

Capstone project

The Battle of the Neighborhoods

Find location of convenience store to open

1. Introduction: Business problem

I live in Taiwan. There are lots of convenience store in Taiwan, but more and more convenience store will open. Because population density in Taiwan is very high, and Taiwanese is very lazy, one of reason Taiwanese choose where to live is there any convenience store. Therefore more and more convenience stores is required.

In this project, I will try to find better location for convenience store. This report will be targeted to stakeholders interested in opening an convenience store in Yilan, Taiwan.

The location will close to location where population density is high, so that it will keep revenue. And it must be less convenience store already in that location.

2. Data

According above description, the project is similar to template project, and I will keep the idea of clustering the city by area and then plot heatmap to find better area. And I will change data to Yilain, Taiwan.

Thre are two factors that infuleence:

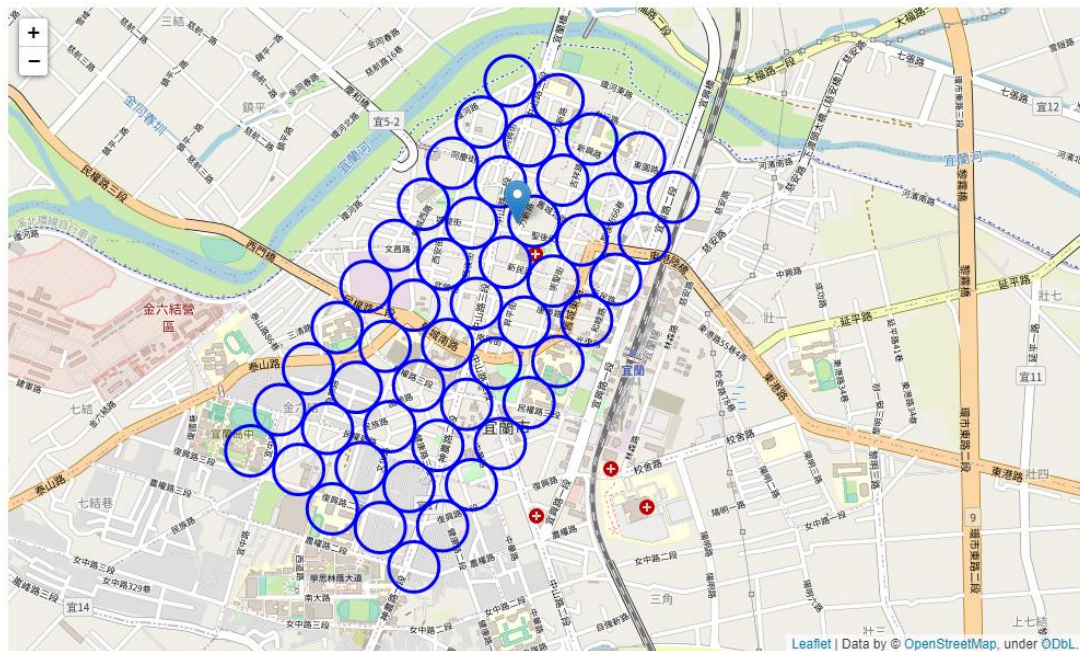
- number of existing convenience stores in the neighborhood
- number of and distance to convenience stores in the neighborhood

I use the following API:

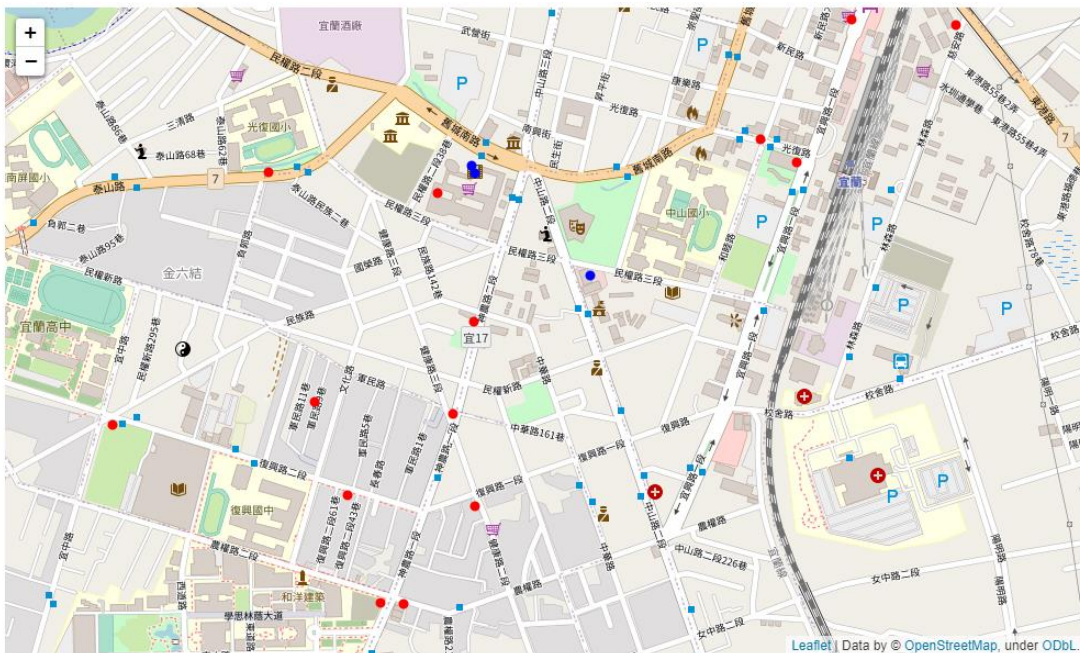
- Foursquare API: to find convenience stores
- Google API: reverse geolocalisation

3. Methodology

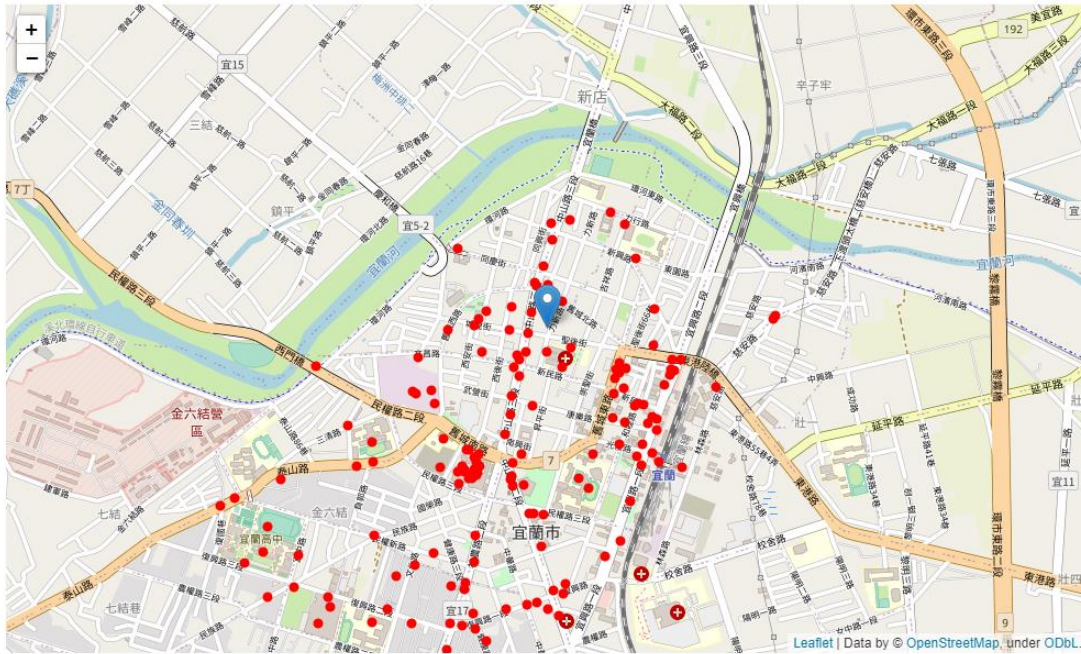
First get city center location and candidate neighborhood centers and visualize.



Find all potential competitors, and visualize.



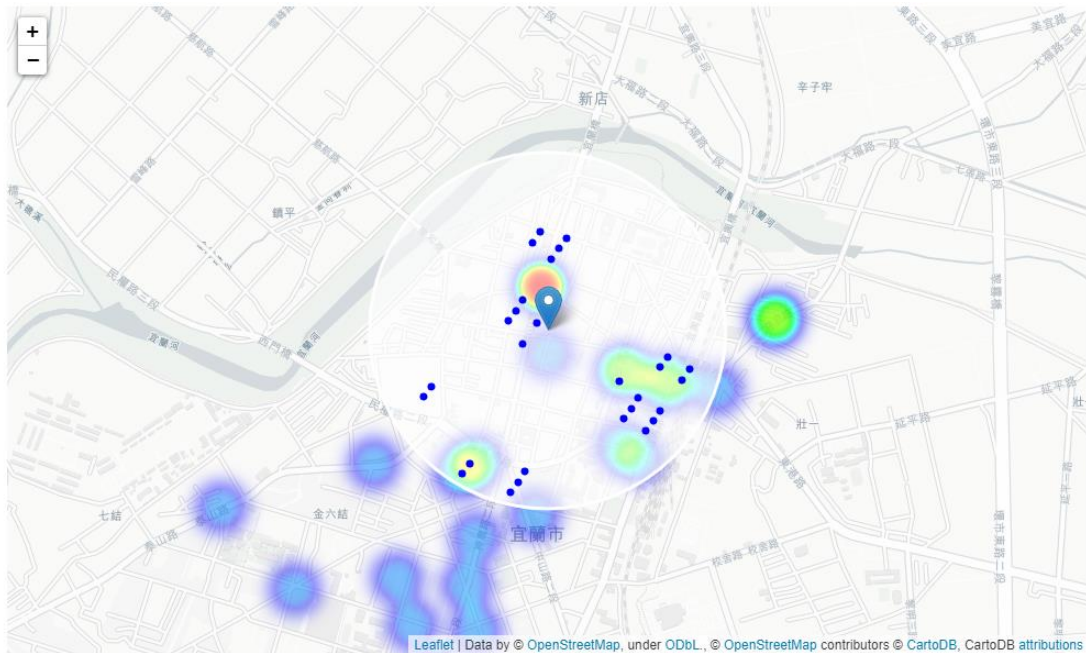
Find all potential customers, and visualize.



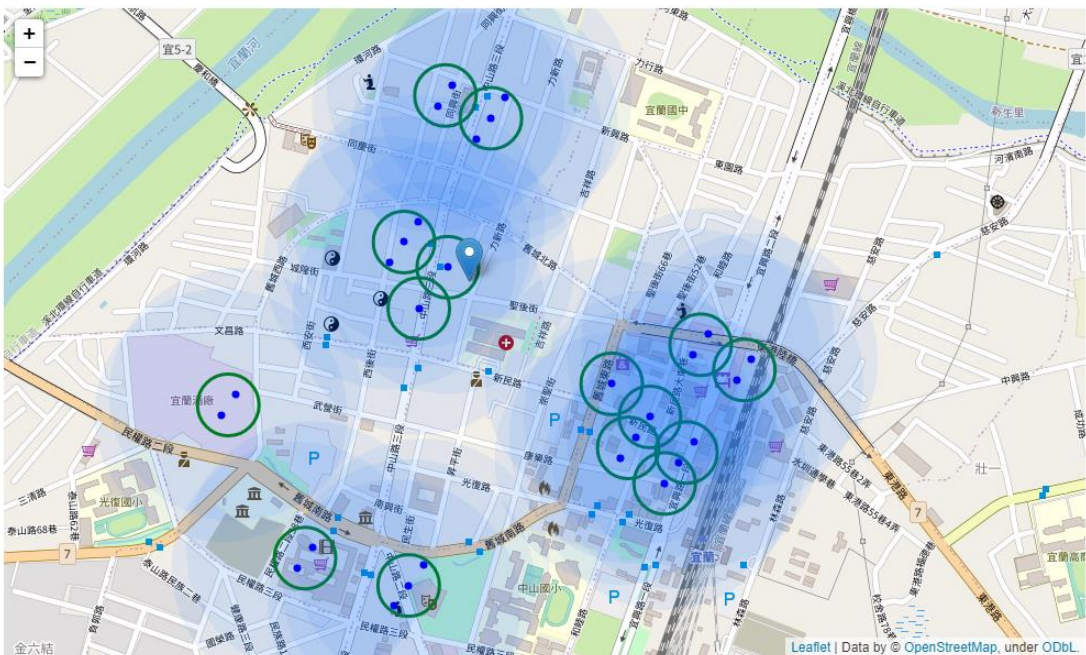
Use heatmap to show density of potential customers.



Filter those locations: we're interested only in locations with no more than two restaurants in radius of 250 meters, and no convenience stores in radius of 50 meters, and more than 3 customers.



Finally, Use K mean clustering to get most important location candidates.



4. Result

Finally, get a list of good location to open convenience stores.

- No. 38 巷 2 號, Section 2, Minquan Road, Yilan City, Yilan County, Taiwan 260 => 1.3km from Prefecture
- No. 19, Shenghou Street, Yilan City, Yilan County, Taiwan 260 => 1.0km from Prefecture

- No. 116, Xihou Street, Yilan City, Yilan County, Taiwan 260 => 0.3km from Prefecture
- No. 274 號, Section 3, Zhongshan Road, Yilan City, Yilan County, Taiwan 260 => 0.7km from Prefecture
- No. 45, Hemu Road, Yilan City, Yilan County, Taiwan 260 => 0.9km from Prefecture
- No. 3, Jiucheng West Road, Yilan City, Yilan County, Taiwan 260 => 1.1km from Prefecture
- No. 516 號, Section 2, Zhongshan Road, Yilan City, Yilan County, Taiwan 260 => 1.2km from Prefecture
- No. 366, Section 1, Yixing Road, Yilan City, Yilan County, Taiwan 260 => 1.2km from Prefecture
- No. 255, Section 1, Yixing Road, Yilan City, Yilan County, Taiwan 260 => 1.1km from Prefecture
- No. 69, Tongxing St, Yilan City, Yilan County, Taiwan 260 => 0.7km from Prefecture
- No. 160, Section 3, Zhongshan Road, Yilan City, Yilan County, Taiwan 260 => 0.1km from Prefecture
- No. 34, Jiucheng East Road, Yilan City, Yilan County, Taiwan 260 => 0.7km from Prefecture
- No. 125, Section 3, Zhongshan Road, Yilan City, Yilan County, Taiwan 260 => 0.2km from Prefecture
- No. 42 之 1 號, Xinmin Rd, Yilan City, Yilan County, Taiwan 260 => 0.9km from Prefecture
- No. 5 號, Kangle Road, Yilan City, Yilan County, Taiwan 260 => 1.1km from Prefecture
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5. Conclusion

In this project, I built a useful method to get proper location to open convenience stores, but in methodology, I think the potential competitors and customers which I list is not enough. It should find more category of competitors and customers to get better result, and locations

will be better than this result.

And I think this method is not only can be used in Yilan, it can be used in other location, even through other country.