

‘Personal coffee-cafe launching location recommendation in Mega-city, SEOUL, Korea’

> For your better business decision making

| 2019. Jun

Editor | Seungwon Seo (Ronald) , taken in Applied Data Science Capstone Course

Background

- Recently, there is high soaring needs to start own business after retirement, or even 2nd life
- Most favorite item to start own business is 'Coffee' as cafe store
 - people loves coffee itself
 - easy to learn how to make coffee
 - many practical support from social community support to get Barista certificates
- Aimed place is 'the down town of Seoul' which is Seoul city-hall
 - There are many company workers around
 - More massive population in weekdays
 - Salaryman does not save the money to pay for buying a cup of coffee in South Korea
 - Huge life trend
 - Many venues are crowded
- Thru certain type of pre-investigation for aimed area, soft landing of own cafe start-up should be possible

Problem definition

- Key issue is ‘Hot competition’
 - Already, many of cafes are taken in key location, places around the Seoul city-hall
- If we go price competition not considering business environment, cafe start-up will be falling into failure right away
- Need to know about business environment for setting up the cafe ahead
 - Venues
 - Venues category
 - Its address nearby city-hall
 - Geographical view for selecting reasonable place to start, set-up

Data Preparation for Analysis

- Source : Foursquare location API
- Key index for Seoul city
 - Latitude → 37.56
 - Longitude → 126.97
- Search query = ‘food’
- List up for nearby famous venues
- Size of Data
 - Groupby address = 34 rows & 182 columns
 - Number of categories = 334
 - Number of total venues = 4,988
- Category information should be obtained
(Mean score of occurrence frequency of each category)

address	Cheonggyecheon 40	Lotte Mart	N서울타워 Plaza 1F	강남구 도산대로 442	강남구 도산대로89길 7		Top 5 address
1st Most Common Venue	Hotel	Hotel	Korean Restaurant	Japanese Restaurant	Coffee Shop		
2nd Most Common Venue	Korean Restaurant	Korean Restaurant	Café	Italian Restaurant	BBQ Joint		
3rd Most Common Venue	Café	Café	Hotel	Korean Restaurant	Japanese Restaurant		
4th Most Common Venue	Coffee Shop	Chinese Restaurant	Theater	Coffee Shop	Cocktail Bar		
5th Most Common Venue	Chinese Restaurant	Coffee Shop	Gym / Fitness Center	Cocktail Bar	Italian Restaurant		
6th Most Common Venue	BBQ Joint	Dessert Shop	Park	BBQ Joint	Korean Restaurant		
7th Most Common Venue	Historic Site	Bookstore	Bakery	Sushi Restaurant	Whisky Bar		
8th Most Common Venue	Theater	Cosmetics Shop	Trail	Café	French Restaurant		
9th Most Common Venue	Plaza	BBQ Joint	Italian Restaurant	Chinese Restaurant	Modern European Restaurant		
10th Most Common Venue	Dessert Shop	Historic Site	Scenic Lookout	Whisky Bar	Salon / Barbersho		

Top 10 most common venues
by each address

Exploring of Data (1/3)

	address	address Latitude	address Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	중구 남대문로 81	37.564695	126.98116	Soo Fitness & Spa	37.565317	126.981374	Gym / Fitness Center
1	중구 남대문로 81	37.564695	126.98116	청담스포피아	37.565317	126.981374	Golf Course
2	중구 남대문로 81	37.564695	126.98116	The Westin Chosun Seoul (웨스틴조선호텔)	37.564378	126.980058	Hotel
3	중구 남대문로 81	37.564695	126.98116	Nanta Theater (난타극장)	37.563688	126.983687	Theater
4	중구 남대문로 81	37.564695	126.98116	Arc N Book (아크엔북)			

Address wise venue information list up
(Venue category info. included)

Number of venues around
the downtown (max limit =100)

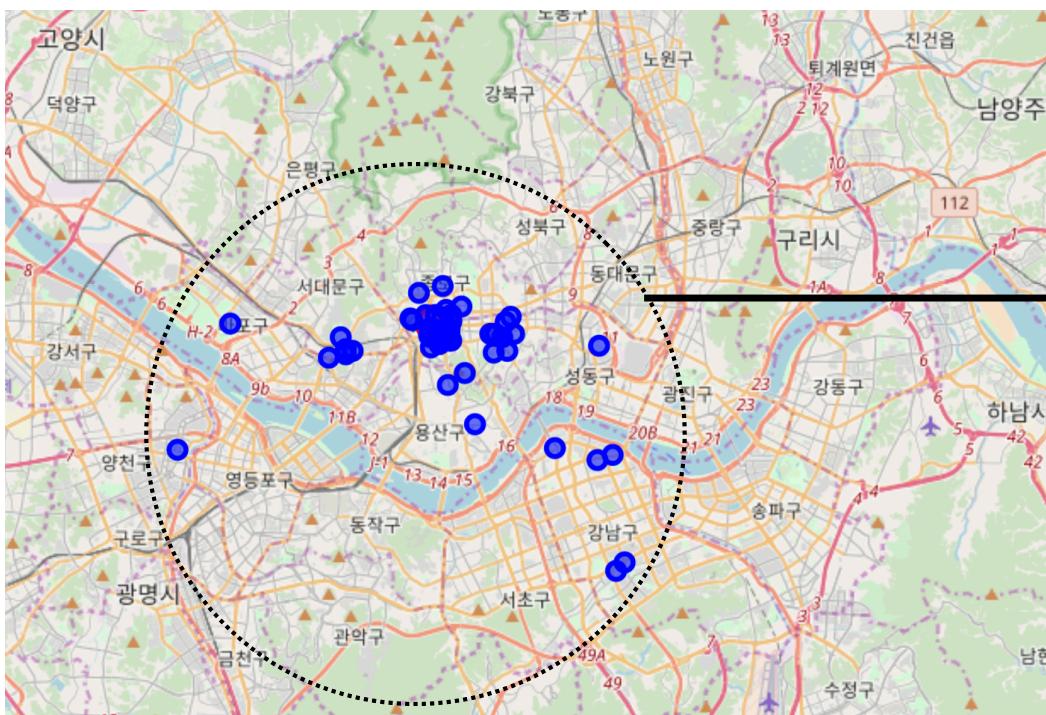
address	address Latitude	address Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
Cheonggyecheon 40	100	100	100	100	100	100
Lotte Mart	100	100	100	100	100	100
N서울타워 Plaza 1F	100	100	100	100	100	100
강남구 도산대로 442	100	100	100	100	100	100
강남구 도산대로89길 7	100	100	100	100	100	100
강남구 압구정로 165	100	100	100	100	100	100
강남구 언주로30길 21	100	100	100	100	100	100
마포구 성산동 515 난지도길 66	97	97	97	97	97	97
서대문구 신촌동 연세세브란스 본관 3층	100	100	100	100	100	100
서대문구 신촌로 83	100	100	100	100	100	100
서대문구 신촌역로 19-2	100	100	100	100	100	100
서대문구 이화여대길 33	100	100	100	100	100	100
서울특별시 중구 명동	100	100	100	100	100	100
성동구 행당동 한양대병원 동관 1층	100	100	100	100	100	100
양천구 목동동로 257	91	91	91	91	91	91
언주로 30길 57	100	100	100	100	100	100
용산구 신흥로20길 45	100	100	100	100	100	100
이태원로 192	100	100	100	100	100	100
자하문로 10	100	100	100	100	100	100
장충단로7길 9-1	100	100	100	100	100	100
종로구 관수동	100	100	100	100	100	100
종로구 동승동	100	100	100	100	100	100
종로구 신문로1가 163 광화문오피시아 지하1층	100	100	100	100	100	100
종로구 신문로2가 12-5 3층	100	100	100	100	100	100
종로구 안국동 21-1	100	100	100	100	100	100
중구 남대문로 81	100	100	100	100	100	100
중구 남대문시장4길 12-2	100	100	100	100	100	100
중구 동호로 330	100	100	100	100	100	100
중구 소공로 63 신세계백화점 본점 B1	100	100	100	100	100	100
중구 신당2동 종합빌딩 A B	100	100	100	100	100	100
중구 을지로5길 26	100	100	100	100	100	100
중구 장충단로 275	100	100	100	100	100	100
중구 충무로1가 52-5	100	100	100	100	100	100
중구 태평로	100	100	100	100	100	100

Exploring of Data (2/3)

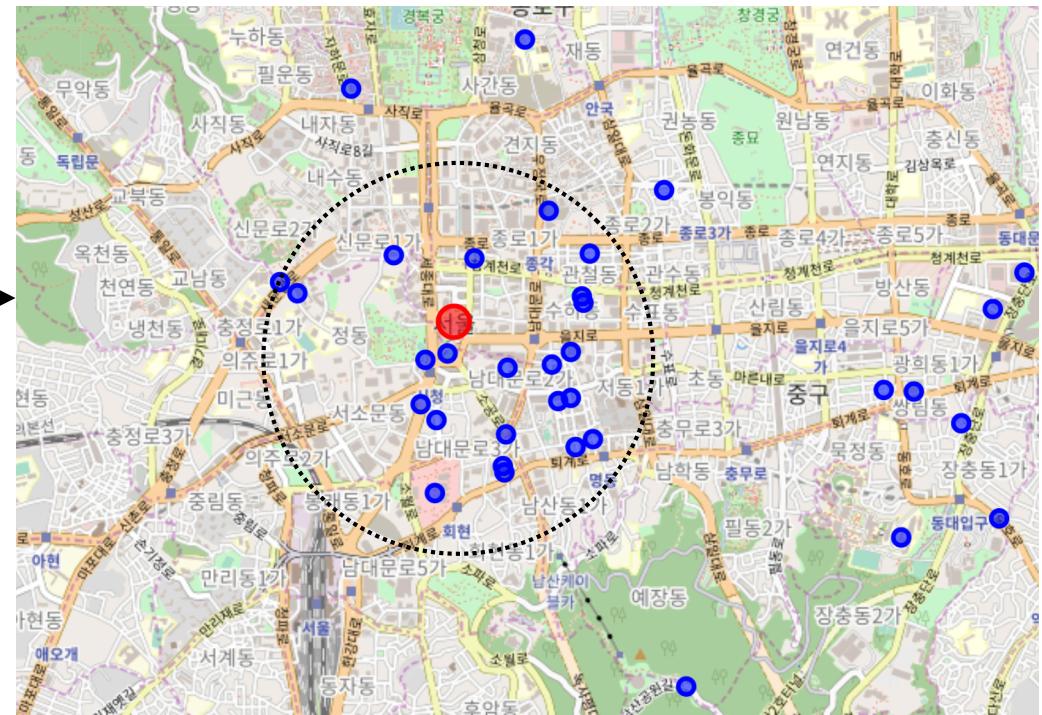
	address	African Restaurant	American Restaurant	Aquarium	Arcade	Art Gallery	Art Museum	Arts & Crafts Store	Asian Restaurant	BBQ Joint	Bagel Shop	Bakery	Bar	Baseball Stadium	Bed & Breakfast	Beer Bar
0	Cheonggyecheon 40	0.00	0.00	0.00	0.00	0.00	0.02	0.00	0.000000	0.040000	0.01	0.020000	0.00	0.000000	0.00	0.00
1	Lotte Mart	0.00	0.00	0.00	0.00	0.00	0.01	0.00	0.000000	0.030000	0.00	0.030000	0.02	0.000000	0.00	0.00
2	N서울타워 Plaza 1F	0.00	0.01	0.00	0.00	0.00	0.00	0.00	0.000000	0.020000	0.00	0.040000	0.02	0.000000	0.02	0.00
3	강남구 도산대로 442	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000000	0.060000	0.00	0.000000	0.02	0.000000	0.00	0.00
4	강남구 도산대로89길 7	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000000	0.100000	0.00	0.000000	0.01	0.000000	0.00	0.00
5	강남구 압구정로 165	0.00	0.00	0.00	0.00	0.01	0.00	0.00	0.000000	0.080000	0.00	0.050000	0.02	0.000000	0.00	0.01
6	강남구 언주로30길 21	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.010000	0.080000	0.00	0.100000	0.01	0.000000	0.00	0.00
7	마포구 성산동 515 난지도길 66	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.010309	0.072165	0.00	0.041237	0.00	0.000000	0.00	0.00
8	서대문구 신촌동 연세세브란스 본관 3층	0.00	0.00	0.00	0.00	0.00	0.00	0.00	0.000000	0.040000	0.02	0.060000	0.00	0.000000	0.01	0.01

Mean number of occurrence frequency of each category
(*Among 334 categories, a fews are sorted and shown here)

Exploring of Data (3/3)

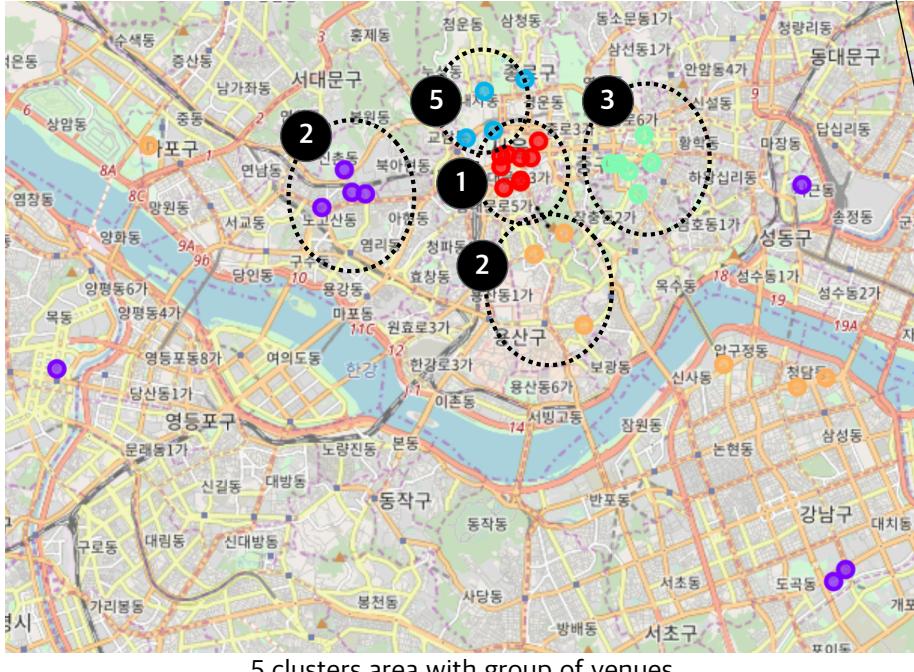


Venues distribution around the down town
(15 km radius from Seoul city hall)



Magnified view for the down town area
(Red spot is Seoul city hall, and other blue spots are famous venues around)

Results finding & Discussion



Desired clusters
to make easy business decision

1

2

3

4

5

categories	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Food Court	0	Hotel	Korean Restaurant	Café	Chinese Restaurant	Coffee Shop
Food Truck	0	Hotel	Korean Restaurant	Café	BBQ Joint	Coffee Shop
Gourmet Shop	0	Hotel	Korean Restaurant	Café	Bakery	Chinese Restaurant
Food Court	0	Hotel	Korean Restaurant	Café	Bakery	BBQ Joint
Grocery Store	0	Korean Restaurant	Hotel	Coffee Shop	Historic Site	Café
Korean Restaurant	0	Hotel	Korean Restaurant	Café	Coffee Shop	Chinese Restaurant
Korean Restaurant	0	Hotel	Korean Restaurant	Café	Chinese Restaurant	Bakery
Greek Restaurant	0	Hotel	Korean Restaurant	Café	Coffee Shop	Chinese Restaurant
Seafood Restaur	0	Hotel	Korean Restaurant	Café	Chinese Restaurant	Coffee Shop
categories	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Burger Joint	1	Café	Coffee Shop	Korean Restaurant	Cocktail Bar	Hotel
Bunsik Restaurant	1	Coffee Shop	Korean Restaurant	Japanese Restaurant	Bakery	Dessert Shop
Turkish Restaurant	1	Coffee Shop	Korean Restaurant	Bakery	Lounge	Cocktail Bar
Food Court	1	Coffee Shop	Café	Bakery	Chinese Restaurant	Dessert Shop
Food Court	1	Park	Korean Restaurant	BBQ Joint	Coffee Shop	Café
Bunsik Restaurant	1	Coffee Shop	BBQ Joint	Italian Restaurant	Cocktail Bar	Japanese Restaurant
Grocery Store	1	Japanese Restaurant	Italian Restaurant	Korean Restaurant	BBQ Joint	Coffee Shop
Grocery Store	1	Korean Restaurant	Japanese Restaurant	Coffee Shop	BBQ Joint	Bakery
Snack Place	1	Coffee Shop	BBQ Joint	Dessert Shop	Korean Restaurant	Bakery
		Coffee Shop	Bakery	Café	Korean Restaurant	BBQ Joint
categories	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Food Court	2	Korean Restaurant	Hotel	Noodle House	Coffee Shop	Bakery
Food Court	2	Korean Restaurant	Coffee Shop	Noodle House	Hotel	Market
Restaurant	2	Korean Restaurant	Hotel	Noodle House	Coffee Shop	Market
Cosmetics Shop	2	Korean Restaurant	Hotel	Noodle House	Coffee Shop	Bakery
Office	2	Korean Restaurant	Coffee Shop	Hotel	Noodle House	Bakery
Food Truck	2	Korean Restaurant	Coffee Shop	Hotel	Noodle House	Chinese Restaurant
categories	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Supermarket	3	Korean Restaurant	Coffee Shop	Bakery	BBQ Joint	Chinese Restaurant
Supermarket	3	Korean Restaurant	Coffee Shop	Bakery	BBQ Joint	Café
Food Court	3	Coffee Shop	Korean Restaurant	BBQ Joint	Bakery	Café
Bunsik Restaurant	3	Korean Restaurant	Coffee Shop	Seafood Restaurant	Café	BBQ Joint
categories	Cluster Label	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue
Japanese Curry Res	4	Coffee Shop	Korean Restaurant	Café	Italian Restaurant	Art Gallery
Bunsik Restaurant	4	Café	Tea Room	Coffee Shop	Italian Restaurant	Historic Site
Restaurant	4	Korean Restaurant	Coffee Shop	Café	Hotel	Historic Site

Detailed most common venues by each different cluster

Conclusion

- Good visualized index helps to make business decision easy and better when selecting possible, soft-landing doable coffee cafe start-up around massive region in Seoul
- Foursquare location API support small portion of South Korean region (which is not that popular webservice yet), hence sort of insufficient data set was used.
- If more enough data set is able to be sourced, more quite accurate and detailed result will be achieved.
- Possible consideration in future for enhanced work
 - Below data needs to be obtained and analyzed
 - 1) Company types around the down town
 - 2) Avg. ages of salary man around the place
 - 3) Age, salary level of employee living and working around down town area
 - 4) Active population level in weekdays for the down town nearby

End of Document

(Thanks for your patience!)