

Comparing Manhattan and Wan Chai, the top two richest places in cities with the most billionaires in the world, in terms of venues.



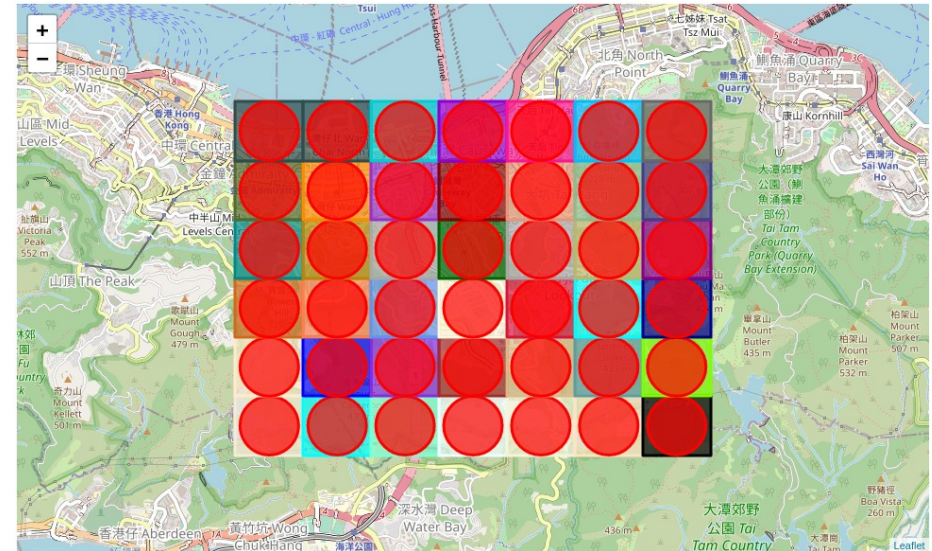
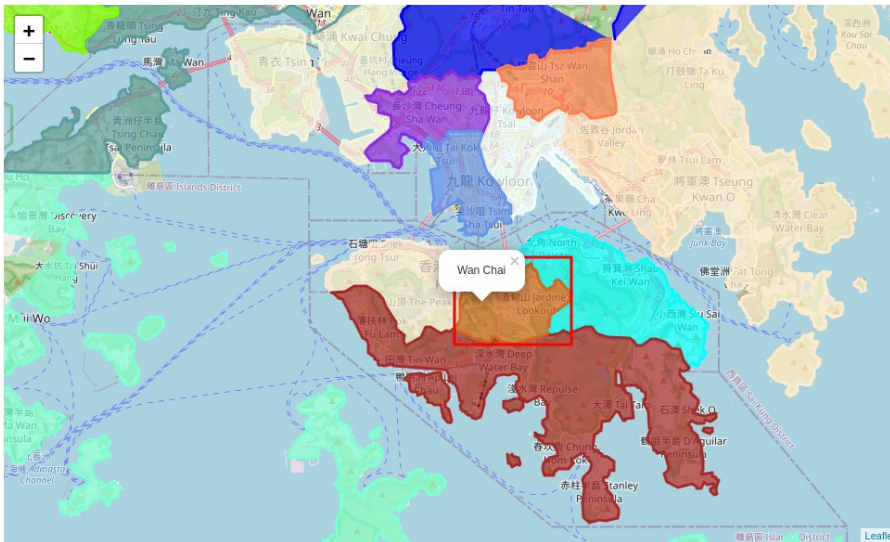
Manhattan and Wan Chai

- New York and Hong Kong are the two first cities with the most billionaires in the world (*Forbes 2020*).
- Manhattan and Wan Chai are the wealthiest place of their respective city (New York and Hong Kong).
- One may wonder how similar are these two places in terms of venues?

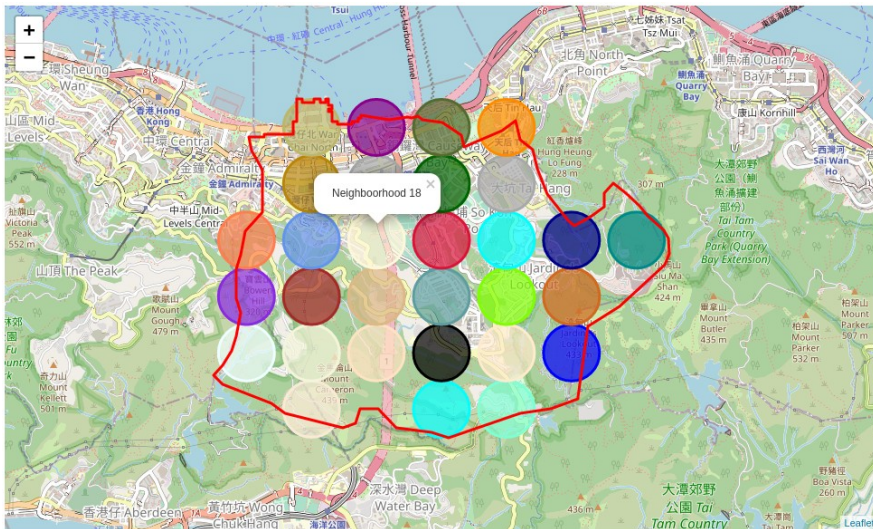
Data acquisition and cleaning

- List of Kong Kong districts (18 rows) from **Wikipedia**.
- List of New York neighborhoods from https://cocl.us/new_york_dataset.
- With Nominatim library, get neighborhoods names using their latitude and longitude.
- For each neighborhood get venues using Foursquare API.
- Get polygon of Wan Chai district from **GADM**.
- For Wan Chai district neighborhoods remove venues located outside Wan Chai.

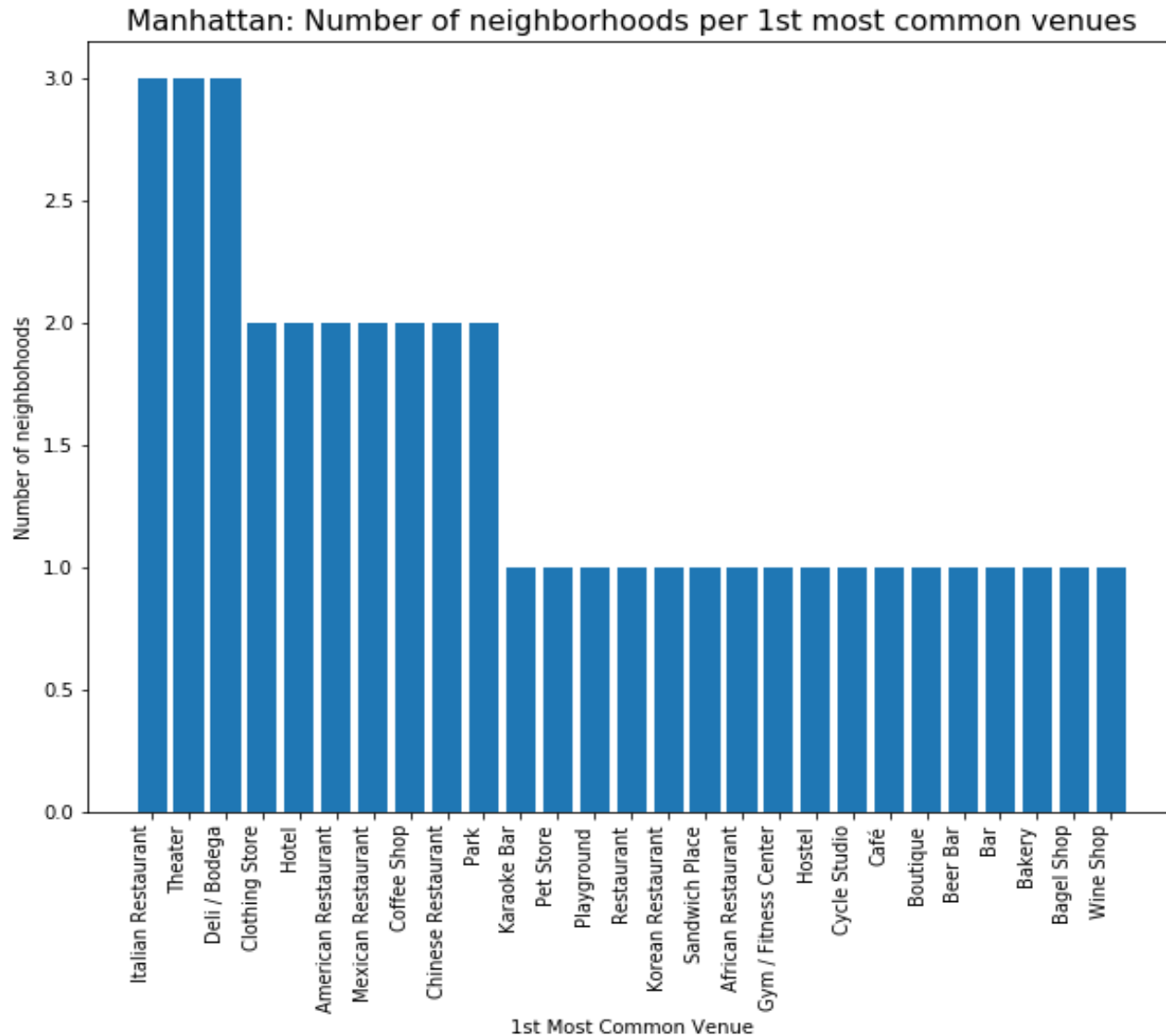
Wan Chai custom neighborhoods



- Frame Wan Chai district with a rectangle
- Cut the rectangle into 6 x 7 small rectangles
- Draw circle in each rectangle
- Remove circles those center is outside Wan Chai district
- Remaining circles (30) are the new neighborhoods

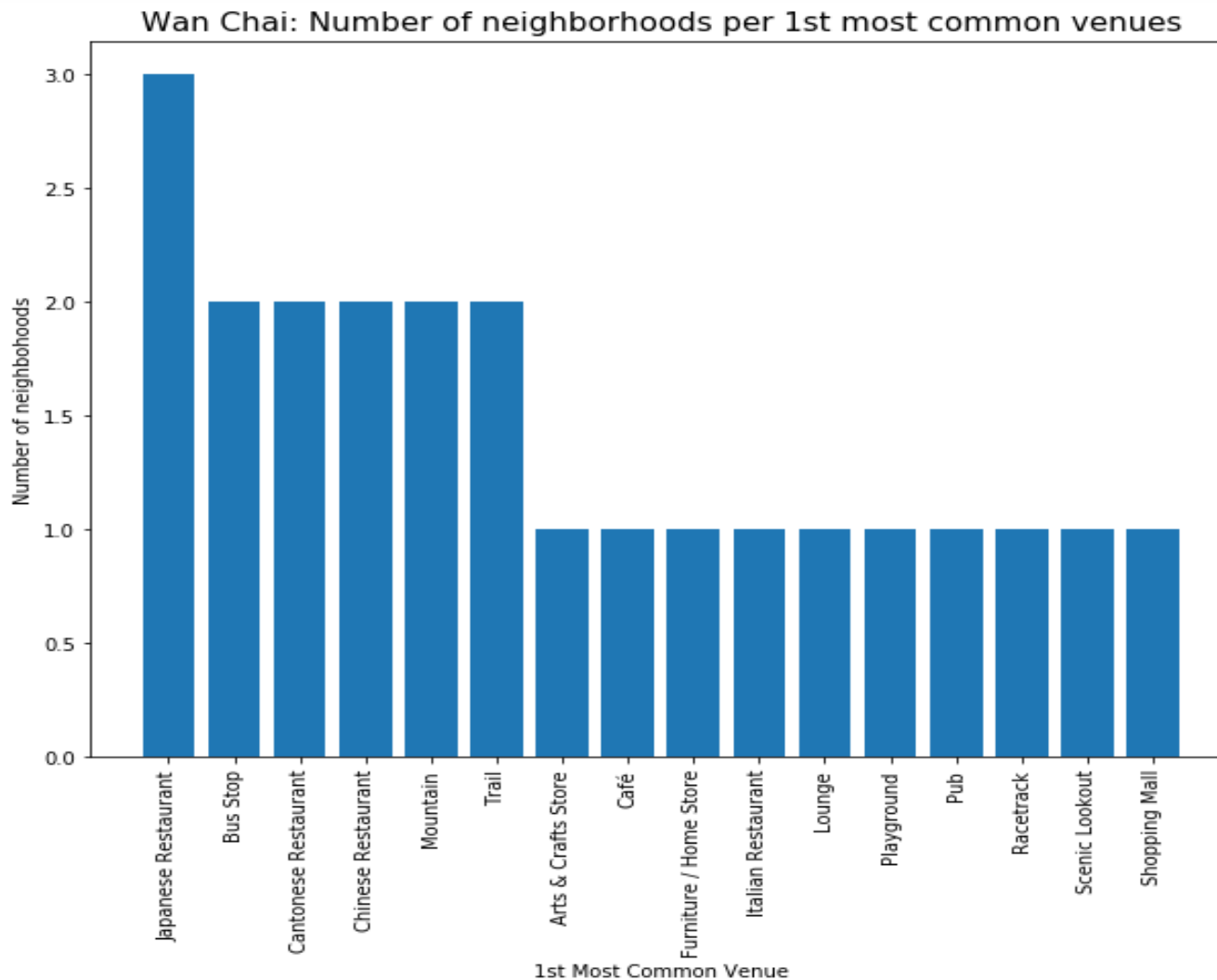


Manhattan 1st most common venues



For most of the neighborhoods In Manhattan, **Italian Restaurant, deli / Bodega** and **theater** are the **1st Most Common Venues**.

Wan Chai 1st most common venues



Japanese Restaurant is the most common ***first common venues*** among the Wan Chai neighborhoods

Cluster Manhattan neighborhoods

Fig 1: Point to cluster mean distance variation by k value

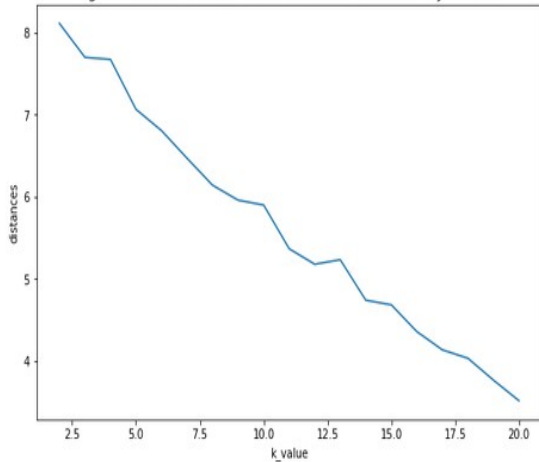
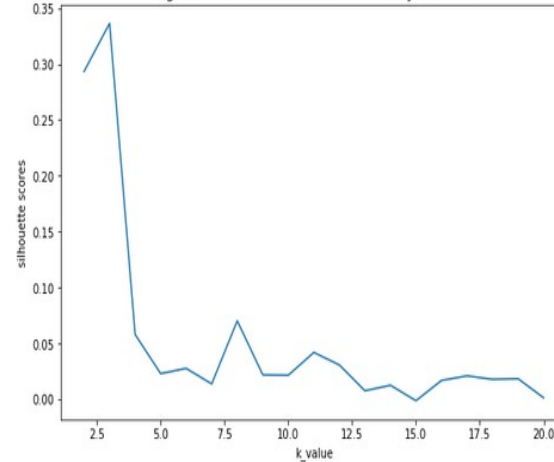
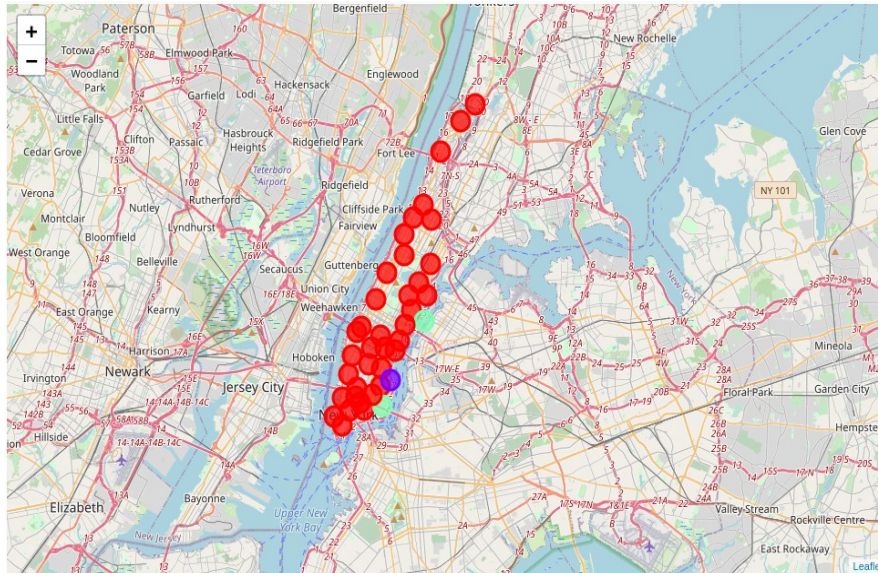


Fig 2: Silhouette score variation by k value



The best number of cluster is 3, the value at which the silhouette score reaches its maximum value.



- Cluster 1: Restaurants and spare times (in red)
- Cluster 2: Entertainment
- Cluster 3: Shop

Restaurants and spare times are the most common among the neighborhoods of Manhattan.

Cluster Wan Chai neighborhoods

Fig 1: Point to cluster mean distance variation by k value

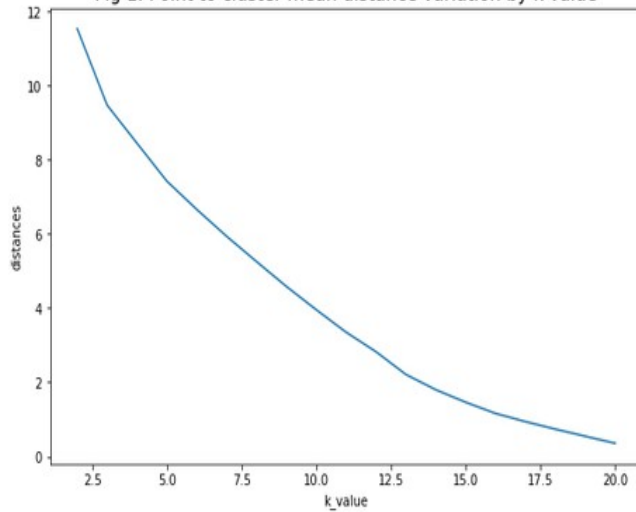
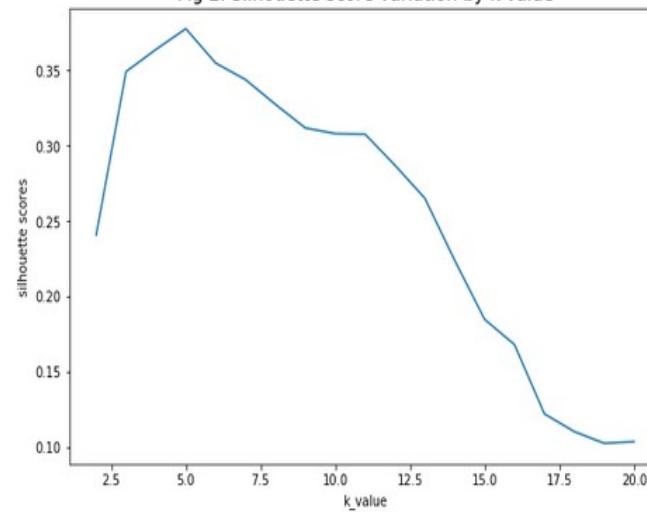
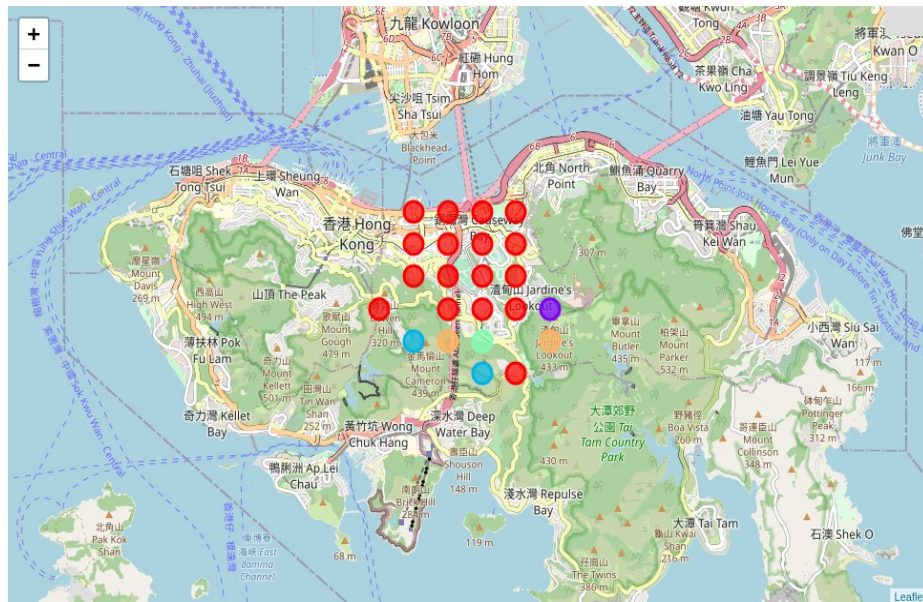


Fig 2: Silhouette score variation by k value



The best number of cluster is 5, the value at which the silhouette score reaches its maximum value.



- Cluster 1 : Asian restaurants, transport and manual work (in red)
- Cluster 2 : Observatory
- Cluster 3 : Trip
- Cluster 4 : Transport
- Cluster 5 : Trail

Asian restaurants, transport and manual work are the most common venues among the neighborhoods of Wan Chai.

Importance

- Provide useful information to people who are willing to live in Manhattan or Wan Chai.
- Help in new business creation by identifying existing businesses and competitors.

Conclusion

- Objective: Analyze and compare Manhattan and Wan Chai neighborhoods in terms of venues.
- Wan Chai neighborhoods are more heterogeneous than Manhattan's ones with 5 and 3 clusters respectively.
- In Manhattan the most common venues are restaurants and spare time whereas in Wan Chai there are Asian restaurants, transport and manual work.
- Both Wan Chai and Manhattan have restaurants in their most common venues.
- Further research: Can venue type in a neighborhood affect the pace of work of the inhabitants? If yes, how?