**Where to live in Manhattan?**

**Introduction**

Problem raised when Tom decided to move to Manhattan and don't know which neighbourhood is the best opinion. Tom is deciding based on the restaurant categories. Therefore, a model to describe the main categories of restaurant in different neighbourhoods is the goal of the project.

**Data**

Data used in this project would be the same with the data from lab which contains new York data. Foursquare API would be used to get the venues in Manhattan. The combines data are used in the analyst of which neighbourhood is the best option.

**Methodology**

The information of restaurants are obtained by the foursquare api by calling the function getNearbyVenues. After data transformation, only information of restaurants are reminded and then clustering is applied. Through clustering, multiple groups are divided which representing mainly what kinds of restaurants are in the neighbourhoods.

**Results**

For group 0, Chinese restaurant is the most common venue.

For group 1, Italian restaurant is the most common venue.

For group 2, American restaurant is the most common venue.

For group 3, Mexican restaurant is the most common venue.

For group 4, Korean restaurant is the most common venue.

**Discussion**

For all the group except group 2, the result is obvious. However, for group 2 the most common venue are not unite and varies. Observation is required to understand the most common categories of restaurants in the neighbourhoods.

Conclusion

Tom should live in neighbourhoods of group 0 if he loves Chinese food. He should live in neighbourhoods of group 1 if he loves Italian food. He should live in neighbourhoods of group 2 if he loves American food. He should live in neighbourhoods of group 3 if he loves Mexican food. He should live in neighbourhoods of group 4 if he loves Korean food.