Capstone Project Report

# Introduction

A travel agency is going offer its customers recommendation to the locations (neighborhoods) for given cuisines in major neighborhoods in Seattle, WA area. The App will allow users select from a list of cuisines then recommend the top 3 neighborhoods where they can have the most choices.

There are 91 neighborhoods in Seattle area. In this project, I implemented two features:

- The customers can query the restaurants for a specified cuisine in the major Seattle neighborhoods, which have 'Seattle' in name.

- The customers can query all restaurants (limit to 50 for demo purpose) in any one of Seattle neighborhood.

# Data

* Information of neighborhoods in Seattle,WA area.
* The major neighborhoods in Seattle, WA area.
* Information of food category name and category Id
* Foursquare.com APIs and requred parameters

I searched online and found the neighborhood information on the wikipedia page: '<https://en.wikipedia.org/wiki/List_of_neighborhoods_in_Seattle>'

On Foursquare.com, the API: [https://api.foursquare.com/v2/venues/categories?client\_id={{client\_id}}&client\_secret={{client\_secret}}&v={{v}}](https://api.foursquare.com/v2/venues/categories?client_id=%7b%7bclient_id%7d%7d&client_secret=%7b%7bclient_secret%7d%7d&v=%7b%7bv%7d%7d&query=Food) to find food related categories.

# Methodology

* Access wikipedia.org to get neighborhood names in Seattle, WA area.
* Collecting the Latitude and Longitude for all the neighborhoods in Seattle, WA area.
* Select the major neighborhood in Seatlle area.
* Using Foursquare location data API to extract cuisine venues by food categories that will be used for each neighborhood in Seattle area.
* For a selected cuisine, display the restaurants in each neighborhoods ordered decendingly,where the top neighborhood has the most choices of the chosen cuisine to be select from.
* For a given neighborhood, display the first 50 restaurants in the neighborhood. By change the limit value, the display mount can be adjusted.

# Results

The results of using the two features show the it meets the requirements.

* This application let the customers chose the cuisine information of then return the cuisine restaurants in the major Seattle neighhoods, which have 'Seattle' in name, grouping by the neighborhood that ordered by the most cuisine restaurants found. It can be easily scaled to all neighborhoods in Seattle or other areas.
* The application let the customers chose a Seattle neighborhood then return the information of the first 50 restaurants found in that neighborhood. It can be easily scaled to return all restaurants in the chosen neighborhood.

# Discussion

Using the Foursquare.com APIs with the data science tools, we can create many applications to help people on travel, college selection, investment, entertaiment, fitness, etc. Hopfully more and more people will start to use Foursquare.com in their daily activities.

# Conclusion

This report presented a simple application of using some basic data science tool, such as pandas, python, BeautifulSoup, numpy, and geopy with Foursquare.com APIs and wikipedia.org. this is just a initial piece work that can be enhance and extend to be useful in a real world.

The most important thing I have learn is the power of data science and its huge potential in many aspects in our society.