

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

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1. Introduction

1.1 Background

Nowadays younger people who live and work in Seoul city, South Korea, have been ever thinking of opening own business like coffee-cafe at least once. That's the one of preferred business types after retiring from the company as salaryman. It is truly obvious item for their 2nd life, and its fact is on several trend report. There is huge market for the coffee item and also many of official skill courses for bringing up baristas in society either. It becomes easy for whoever thinking of own coffee cafe (like small deli, dessert café, etc) and lower some burden to start to open own cafe.

In natural it brings hot competition of having own coffee cafe around hot-place like where many people gathered and spend most of times around like workplace in downtown, etc. When considering own coffee cafe, selecting good location considering to avoid hot competition with other cafes, or strategically focusing the spot where people easily access to the cafe is very important. In this report, given that here is true downtown of Seoul city, which is amazing mega-city living 10 millions people in South Korea, recommended place to have own coffee cafe thru the consideration of segmenting venues around downtown. Coffee is sort of the medium to required in communication for Korean people when they spend time with other people each other. In that point of view, the famous downtown, Seoul City-hall, is selected for the area having coffeecafe and segmentation after exploring nearby area characteristics of venues has been executed. With this segmentation, strategically feasible spot of opening coffee cafe will be recommended for better successful business opening.

1.2 Problem

When opening coffee cafe in the downtown, selecting coffee cafe location is very important and should be proceed carefully. Without thorough investigation of downtown venues including other competitive coffee cafe, easily own cafe will be falling into the failure, which no one likes to visit. Considering the famous downtown, Seoul city-hall, there are so many venues tempting people, picking good positioning for the location is definitely key factor for the success. If ignoring specific characteristics, types, kinds, categories of nearby venue, the aimed coffee cafe will be one of super normal cafe having destiny failure. Even if it sounds very hassle, venue info nearby location of downtown should be obtained and also segmented to look for strategically doable, reasonable place thru area clustering

1.3 Interest

Who may dream about having own coffee cafe business around the downtown in Seoul city will get interest of this report. Referring the recommendation about feasible, profitable spots after clustering results, dreamers can have the sight to see good spot to get more people and do sustainable coffee cafe by themselves.

2. Data acquisition and cleaning

2.1 Data sources

To have venues information around the aimed down town, Seoul city-hall, data from 'Foursquare.com' has been used. Interface to Foursquare is thru unique API for request and response interface. Current time line condition is applied and radius distance from City-hall to somewhere place to see venues is set as 15km. The number of nearby venues is assumed as fifty.

2.2 Data cleaning

In selecting wisely of the coffee-cafe location, other venues information is critically important. With search query 'food', relevant venue related data has been obtained. Hence obtained data thru Foursquare API ('Foursquare Agent') should have venues, categories, address with priority, underscored data such as distance, formattedaddress, cc, country, labeledLatLngs, State was dropped from the table. All the venues has been listed up as much as fifty and its latitude, longitude info was leveraged to get exact location. Non particular NaN data in all the columns is removed for better data set sources. Also its dependency for the analyzed result is not that big as assumed.

2.3 Feature selection

After data cleansing with derived table along with 2.2 above, 4,988 number of venues has been came up with regarding the down town spot info of Seoul city as 37.56 for latitude and 126.97 for longitude. This venues data has 184 unique categories for the venue, that is, with that categories information all the characteristics of venue is easily figured. It will be much of being helpful decide which nearby venue address from downtown is better selection for the cafe.

To group these data with actual address information, 'groupby' action has been done for dataframe and finally 34 rows and 182 columns of shape was derived. For the information, here below figure.1 shows about first 5 rows of address groupby data.

In addition, even if it has thousands of venues data, only top 10 limit of venues were considered for the feature selection too.

Against final data set for 10 limit venues with 50 counts of row, clustering will be executed for better segmentation in order to hit high profit proven population selection and to avoid meaningless venue area together.

address	Cheonggyecheon 40	Lotte Mart	N서울타워 Plaza 1F	강남구 도산대로 442	강남구 도산대로89길 7
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

Fig 1. Top 10 limit of venue value by top 5 location nearby Seoul-city