IBM_Coursera Capstone Project

-The Battle of Neighborhoods-

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The 1st-week assignment

1. A description of the problem and a discussion of the background.

Seoul, officially known as the Seoul Special City, is the largest metropolis and capital of South Korea. This megacity is the largest city proper in the developed world and the Seoul Capital Area is the second largest metropolitan in the world with more than 25.6 million people, which is half of all the residents in the country. The estimated population within the city limits for 2016 is 10.29 million. Interestingly, Seoul's population density is almost twice that of New York City, four times higher than Los Angeles and eight times higher than the density of Rome.

People from around the world come to Seoul, Korea with various reasons to make the city more diverse and dynamic. The number of people coming to Seoul has been growing due to Korea's remarkable economic growth and its cultural power so-called K-wave which includes k-drama, tv show, k-pop, and etc., The more interesting thing is people have more likely tended to stay in the city for more than three months and they have been willing to experience a variety of things not only trying related to Korean pieces of stuff but also trying diverse and mixed vibe by visiting something new places in the city.

Plus, the number of Korean people who have been to abroad for various purposes has incredibly risen so especially young generation -under 40 years old- they are open to experience other culture. In particular, when it comes to the size of the food industry for foreign foods in Seoul recorded approximately 35 billion dollars as of 2016 according to the Statistics Bureau of Korea.

Therefore, there are a growing number of potential investors who want to open or operate a unique or trending venue like a restaurant in the city. They might wonder what kind of venue they should choose to invest or open in order to avoid unnecessary risks like getting into red ocean competition. With geospatial data and data science techniques, we can provide information about which type of venue is the most popular and clustered distribution of venues within Seoul to a potential investor. Based on this information, we can suggest a better business investment to the investor. And it helps he or she make an informed decision to invest in Seoul particularly by getting them to know about the geospatial distribution of data by districts related to the economic activity of people in Seoul.

-Target clients: potential clients looking for a business opportunity in Seoul but not sure because of insufficient knowledge about geographical economic features of the city.

2. A description of the data and how it will be used to solve the problem

In order to know the geospatial feature of Seoul, I will collect and use data as follows:

1) List of districts of Seoul with population and its density:
   https://en.wikipedia.org/wiki/List_of_districts_of_Seoul
2) Average Monthly income level by districts in Seoul from Seoul Statistics Bureau
3) Average Monthly consumption level by districts in Seoul from Shinhan Bank in Korea
4) Location coordinates (latitude, longitude) of district names are fetched by API calls
5) The recommended location and types of venue will be determined with data from Foursquare API calls and data science skills upon it.
6) Important facilities such as Hospitals and Universities will be searched and provided in a vicinity of each location and then reported in a tabular form to the client.

With this data, I will be able to suggest the best category of venue (probably kind of restaurants) by districts to clients according to the resident's economic strength and activity tendency with real-estate cost estimation.