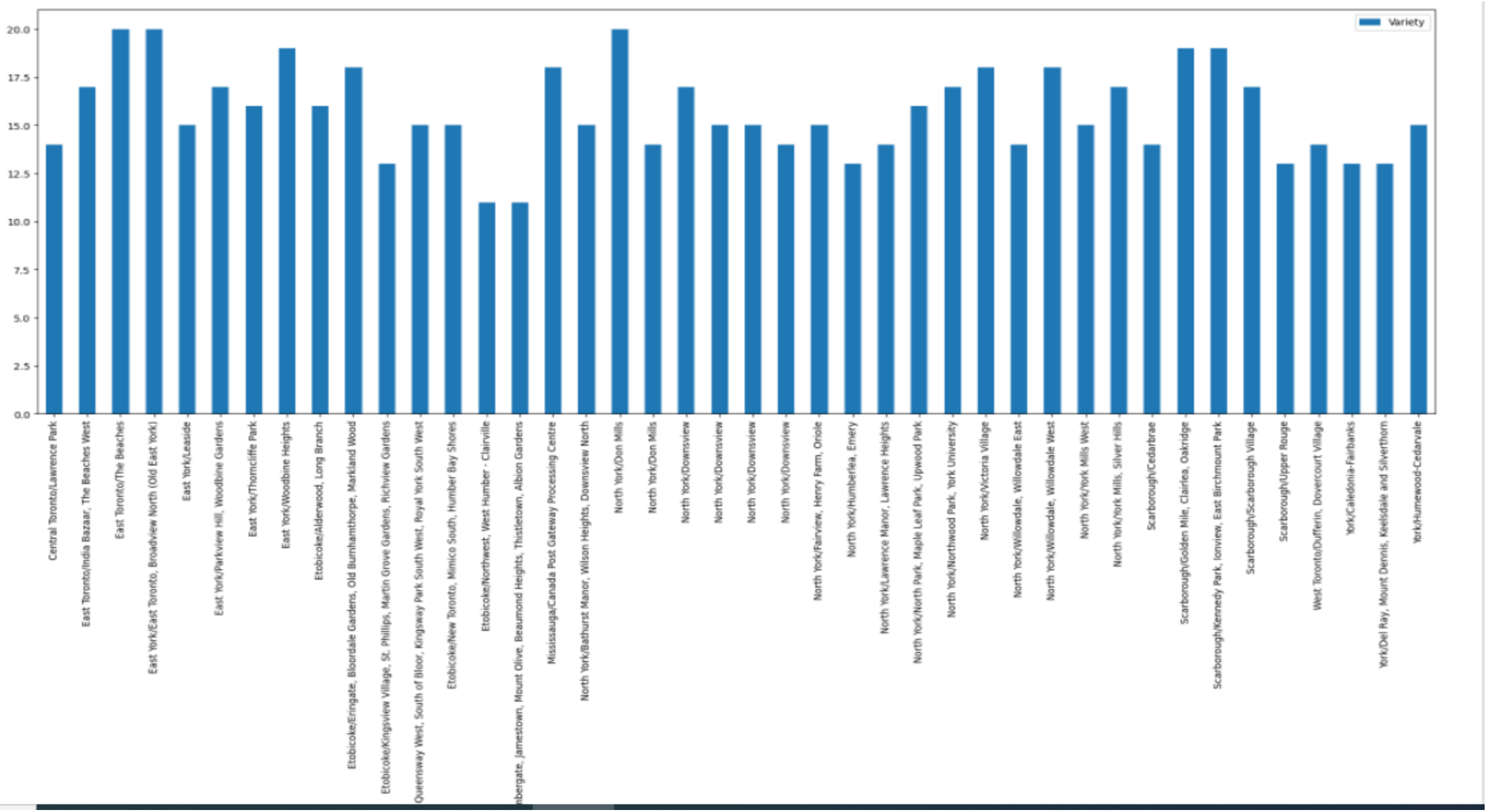
Neighborhoods Vs Variety | Low Density Cluster



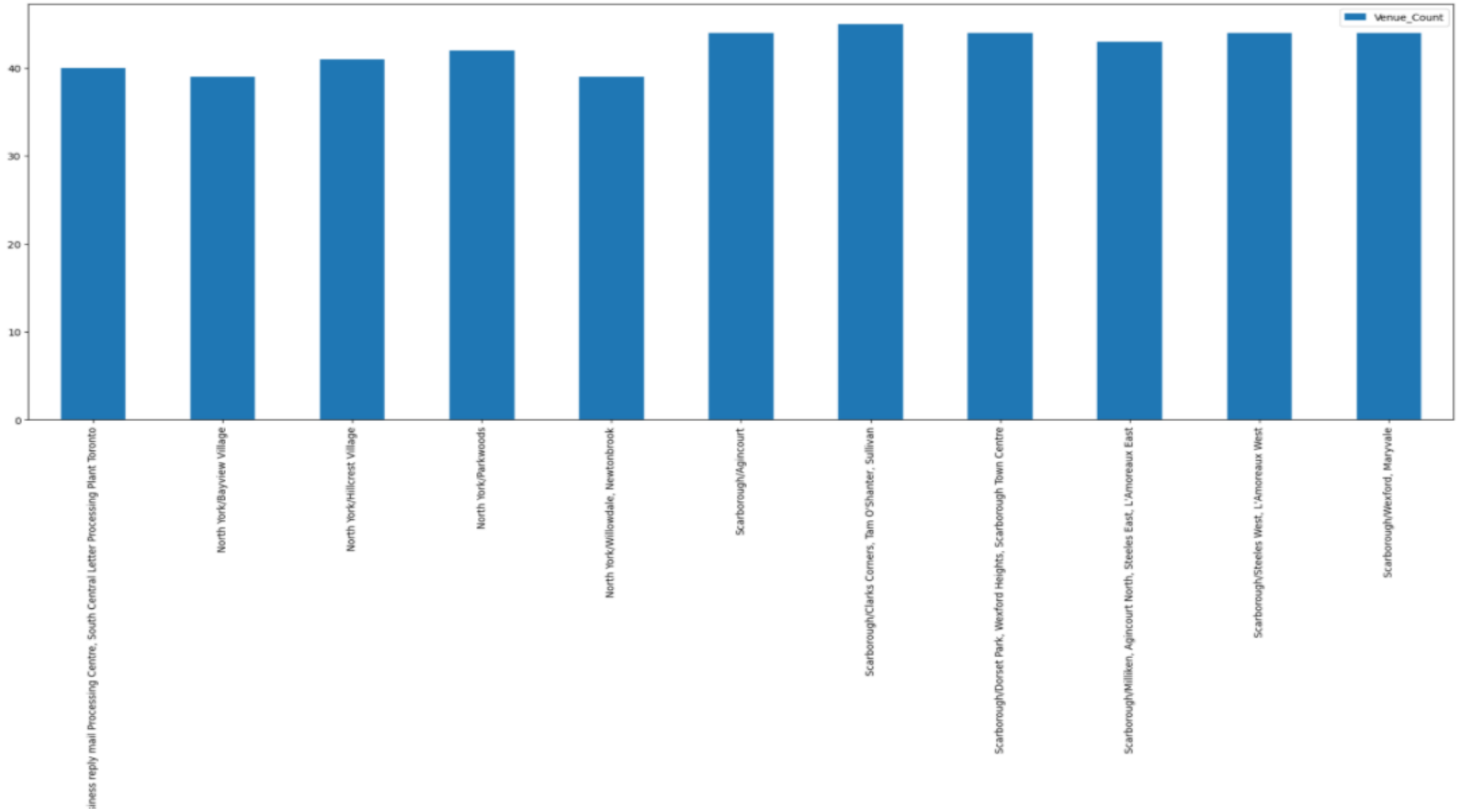
Neighborhoods Vs No.Restaurants | Medium Density Cluster



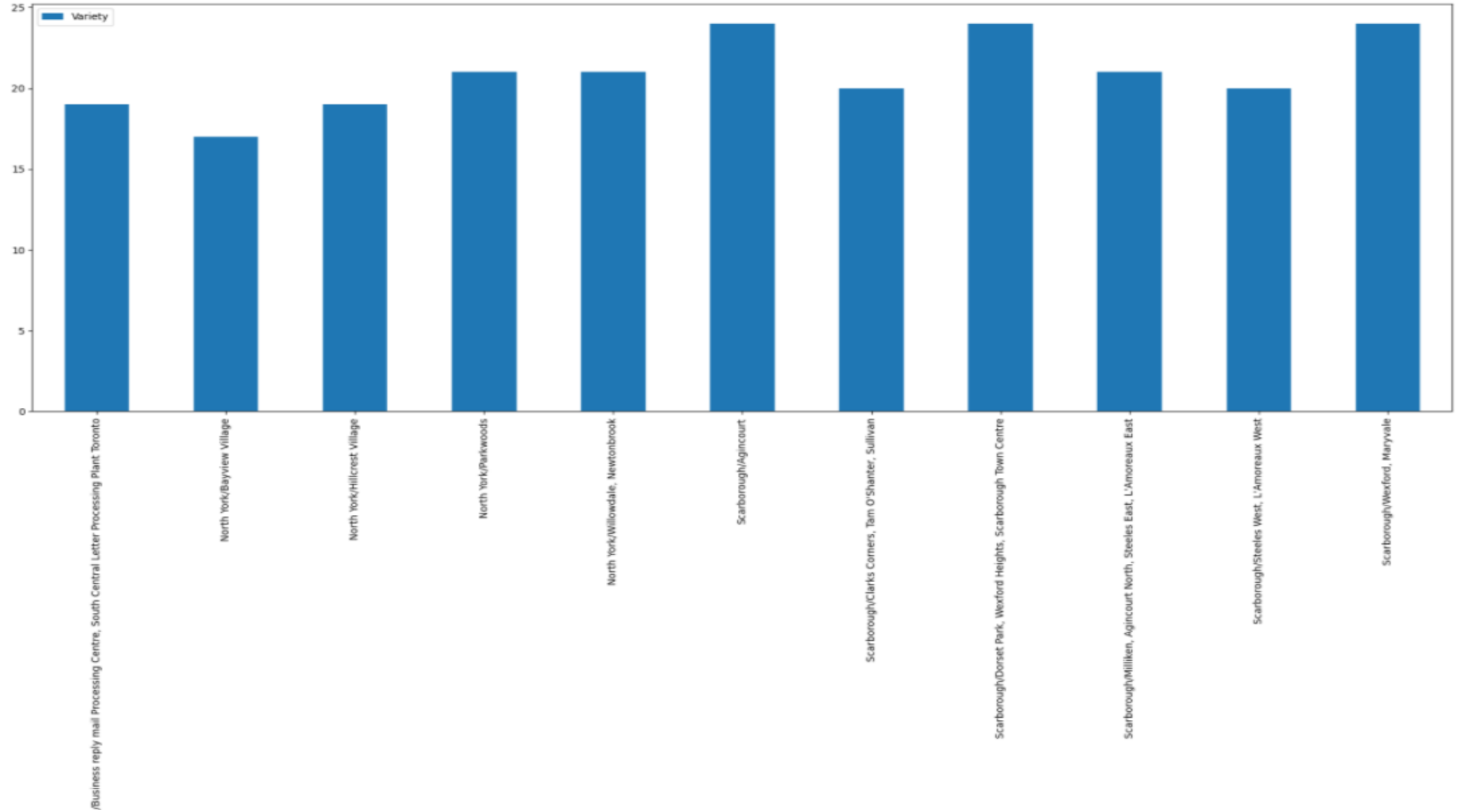
Neighborhoods Vs Variety | Medium Density Cluster



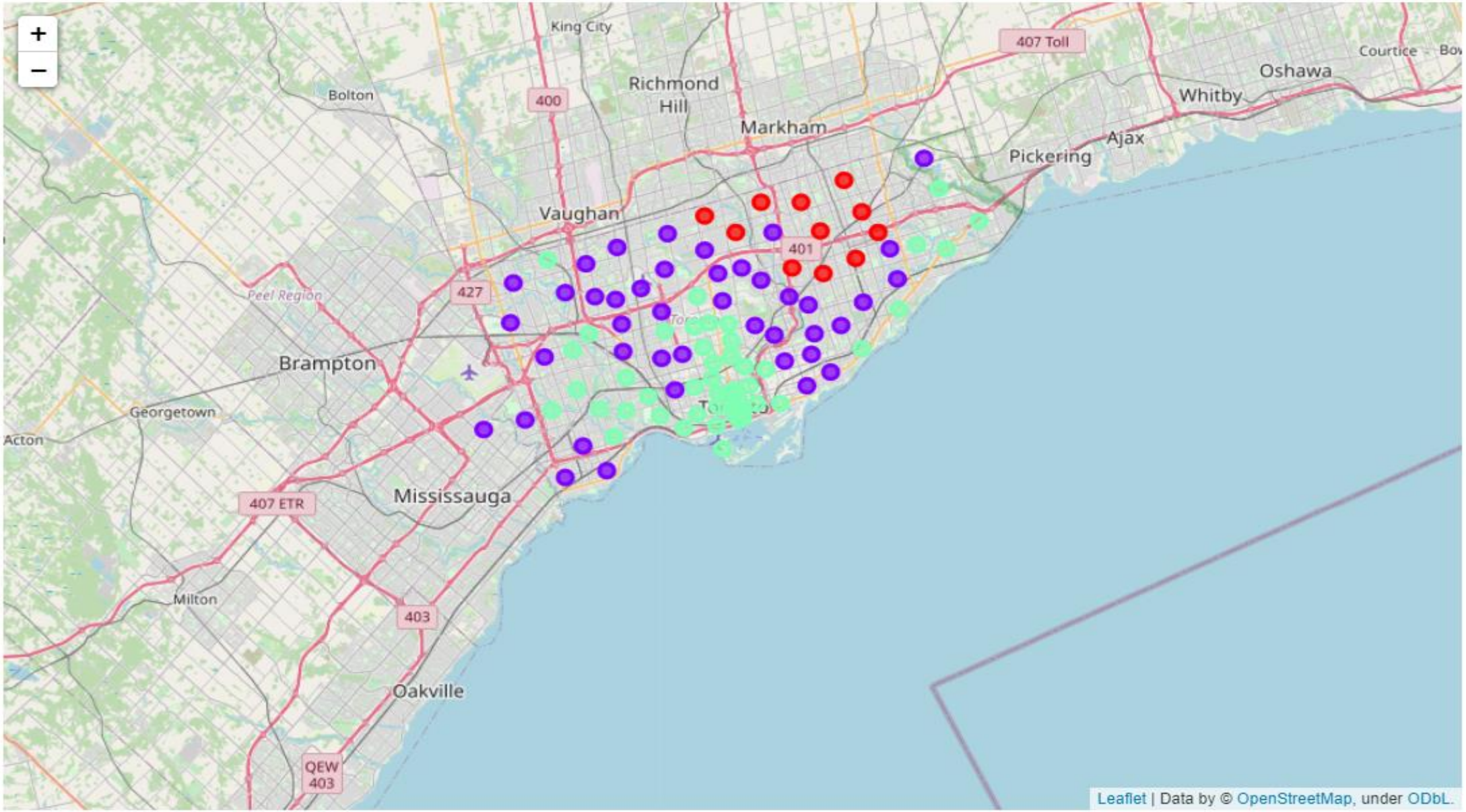
Neighborhoods Vs No. Restaurants | High Density Cluster



Neighborhoods Vs Variety | High Density Cluster



Map Of Clustered Neighborhoods



Results

Toronto neighborhoods have been clustered into 3 clusters which are:

Neighborhoods which have low number of restaurants and variety of cuisines like Downtown Toronto/Harbourfront East, Union Station, Toronto Islands Cluster neighborhood.

Neighborhoods which have medium number of restaurants and variety of cuisines like Scarborough/Upper Rouge neighborhood

Neighborhoods which have high number of restaurants and variety of cuisines like North York/Willowdale, Newtonbrook neighborhood.

Discussion

1- Its noticeable that as we move far from coast the number of restaurants and their variety increases, For example areas which are close to cost like downtown have low number of restaurants and variety whereas areas like North York/Willowdale have high number of restaurants and variety.

2-As stated early these results are based on limited volume of dataset which been retrieved from foursquare system by using free account type hence some neighbor maybe not clustered correctly due to this limitation in dataset

Recommendations

1-Its high recommended to reconduct this study by using full dataset associated with population for each neighborhood to cluster the neighborhoods properly.

2-Breaking down this study at level of restaurant cuisine for example Chinese or Indian cuisines to shedlight on specific category of subgroups likewise for other types of venues categories.

3-Involving other data like rating, tips…etc which can help model to outline the differences between different restaurants and venues.