
Survey of evacuation shelters in Shibuya Ward

Introduction And Problem

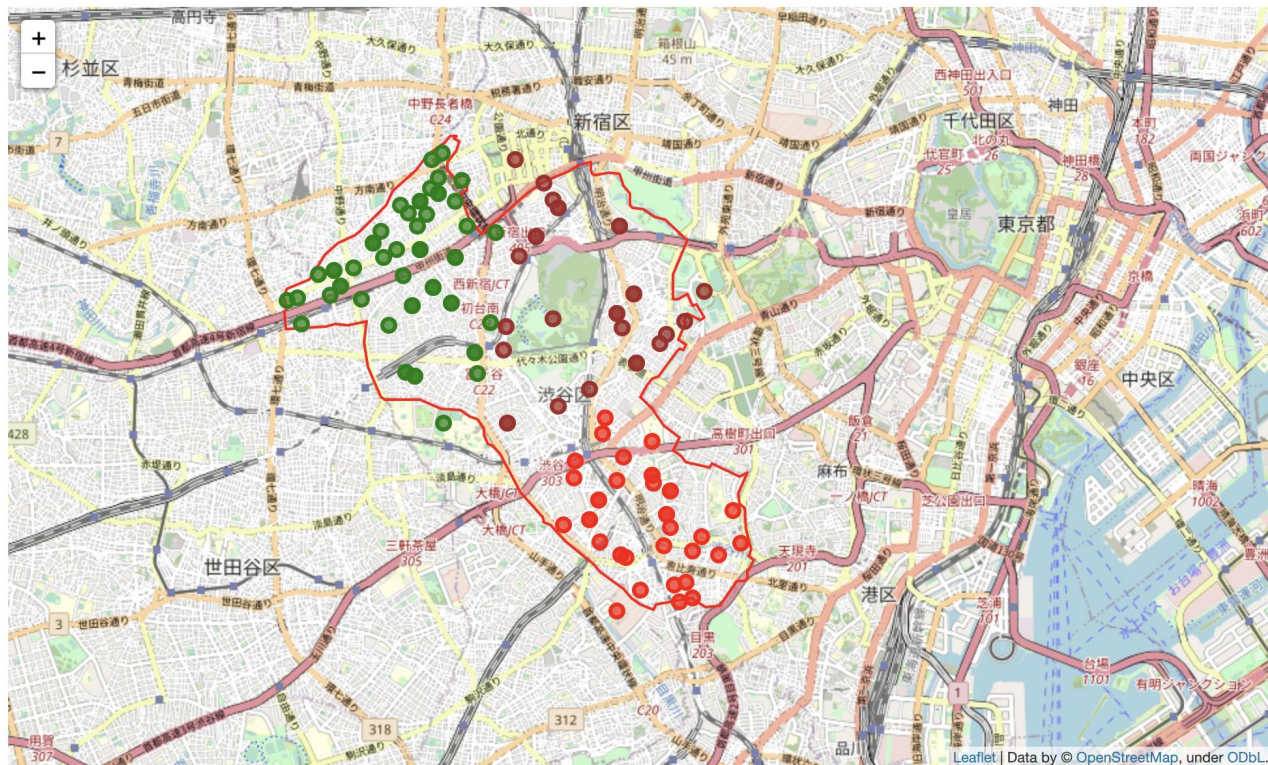
Japan has so many earthquakes that it is called an earthquake powerhouse. In recent years, more earthquakes have occurred in Japan. On March 11, 2011, the worst earthquake called the Great East Japan Earthquake caused about 20,000 casualties. It is predicted that a huge earthquake directly under the capital will occur in Tokyo, the capital of Japan, in the near future.

In this project, we will focus on Shibuya Ward, which is adjacent to various companies in Tokyo, and cluster evacuation shelters. By doing so, the ward will be able to determine the optimal division, and in the event of an earthquake, it will be possible to guide the victims and distribute supplies smoothly.

Dataset

- List of shelters in Shibuya Ward Data
- Geopy The location information of Shibuya Ward
- Foursquare API
- Geojson of Shibuya

Clustering the Shelter



The shelter was clustered into three.

From the top, it was defined as North, Central, and South.

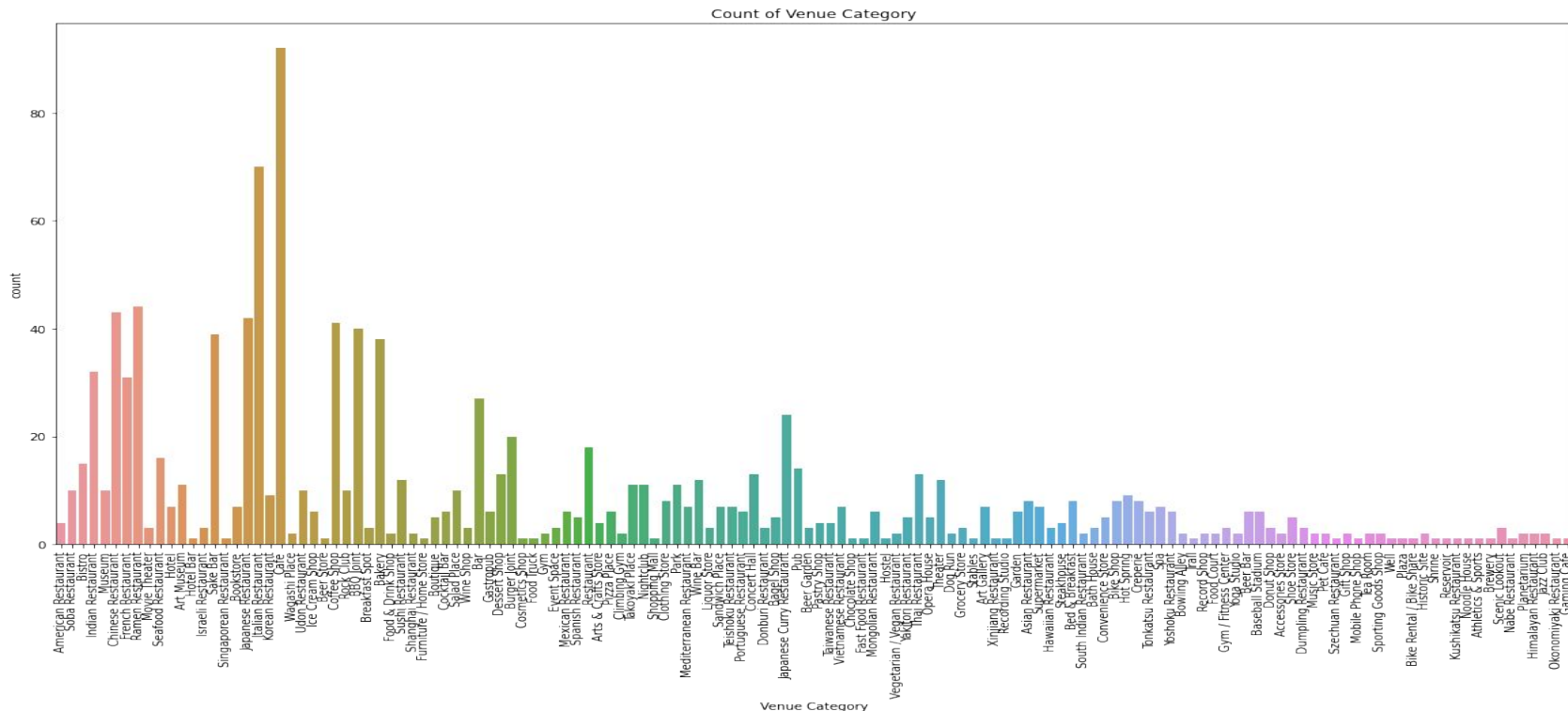
Count of Cluster Id



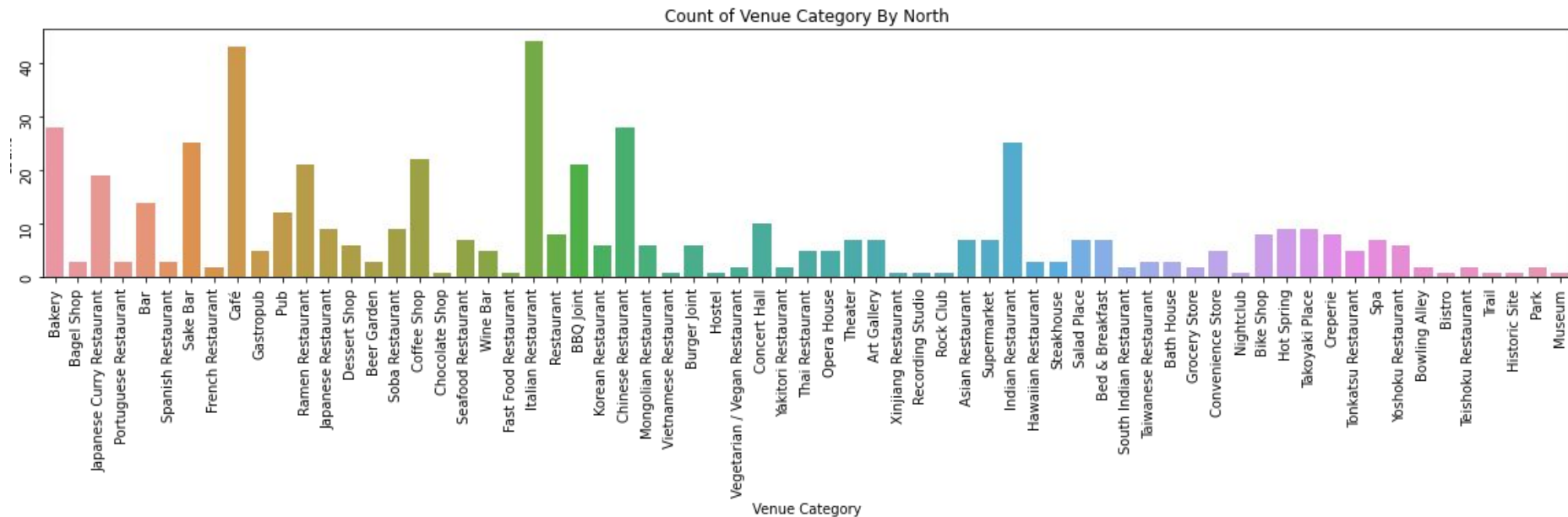
The north has the largest number of shelters.

Count of Venue Category

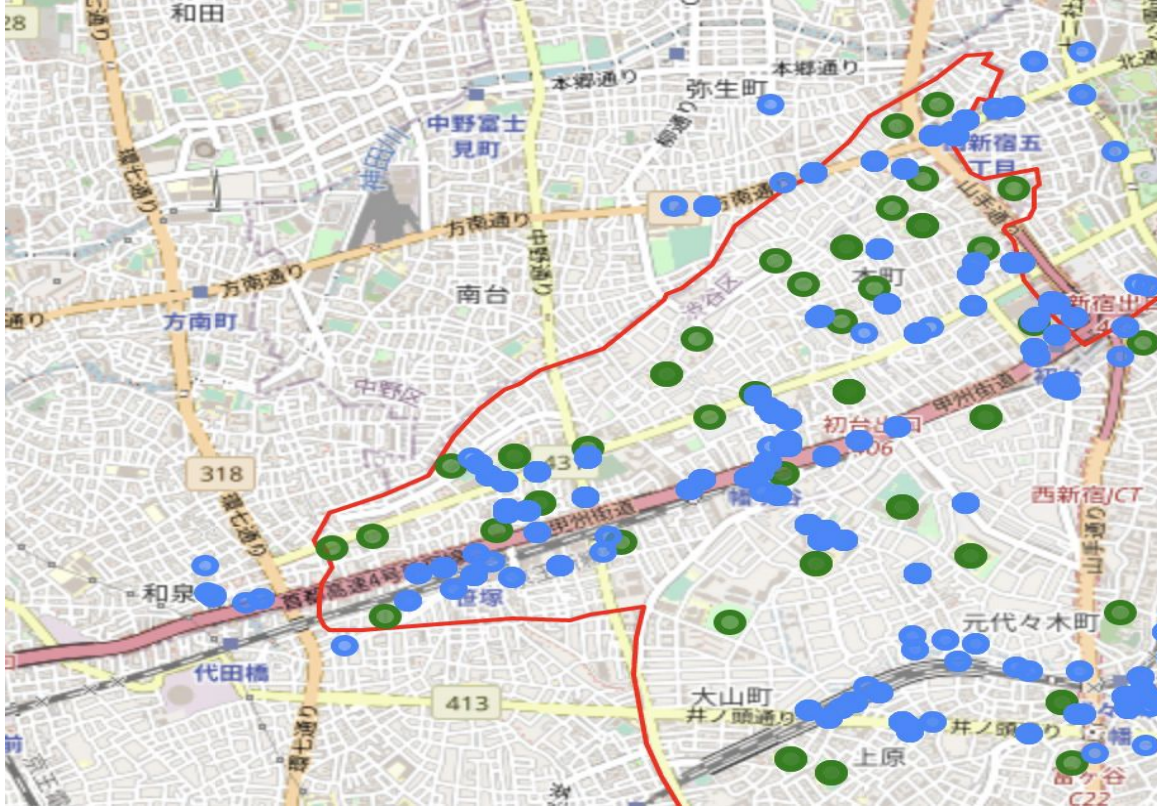
Most are restaurants.



Count of Venue Category By North

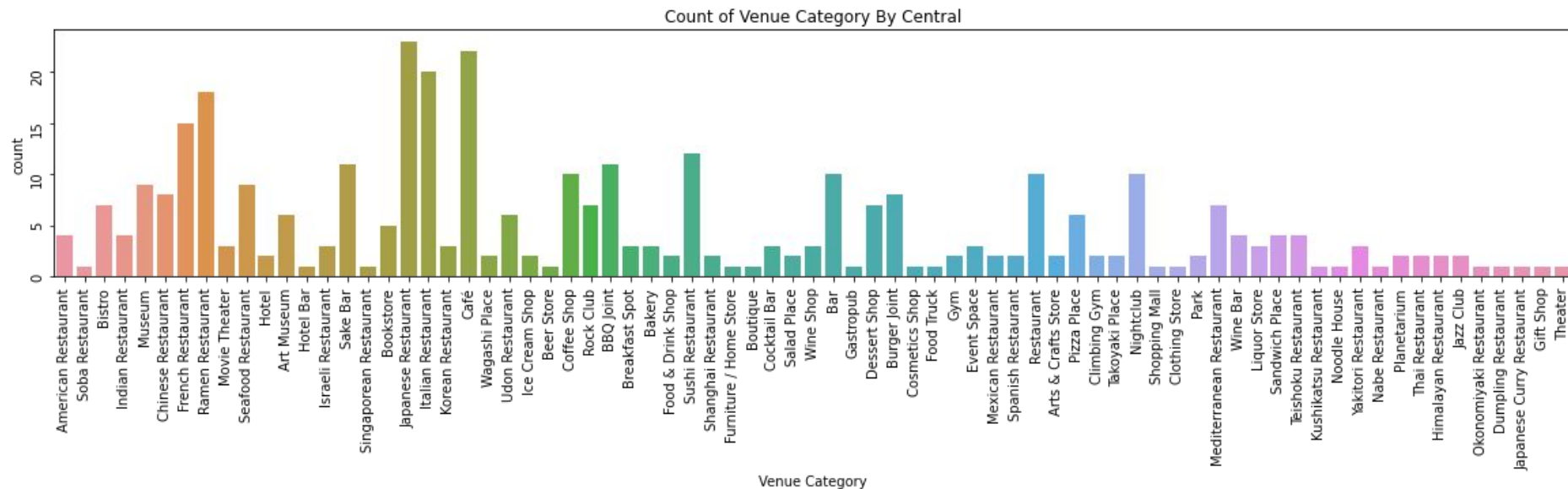


North Map

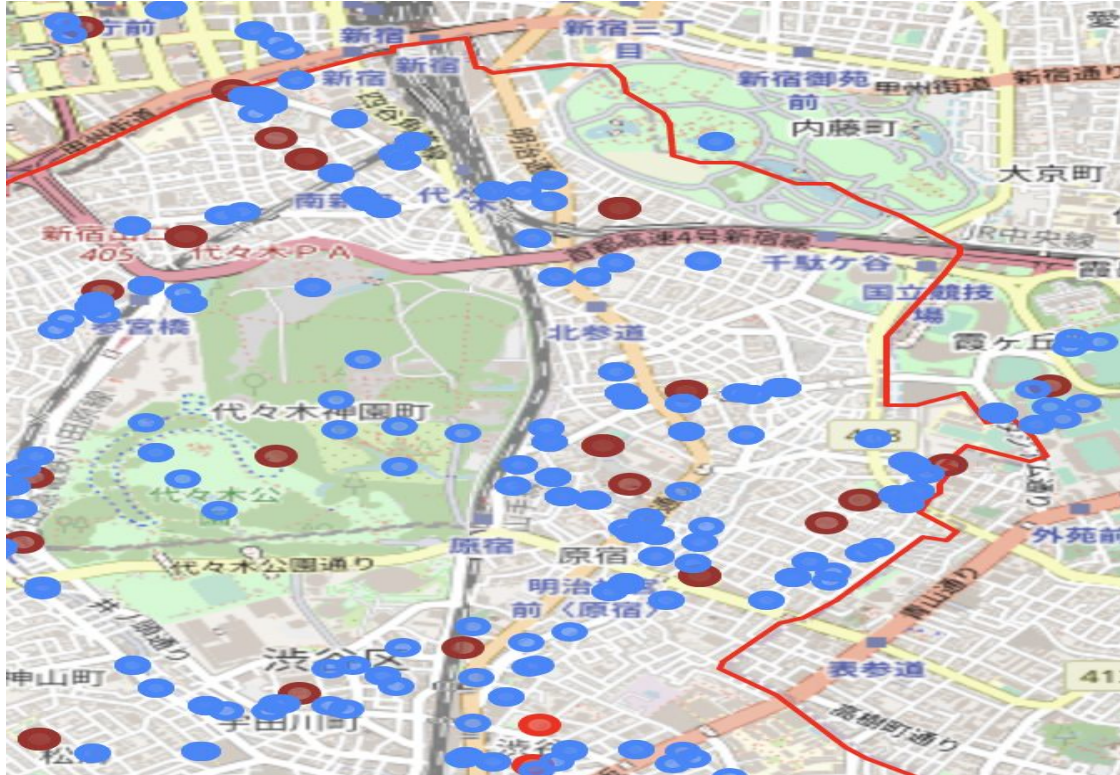


From the graph on the previous page, there are many cafes and Italian restaurants, It is a business district, and there are many parks in the evacuation center.

Count of Venue Category By Central



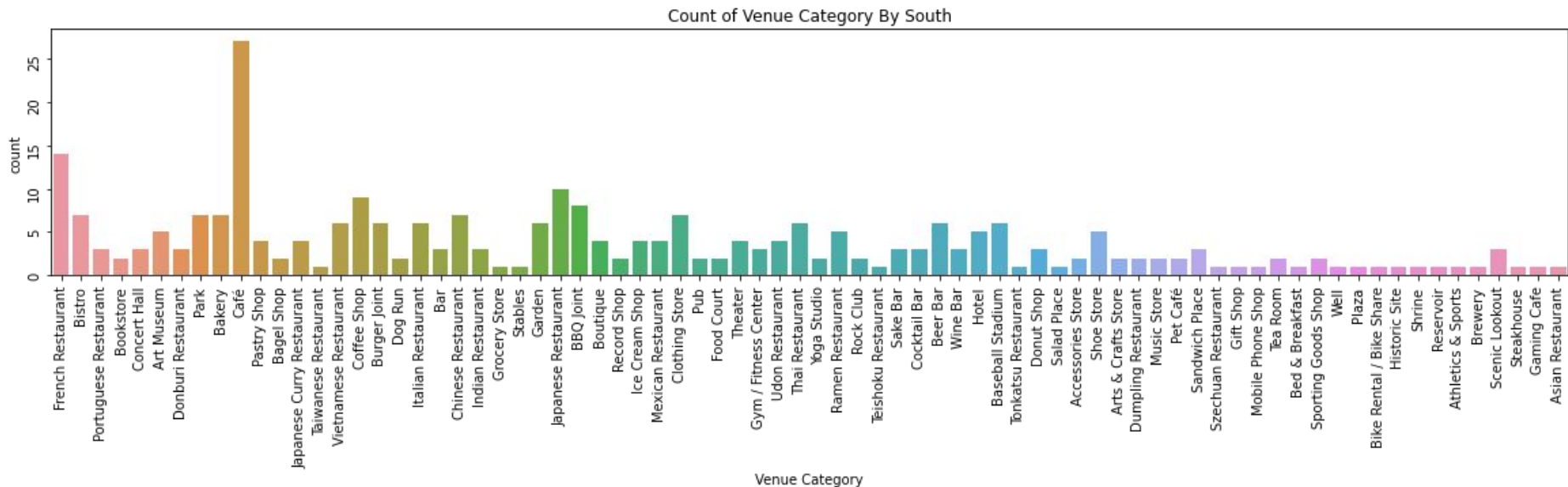
Central Map



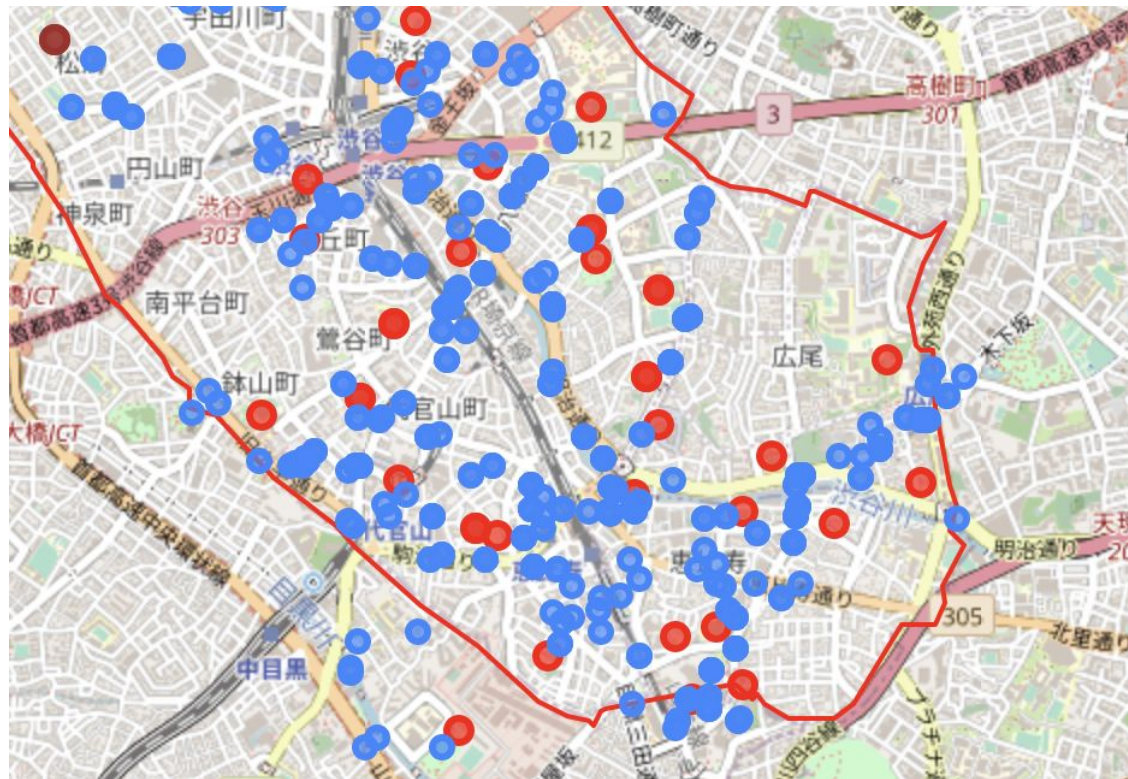
There is Yoyogi Park in the center, and the number of evacuees can be secured.

Since there is Harajuku and many young people come to play every day, the number of evacuees is expected to be the largest.

Count of Venue Category By South



South Map



Since there are many schools and residential areas, it can be predicted that the number of children and the elderly will increase, so it is better to give priority to the supply of supplies.

Hiroo is a residential area, but there are few evacuation sites, so it should be installed immediately.

Conclusion

- When clustered, it was divided into North, Central, and South.
- Since the North is a business district, most of them are temporary shelters such as parks. We should urgently create a shelter that can withstand the rain and wind.
- Since many young people gather in the Central, the number of evacuees will be the largest. However, it is easy to secure the number of people because there is Yoyogi Park.
- The south is a residential area, and it is expected that there will be many children and the elderly, so the priority of supplying supplies is high. There are places where it is better to add some evacuation shelters.