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Where to open new restaurant in Sasebo

Introduction

- It is important for business manager that where they should open new restaurant.
- There are a lot of factors that are needed to consider.
- I picked up 2 points from them
 1. A lot of **people** live in the town
 2. There are not restaurant in or **around** the town

Why I chose Sasebo?

- Because Sasebo is my hometown.
- Sasebo is located at West edge side of Japan and near Korea and China.
- Sasebo has a lot of beautiful landscape and delicious **food**.

e.g.) Sasebo Hamburger [佐世保バーガー],
Lemon steak [レモンステーキ], Turkey rice
[トルコライス](not related to Turkey lol)

- Please check and search them on web browser :)



Position of Sasebo



Data

- I used latitude and longitude data of town([csv](#)), polygon data([geojson](#)), population data([excel](#))
- This is DataFrame of csv file. Column names are Japanese language. In my notebook, I translated it into English.

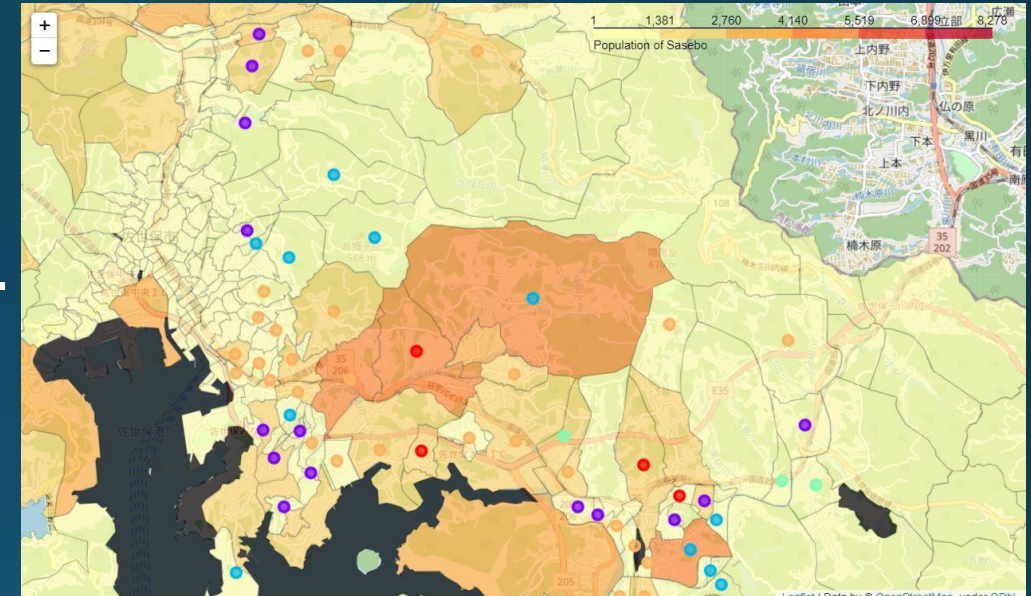
	都道府県コード	都道府県名	市区町村コード	市区町村名	大字町丁目コード	大字町丁目名	緯度	経度	原典資料コード	大字・字・丁目区分コード
0	42	長崎県	42202	佐世保市	422020001000	相生町	33.176730	129.716102	0	1
1	42	長崎県	42202	佐世保市	422020002000	相浦町	33.195476	129.660159	0	1
2	42	長崎県	42202	佐世保市	422020003000	赤木町	33.194758	129.750191	0	1
3	42	長崎県	42202	佐世保市	422020004000	赤崎町	33.153071	129.699344	0	1
4	42	長崎県	42202	佐世保市	422020005000	浅子町	33.196513	129.627543	0	1

Methodology

- First, importing latitude and longitude data of towns and Using Foursquare API, get the store data of the town.
- Second, cluster the town by using k-means and find out the features.
- Finally, by using folium, population data, and bar plot, predict the suitable place for new restaurant.

Result

- Cluster 1 to 5 can be said:
 1. They have a **Café**.
 2. They have a **Convenience Store**.
 3. They have a **Park** and wide range of **population**.
 4. They are located near an **intersection**.
 5. They have a **variety** of store and are located near the main road.



1: Red 2: Purple, 3: Light blue,
4: Yellow green, 5: Orange

Discussion

- It is better if ...
 - there are **not another** restaurant.
 - there are a **lot of people** in the town.
 - access to the town is easier.
 - number of people per household is more.
 - not far from highway.

Taking them into consideration...

Cluster **3** (Light blue marker) looks good !

Discussion

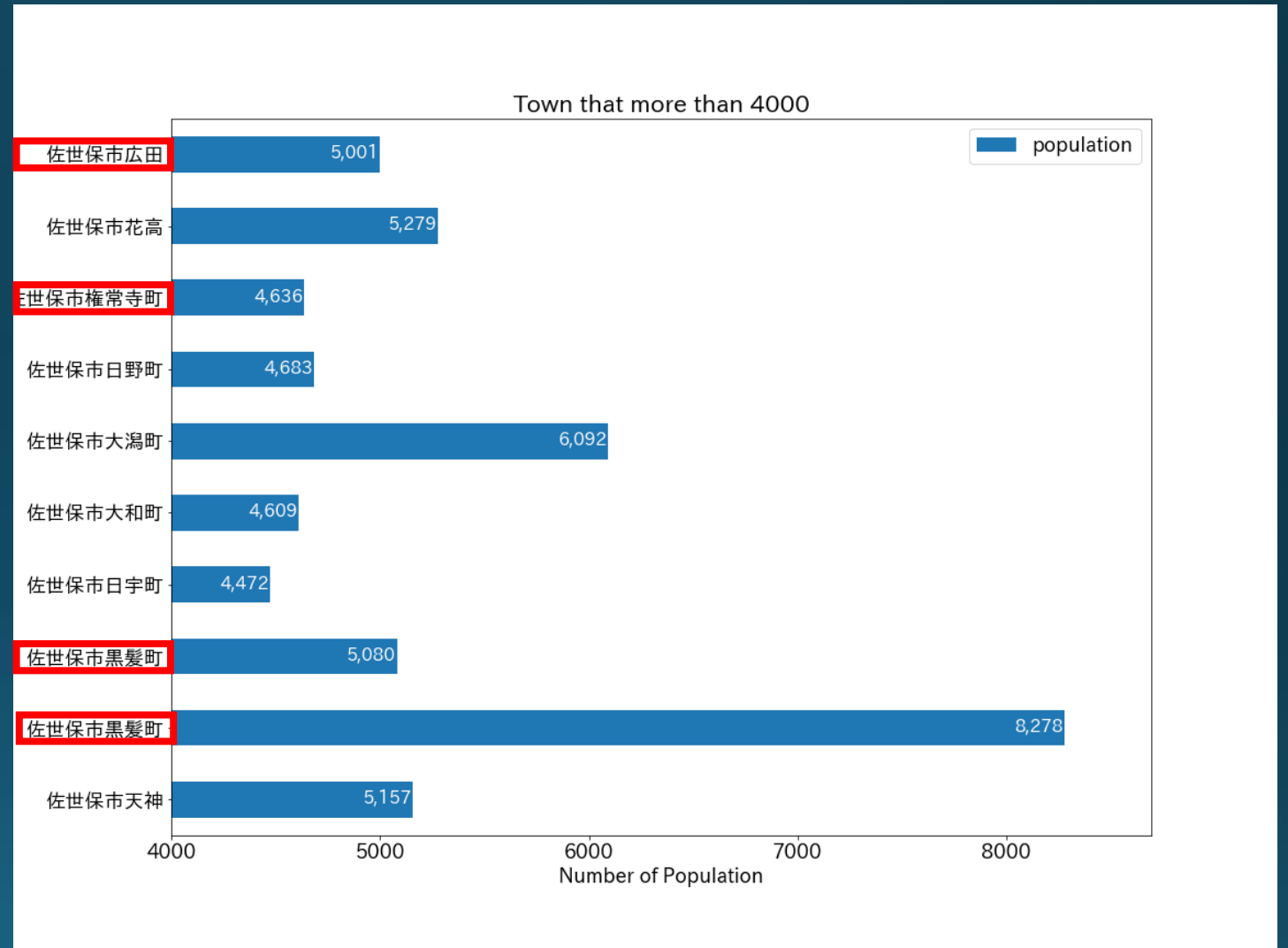
- Group them up into 3: Northeast, Southeast, and the other.



	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue
29	烏帽子町	Park	Bus Stop	Yoshoku Restaurant	Farmers Market
82	黒髪町	Coffee Shop	Park	Candy Store	Yoshoku Restaurant
96	小佐世保町	Park	Shrine	Yoshoku Restaurant	Electronics Store
102	権常寺町	Restaurant	Diner	Park	Electronics Store
106	崎辺町	Park	Bus Stop	Yoshoku Restaurant	Farmers Market
149	須佐町	Hotel	Park	Shrine	Electronics Store
178	田代町	Bus Stop	Yoshoku Restaurant	Farmers Market	Department Store
203	中原町	Park	Lake	Yoshoku Restaurant	Farmers Market
220	花高四丁目	Park	Bus Stop	Yoshoku Restaurant	Farmers Market
230	東山町	Park	Grocery Store	Bus Stop	Yoshoku Restaurant
240	広田町	Park	Lake	Yoshoku Restaurant	Farmers Market

Discussion

Cluster 2:
広田(S), 黒髪町(N),
権常寺町(S),
have big population.



Discussion

(Caution) Yoshoku restaurant and Farmers Market are just filled and useless value.

- **Northeast** group has big population and large area. But restaurant or Super Market does not exist.
- **Southeast** group has also big population and a lot of people live in a small area.
- The other group has small population and big area and is far from downtown.

Discussion

Compare between two groups

- Northeast group

Good: Big population.

There are no rival.

Bad: Big area. Isolated.

- Southeast group

Good: Small area.

Not bad access.

Bad: Less population.



Discussion

Northeast group

- will be hard to gather customers from outside of the town and the target customer is restricted to the residents of the town.

- ✓ Relatively close to downtown.
- ✓ There is no rival restaurant.

Southeast group

- ✓ will be able to gather not only the residents of the town but also people on the way to somewhere.

- Relatively far from downtown.
- There is a rival restaurant.

Conclusion

- I can't tell which is better based on these result.
- Available open data sets are restricted. I must gather more information about real estates, population composition, access, customers' needs, rival restaurants etc.
- It is needed to take variety of data into consideration. Then, we must make decisions.

Preference

- 西九州させぼ広域都市圏オープンデータポータルサイト
<https://data.bodik.jp/organization/sasebo-toshiken>
- 国土交通省 GISホームページ<https://nlftp.mlit.go.jp/index.html>