OSAKA VENUE ANALYSIS

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INTRODUCTION

- Osaka is second largest city in Japan and there are a lot of shops and restaurant, but good restaurants are always full of people. On the other hand, data shows that 30% of new restaurant or cafe goes bankrupt within a year, and 50% within 3 years. The reason of the high bankrupt rate is various, but location is one of most important factor, for example, there are too many similar shops, there is no demand for specific shops for residential area and so on. Since I love to have coffee at nice, cozy cafe for a break during work, I'm interested in analyzing location data of osaka, given I would open coffee shop. In this study, I focus on four Osaka wards, Kita-ku,Fukushima-ku, Chuo-ku, and Miyakojima-ku because those are the central part of Osaka. I set the target as **area with less cafe** and **not residential but bussiness** oriented area.

Research question ; Where is the best place to open coffee shop in Osaka, Japan?

DATA SOURCE

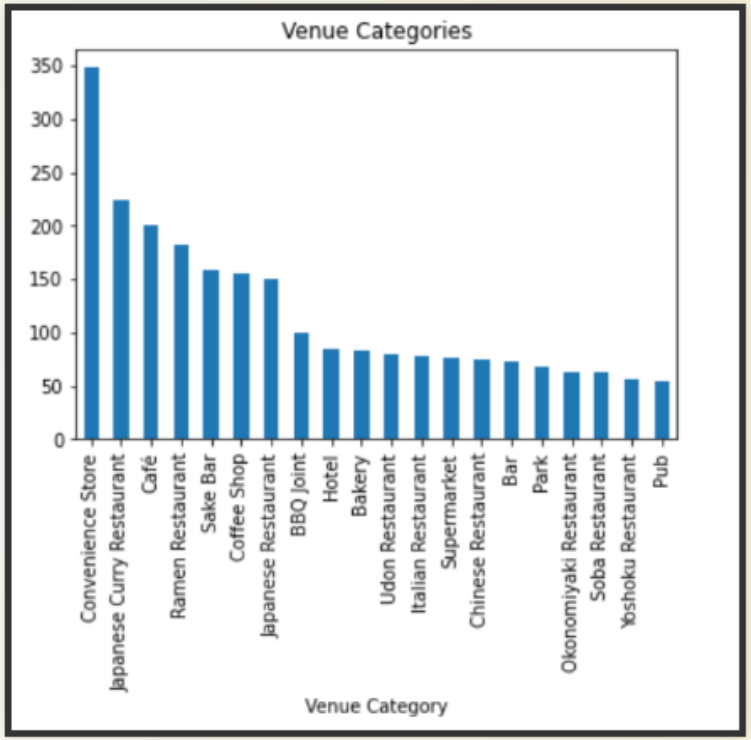
- **Forsqure API**
  As we learned it during this module, I used Forsqure location data via API.

- **Address**
  the list of Osaka neighborhoods are required. It is available in open data base. [http://jusyo.jp/csv/new.php] This website provides all Japanese address with postal codes, and files are zipped for each prefecture.(Sorry, only Japanese are available!) I took only Osaka address using `wget` command.

- **Geocoding**
  To get coordinates, I used geocoorder API. It allows to get all latitude and longitude for given address.(Again, addresses are written in Japanese, sorry!) This reference helped me to use the API.

MOST COMMON CATEGORIES

- All venues are categorized in forsqure data. In Osaka data set, there are 199 unique categories.
- Most common category is convenience store, which is open 7/24 and sell everything we need in daily life, like food, snacks, magazine, toiletry and so on.
- The second common category is 'Japanese Curry Restaurant', which is not traditional style compared with 'Ramen' or 'Takoyaki' as Japanese 'fast food', but it is very popular.



CONVENIENCE STORE

- the number of convenience stores is good indicator of business area , because the more convenience store, the more office and entertainment places normally.

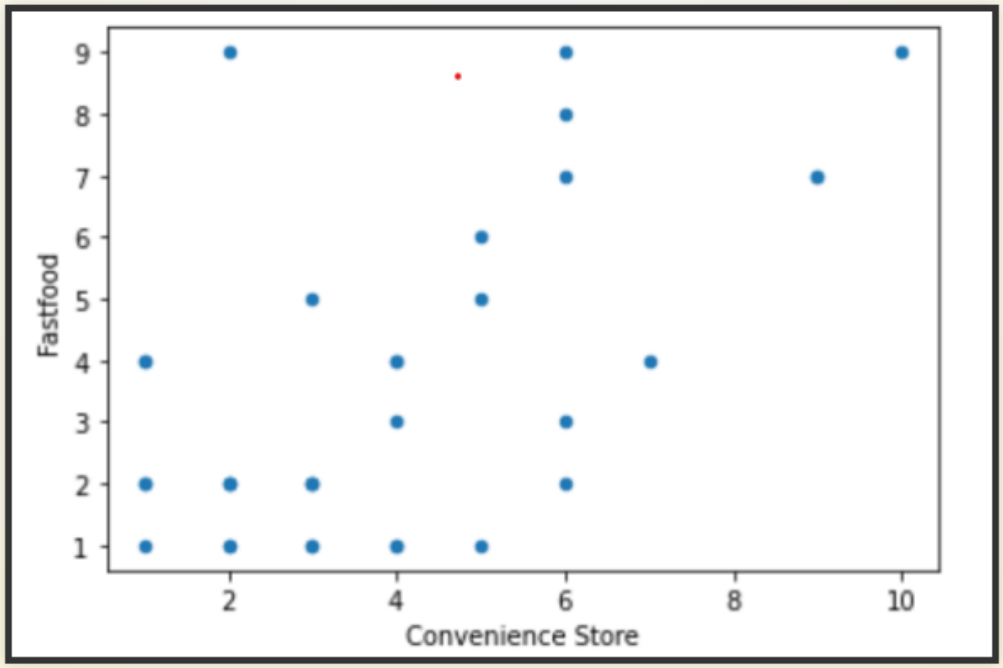
- Top 10 Neighborhoods which has largest number of convenience stores

Neighborhood	N of convenience store
大阪市都島区都島北通	12
大阪市都島区都島本通	10
大阪市都島区中野町	10
大阪市北区本庄東	9
大阪市北区大淀南	9
大阪市福島区玉川	9
大阪市北区天満橋	9
大阪市都島区善源寺町	8
大阪市北区大淀中	8
大阪市北区長柄西	8

- On average, there are more than 4 convenience stores in each neighborhood.

RESTAURANT

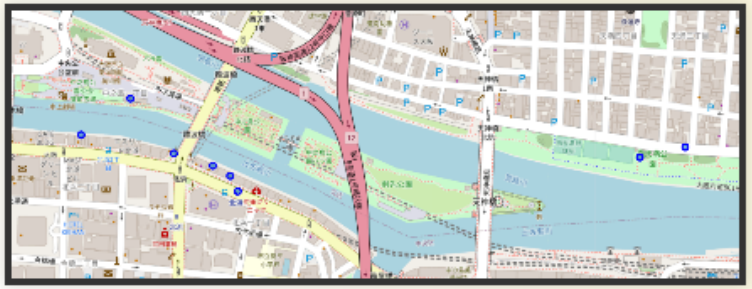
- Restaurants are also important indicator of residential or business area.
- Too many restaurant related category in forsqure are reduced to 2. One is 'Izakaya', where mainly open dinner time and alcohol and people enjoy time with colleagues or friends over food and alcohol. The other is 'Fastfood' style, like hamburger or ramen, where people don't stay long time but just eat for lunch break or after work.
- After re-label category, there are 337 'Izakaya' style restaurants, which is almost double of convenience store's number. I assumed that the business area has more convenience stores and more fast food. I simply check the trend of restaurant vs convenience store's number below.



COFFEE SHOPS

- In Osaka, there are 122 Cafes in total and the below shows the most crowded neighborhoods with number of cafes.

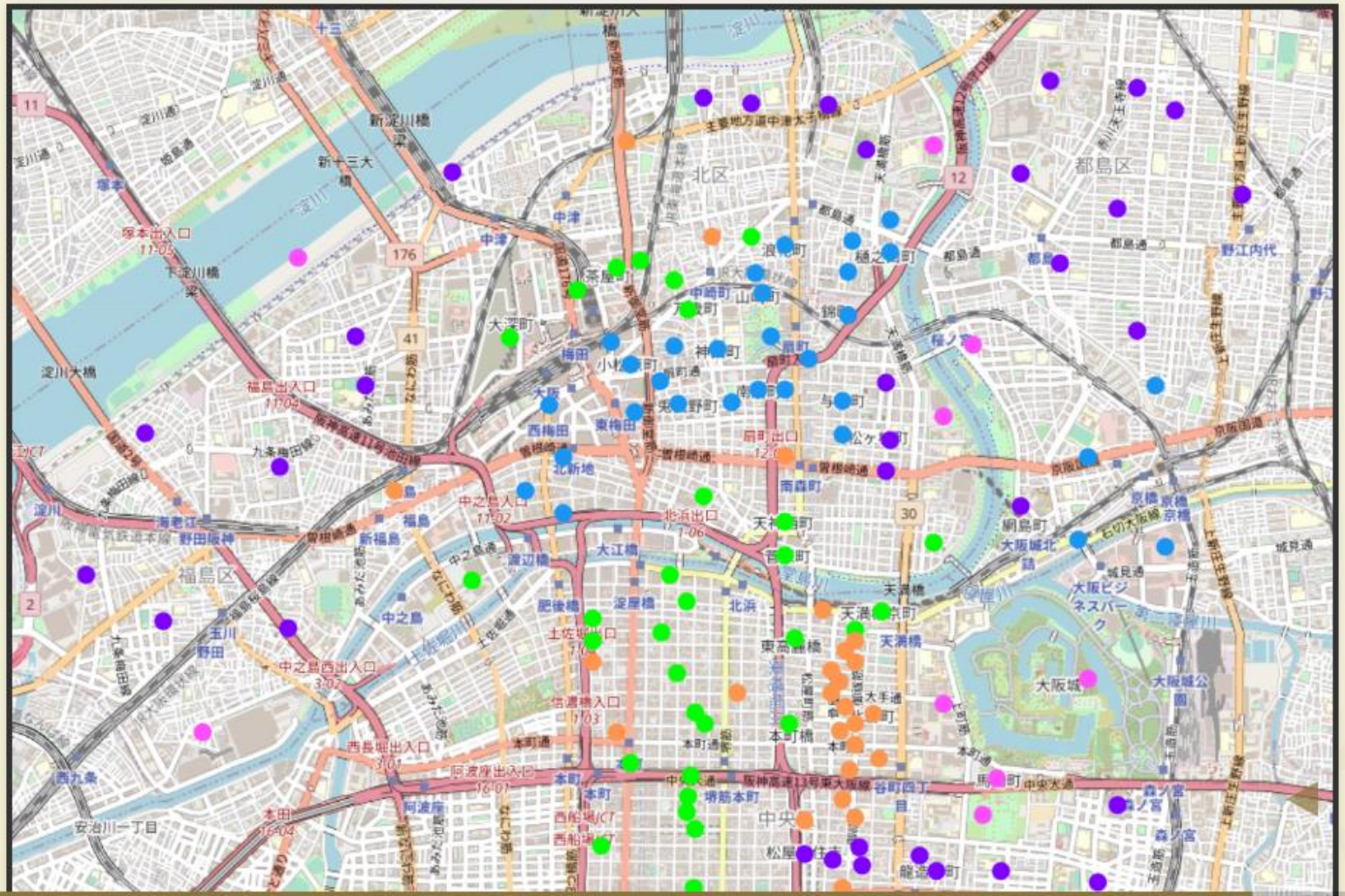
Neighborhood	count
大阪市北区菅原町	8
大阪市北区天神西町	8
大阪市中央区北浜	8
大阪市中央区今橋	7
大阪市北区中崎	7
大阪市北区浮田	7
大阪市北区西天満	6
大阪市中央区博労町	6
大阪市中央区備後町	6
大阪市北区茶屋町	6
大阪市北区鶴野町	6



- the right map shows the area with the most cafes. It is river side place with green. That would be the reason of a lot of cafes. We have to avoid this neighborhood as high competitive, and the others high cafe density areas as well.

K-MEAN CLUSTERING

- K-mean clustering with k=5 was applied. The below map shows the result with each cluster pointed as different colors.



RESULT AND CONCLUSION

- From the result of clustering, I assume that cluster with light green points is most business oriented and where we are targeting to open cafe.
- This area contains 37 neighborhoods. Among them, we want to pick up neighborhoods which has less cafe.

Neighborhood	Number of Cafe
北区芝田,中央区西心斎橋,中央区宗右衛門町,中央区心斎橋筋 ,中央区東心斎橋	2
中央区石町,北区中之島,中央区北久宝寺町 ,北区万歳町 ,中央区高麗橋,中央区高津 ,中央区道頓堀,中央区道修町,中央区本町橋	3
北区天満,中央区船場中央 ,中央区久太郎町 ,中央区安土町 ,中央区天満橋京町,中央区伏見町,中央区南本町 ,央区南久宝寺町 ,中央区東高麗橋	4
中央区淡路町,中央区南船場,北区大深町,北区中崎西	5
北区茶屋町,中央区備後町,中央区博労町,北区西天満,北区鶴野町	6
北区浮田 ,中央区今橋	7
北区天神西町 ,北区菅原町 ,中央区北浜	8

- Final targets are '北区芝田','中央区西心斎橋','中央区宗右衛門町','中央区心斎橋筋', and '中央区東心斎橋',which have only 2 cafes each.