NEW SPANISH RESTAURANT

In New York City

Problem Definition

Where in New York Cities 5 boroughs to establish a new Spanish Restaurant taking in the following factors:

- *Local Population*: High population desirable

- *Safety*: Safe area desirable, determined by average household income

- *High Average Income*: High average household income desirable

- *Foot Traffic*: High foot traffic due to local commerce desirable

- *General Competition*: Located in an area renowned for restaurants is desirable

- *Direct Competition*: No other Spanish restaurant nearby is desiable

Data Acquisition

- Zip Codes: New York City will be broken down into Zip Codes to determine the best area to establish the restaurant. http://zipatlas.com/ provides a list of zip codes for this purpose

- Population by Zip Code: http://zipatlas.com/ provides population in each zip code. The higher the population, the better the target location.

- Average salary per household: http://zipatlas.com/ provides average salary per household. The higher the average salary, the better the target location.

- Number of Restaurants in Zip Code: FourSquare will be used to determine how many restaurants are in each area Zip Code. A 500m radius will be used as API calls to FourSquare max out at 100. When the results are delivered, only venues that have 'restaurant; in the category name will be counted. Fast Food, burger joints, bakeries, etc. will not be counted.

- Street Addresses: FourSquare will be used to determine which street would be best to establish a restaurant based on other commerce options in the target street.
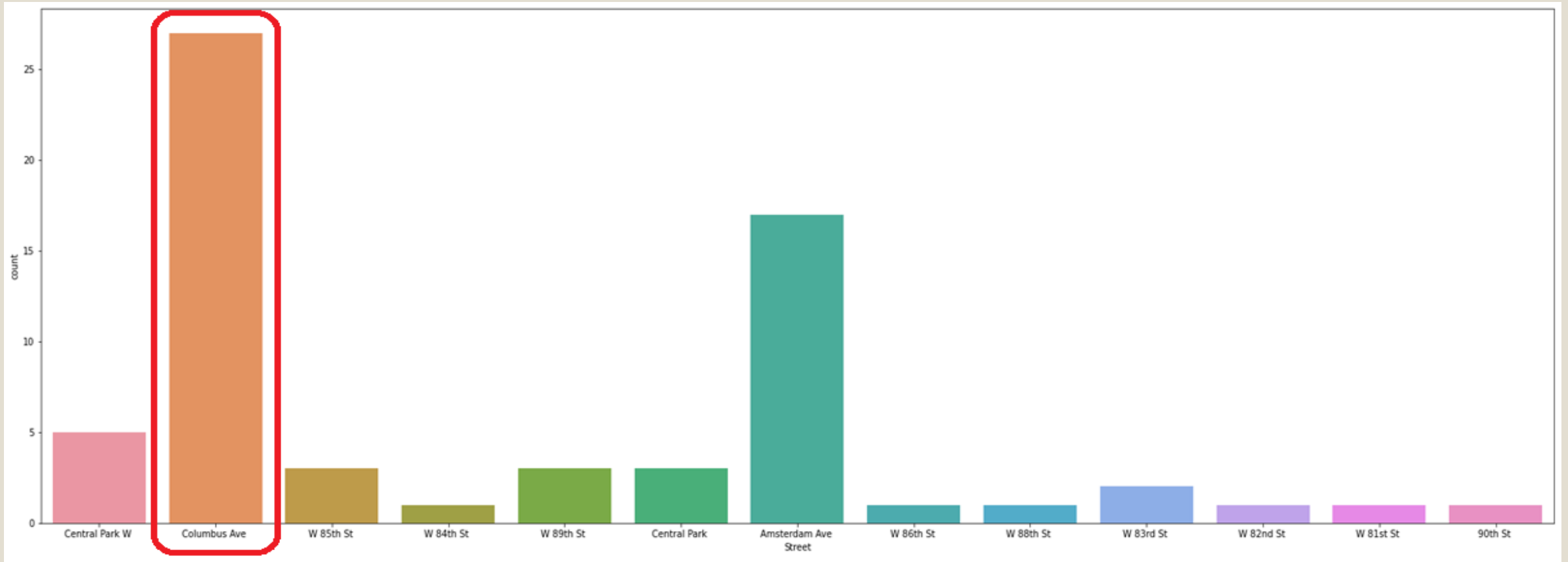
Methodology for Data Analysis

◦ K-Means Clustering to determine best group for further manual analysis

◦ Lowest [Restaurant] / [Population] ratio of selected cluster

◦ No other Spanish Restaurants should be located in target Zip Code

◦ Street in Zip Code selected will be the one that has most non-food related commerce establishments

Results – Selected Cluster and Venue Ratio

Zip Code	Population	AvgIncome	Venue Count	Venue Ratio
10024	61414	78066	32	0.000521
10128	59856	70031	49	0.000819
10023	62206	72424	60	0.000965
10009	58595	40176	58	0.00099
10028	44987	77565	47	0.001045
10003	53673	60891	60	0.001118
10011	46669	61986	53	0.001136
10016	51217	66342	65	0.001269

Results – 10024 Zip Code Commence Street Frequency Diagram

Conclusion

New York Zip Code 10024 in the Upper West Side is the most suitable area to establish a new Spanish Restaurant based on the following factors:

- Population

- Average Income

- Foot Traffic

- Competition (No other Spanish Restaurant in area)

- Client Requirements

Columbus Avenue would be the suggested street in Zip Code 10024 due to the high level of foot traffic from other commercial venues.