The Battle of Neighborhoods

Singapore

Introduction

- Singapore is an island city-state with multicultural population, highly urbanized, densely populated with plenty of high-rise buildings.

- It is one of the fastest growing economies in Southeast Asia and is the fourth most important financial center in the world.

- It has flourished by attracting talents from around the world.

- It is a brilliant country to live in for the skilled and talented.

- For those who are planning to venture into Singapore, it will be beneficial to know the various neighborhoods in Singapore, how affordable are the accommodations, and what are the amenities around those neighborhoods for lifestyle conveniences.

Objectives

The objective of this project is …..

- To have a better understanding of the neighborhoods in Singapore by clustering them into groups with similar characteristics.

- Together with the information on rent, it is hoped that the results will serve as a guide on the choice of neighborhood to live in.

Data Description

▶ The data on the neighborhoods of Singapore and the corresponding current apartment rental per square meter for a single person are extracted from the Neighbourhood Price Index 2019 by Nestpick.

▶ In order to visualize these neighborhoods on the map of Singapore, their latitudes and longitudes were obtained by using Google Map.

▶ The data frame is shown as below:

	Neighborhood	Median_Rent_sqm ($)	Latitude	Longitude
0	Tanjong Pagar	50.78	1.27642	103.843
1	Orchard	46.42	1.30527	103.833
2	Bishan	31.63	1.35191	103.849
3	Ang Mo Kio	31.63	1.36984	103.847
4	Chinatown	50.78	1.27335	103.844

Map of Singapore with the neighborhoods superimposed on it
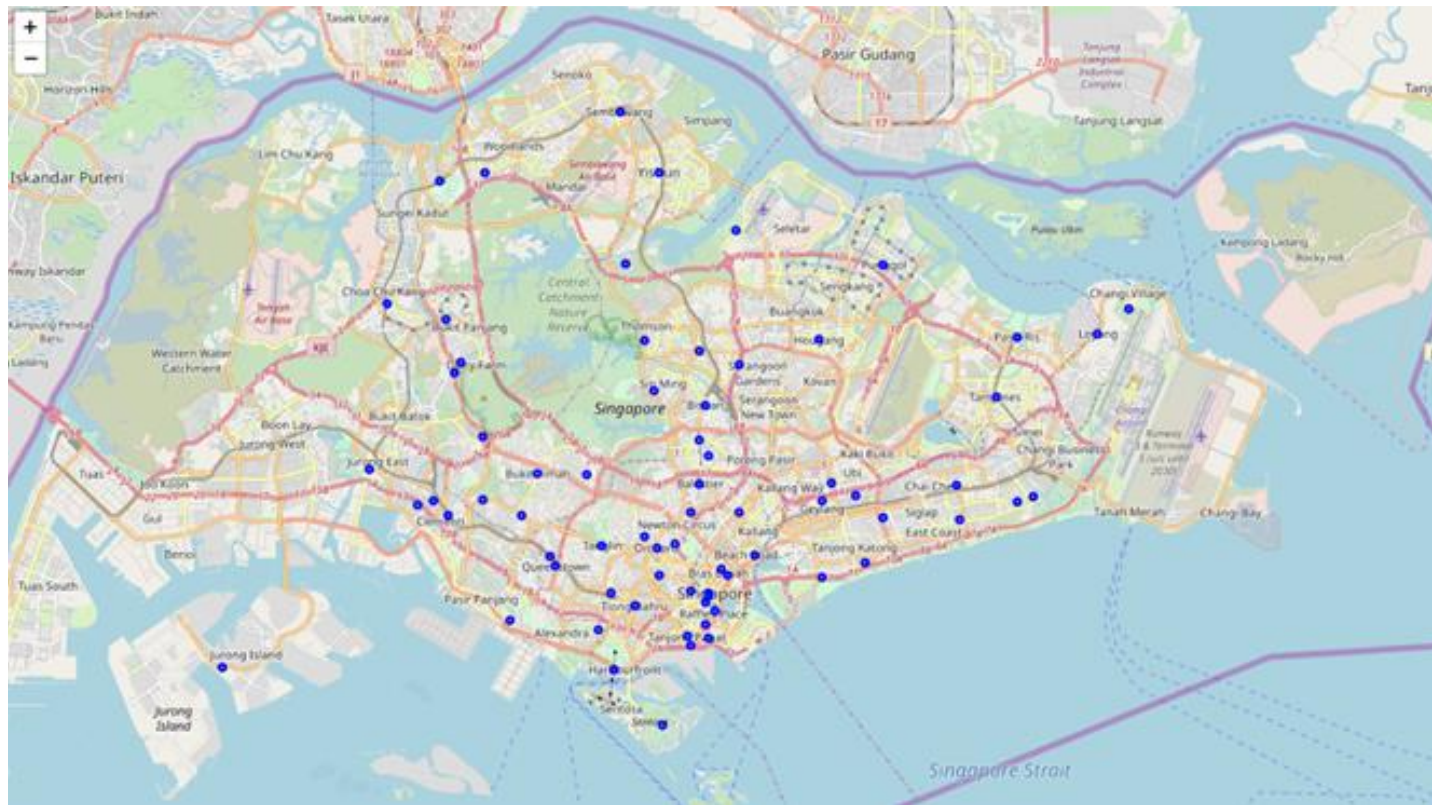
Each of the neighborhood was explored using Foursquare API with limit for 100 venues within the radius of 500 meters from the neighborhood

Number of Venue Category by neighborhood
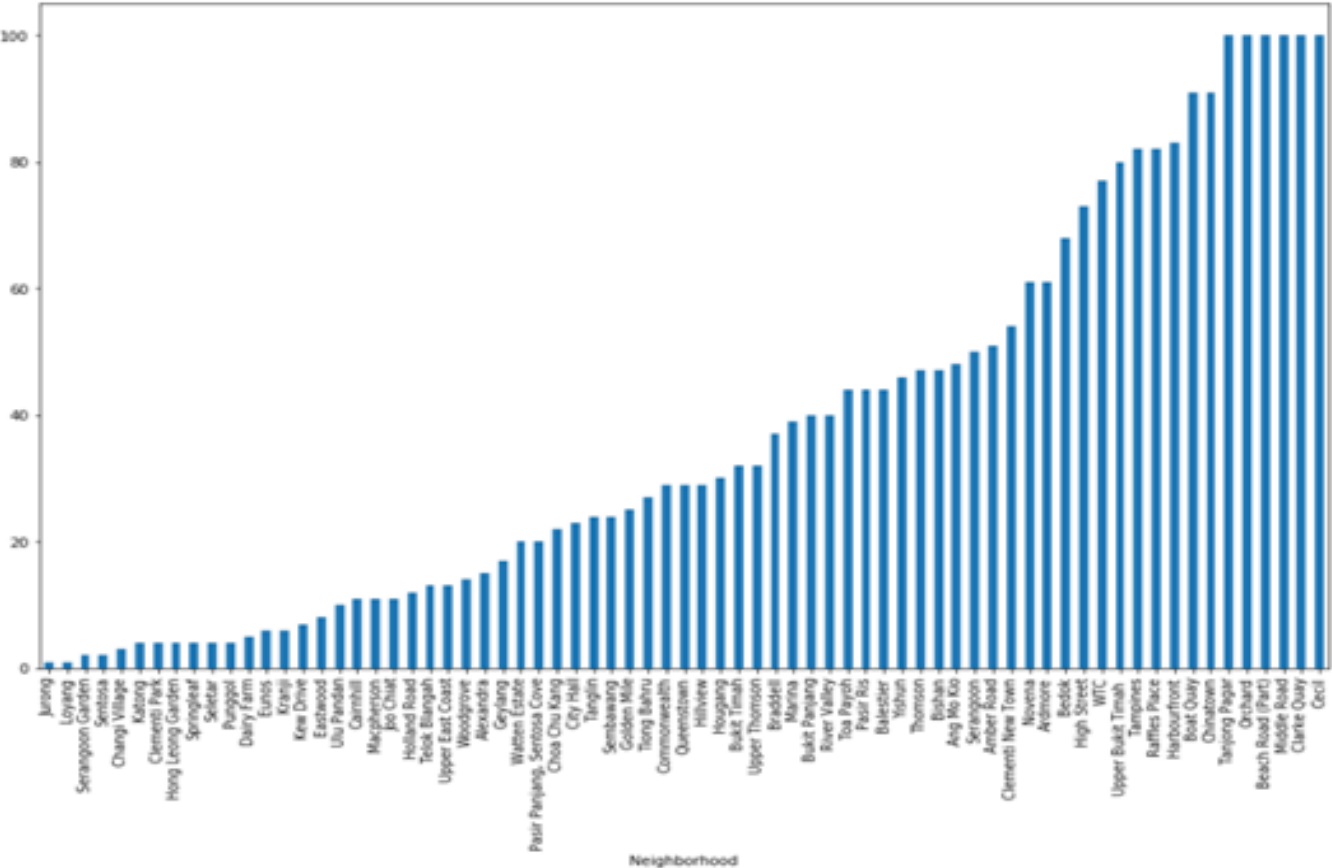
Each neighborhood was further analyzed by venue category to obtain its top 10 venue categories

Example: First five rows only

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
0	Alexandra	Chinese Restaurant	Coffee Shop	Asian Restaurant	Bus Station	Basketball Court
1	Amber Road	Chinese Restaurant	Supermarket	Café	Dessert Shop	Bar
2	Ang Mo Kio	Coffee Shop	Bubble Tea Shop	Food Court	Dessert Shop	Fast Food Restaurant
3	Ardmore	Hotel	American Restaurant	Japanese Restaurant	Hotel Bar	French Restaurant
4	Balestier	Chinese Restaurant	Hotel	Food Court	Asian Restaurant	Bakery

	Neighborhood	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Alexandra	Park	Pool	Gym	Train Station	Hainan Restaurant
1	Amber Road	Shopping Mall	Department Store	Hotel	Convenience Store	Indian Restaurant
2	Ang Mo Kio	Japanese Restaurant	Supermarket	Sandwich Place	Seafood Restaurant	Noodle House
3	Ardmore	Spa	Buffet	Burger Joint	Chinese Restaurant	Bar
4	Balestier	Bus Station	Noodle House	Tea Room	Supermarket	General Entertainment

K-Means clustering was used to group the neighborhoods with similar characteristics

A reasonably high number of clusters (10) was selected in order to give more choices as well as more specific amenity's preference in selecting a neighborhood to live in.
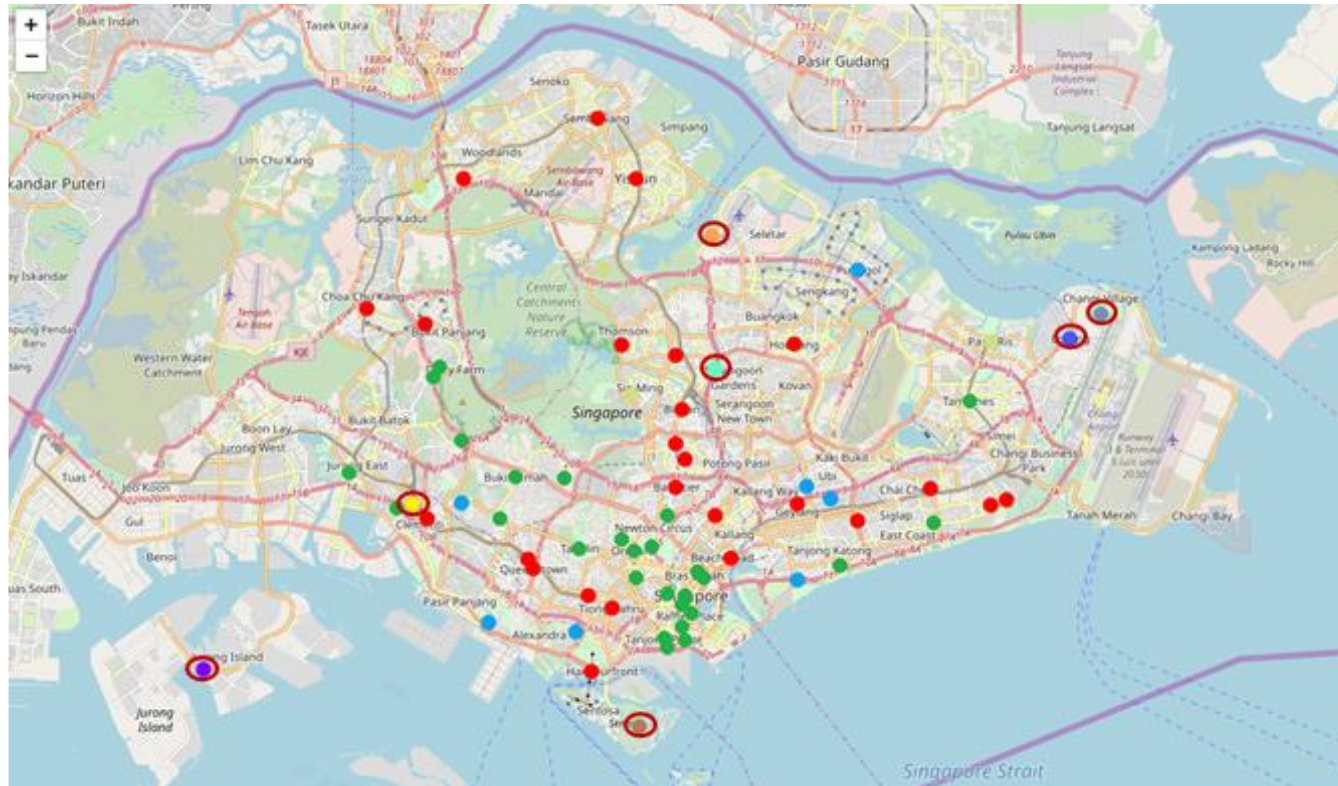
Results – venue category

▶ The first major cluster (red) has lots of Chinese restaurant/food court/coffee shop nearby.

▶ If other ethnic food is preferred such as Japanese/Italian/Korean/French as well as café, then they are closed by cluster 2 (green).

▶ Cluster 3 (blue) provides the conveniences of public transport of bus/boat/ferry and recreation activities such as gym/trail/karaoke bar.

▶ The stand-alone clusters (circle in red) are Loyang, Changi Village, Seragoon Garden, Jurong Island, Seletar, Sentosa and Clementi Park.

▶ The venue categories for these clusters range from yoga studio to pub to monument/landmark.

Results – median rent per square meter

- Examining the median rent per square meter for each of these clusters does not show any obvious pattern.

- The median rent per square meter for the first major cluster (red) ranges from $26.8 to $49.3.

- For the second major cluster (green), the range is from $28.3 to $57.5.

- Cluster 3 (blue) is from $32.64 to $42.07.

- The median rent per square meter for the stand-alone clusters is from $26.5 to $42.1.

Discussion

▶ The stand-alone clusters/neighborhoods were found to have very few venue categories, they can be excluded from future analysis.

▶ Then the 3 main clusters can be further subdivided into more granular clusters to narrow down to more specific venue category.

▶ There is a high possibility that the median rent per square meter for a neighborhood is depended on its proximity to the city center.......

▶ ...and also on the type of apartment buildings such as public HDB flats, public-private executive condominiums and private condominiums/apartments.

▶ ...and less so on venue categories

Conclusion

- This analysis contributes to a better understanding of the neighborhoods in Singapore.

- However, the clustering exercise does not provide sufficient information to assist in the choice of neighborhood to live in.

- Further analysis can be carried out to include other features such as proximity of neighborhoods to the city center and the type of apartment buildings in order to provide better insights to serve as a guide in selecting the neighborhood of choice in Singapore