

New Library Built Suggestion in Singapore

1. Introduction

1.1 Background

As library is an essential place to save and share human's knowledge, it is important that citizens have easy access to public libraries. My idea is to use the Foursquare location data to find out the library location distribution in Singapore.

1.2 Problem

However, even advanced cities like Singapore cannot guarantee that there are enough libraries for its citizens. I will apply the Foursquare location data to understand current library distribution in Singapore, and find out which areas are lack of libraries for all neighbourhoods.

1.3 Interest

The targeted audiences both include the government of Singapore, such as Ministry of Education and Ministry of Cultural and Communication Affairs, as well as library readers. The government and library readers are the groups of stakeholders. After my analysis, the government can recognise which areas need to build more libraries, and the readers can have easy access to the newly built libraries with a few minutes walk in their neighbourhoods.

2. Data Acquisition and Cleaning

2.1 Data sources

I will use Foursquare location data only. Currently Foursquare's location data is the most comprehensive out there, and quite accurate that it powers location data for many popular services.

Foursquare places API is my first choice. This API will be utilised to enable location discovery. In my case, it will help to find out the libraries in Singapore. For example, I will use the Search endpoint to make calls to the Foursquare API to search for libraries in Singapore, and learn more about particular libraries. And then, I will continue use the Explore endpoint to retrieve data from the Foursquare database, and use the API to explore a location and to get trending venues around all libraries in Singapore.

2.2 Data Cleaning

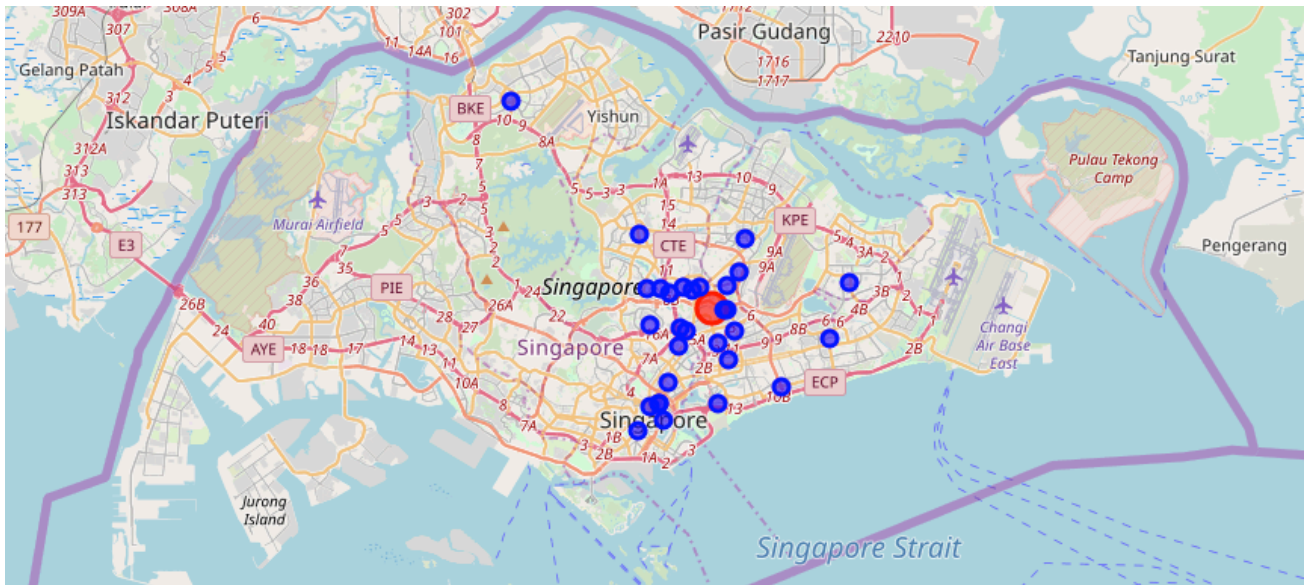
According to my analysis, there are 30 libraries in Singapore recorded in Foursquare database. There are some NaN values, but the NaN values will not affect the final results. Due to the limited samples, I will not delete any records.

3 Methodology

Based on the above data, I will use data analysis and data visualisation techniques to solve the problem mentioned in Introduction/Business Problem section.

The main methodology is visualise the libraries in Singapore for the exploratory data analysis.

The 30 libraries recorded in Foursquare database is displayed in the following map.



4.Results

The libraries in Singapore is not equally distributed. According to the library distribution map shown in the methodology section, only one library is located in the north, and there is no library in the west.

5.Discussion

Based on the above observations in results section, it is obvious that the libraries in Singapore is not equally distributed. The big red dot is considered as the centre of Singapore. It is likely that more citizens reside in the centre of the country, so there are more libraries around the red dot, which resulting to the consequence that there is only one library in the north and no library in the west.

6.Conclusion

In conclusion, this analysis found that the Singapore government should build more libraries in the west area of Singapore. The new built library will enable the readers in the west to have easy access to knowledge.

Future analysis need to include more samples besides Foursquare.