**FINAL REPORT**

**Capstone Project - The Battle of Neighbourhoods**

**Introduction:**

Thiruvananthapuram is one of the major cities in India with a population of 4 Million. Thriuvananthapuram is the capital of Indian state ‘Kerala’. Located on the west coast of India near the extreme south of the mainland, Thiruvananthapuram is a major [information technology](https://en.wikipedia.org/wiki/Information_technology) hub in [Kerala](https://en.wikipedia.org/wiki/Kerala) and a major foreign/ domestic destination.We are trying to analyse varied locations in Tiruvanathapuram with the objective to determine the possibility of a suitable location of a Restaurant for a given type of cuisine. This project will bring value to an Hotel Businessman, who are looking to start new restaurant, to know at which place in Thiruvananthapuram, what type of restaurant can be opened or start a new type of restaurant which is not currently serving at the city neighbourhoods.

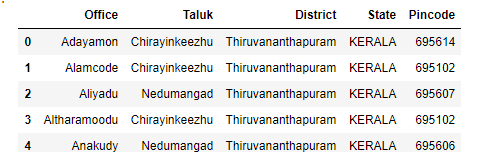
**Data Section:**

For this project we need the following data:

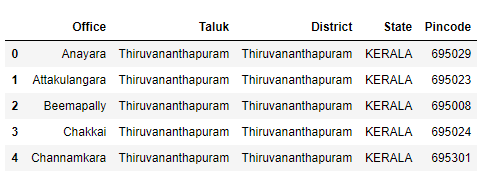
* Thiruvananthapuram City data that contains list of Neighbourhoods along with their Taluk, State and Pincode
  + Data source : https://www.indiatvnews.com/pincode/kerala/thiruvananthapuram/thiruvananthapuram-g.p.o.-
* Latitude and Longitude of each neighbourhood
  + Using geopy library of Python.
* Restaurants in each neighbourhood of Thiruvanathapuram City.
  + Data source : Foursquare API
  + Description: By using this API we will get all the venues around 500m in each neighbourhood, Vnues latitude and Longitude, Venue Category which we will be using and also other informations like Tips, Ratings will be extracted
  + We can filter these venues to get only restaurants.

**Methodology:**

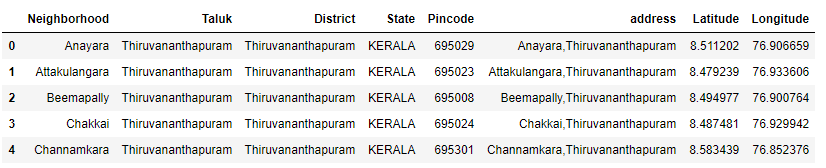
1. We begin by collecting the Thiruvanathapuram city data from the following link <https://www.indiatvnews.com/pincode/kerala/thiruvananthapuram/thiruvananthapuram-g.p.o.->

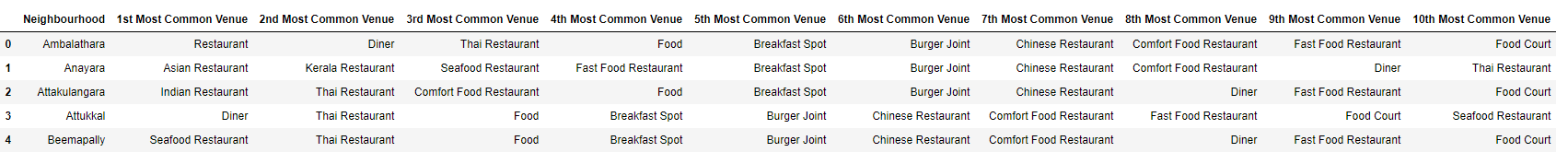


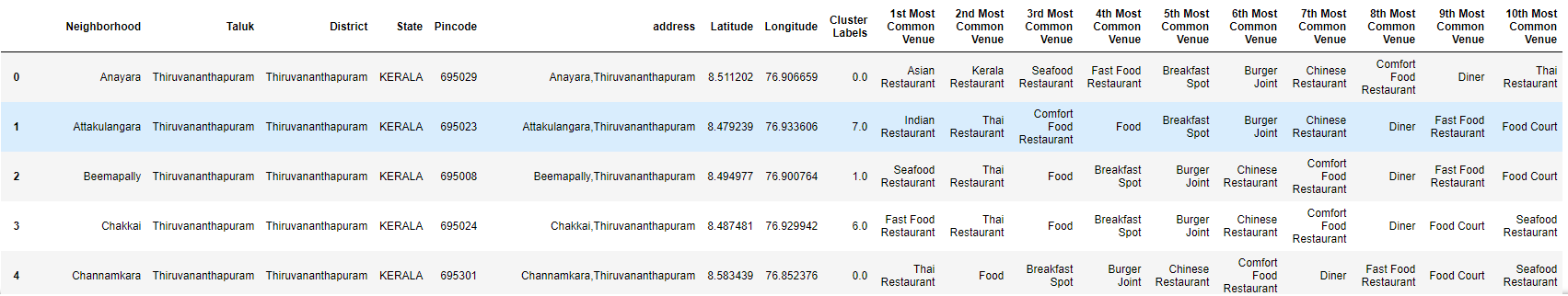
1. We will take only Offices belonging to Thiruvananthapuram Taluk.



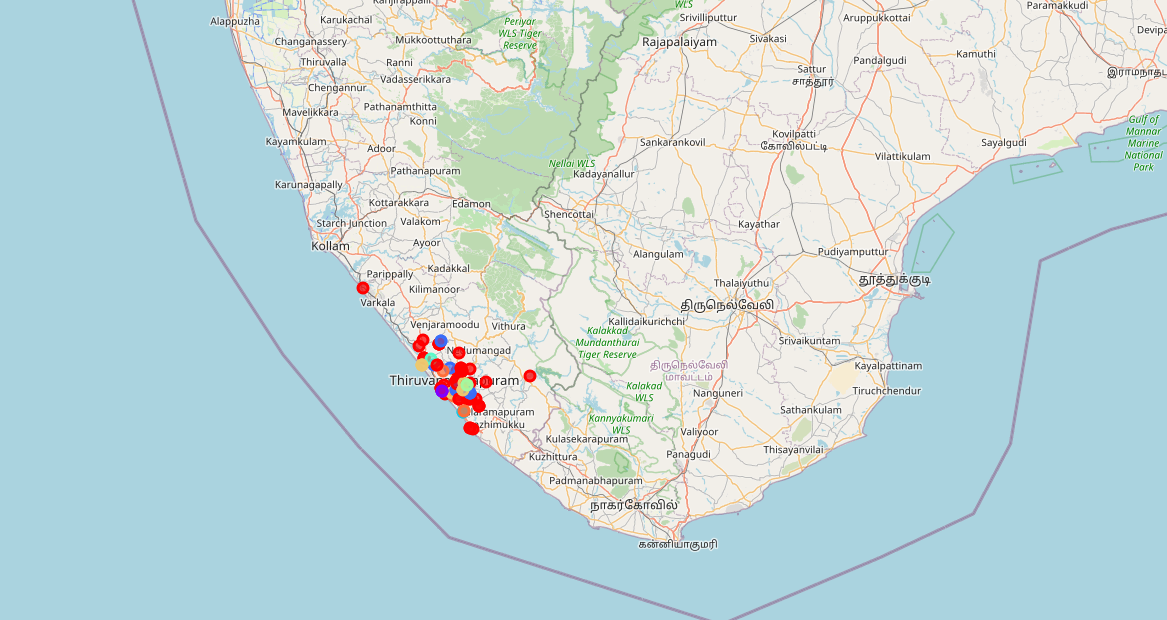
1. We will then add latitude and longitude using geopy



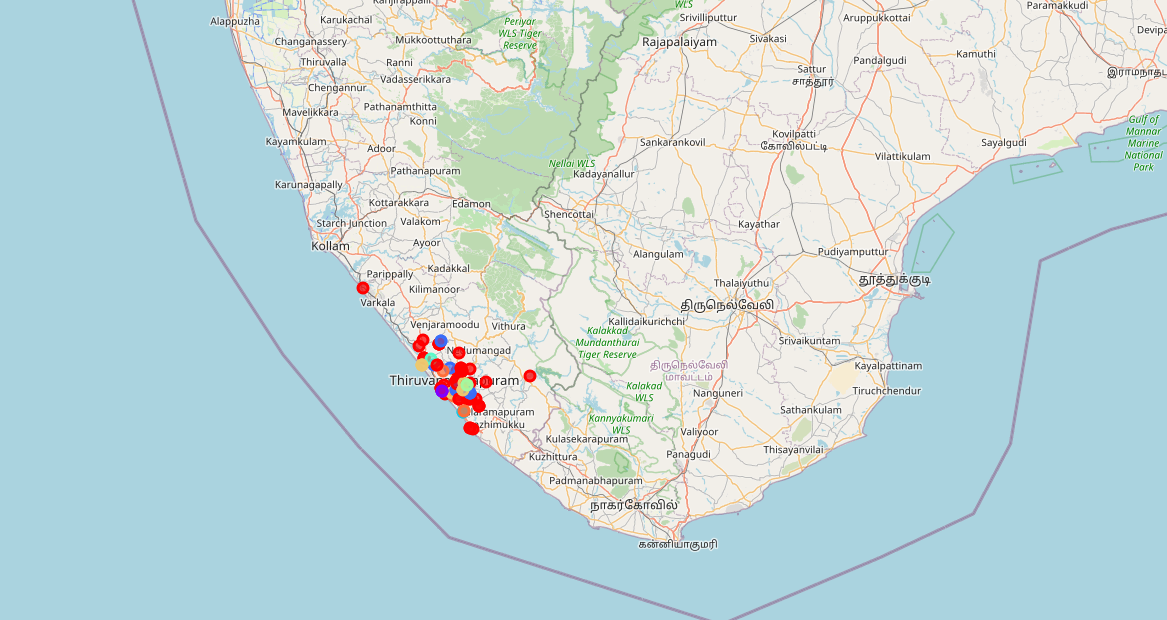
1. Next using Foursquare API, we will find the list of top 10 restaurants served in each area using one hot encoing 
2. We will then cluster the neighbourhoods into 7 based on the similarity of cuisines served



1. Finally, we will visualize the Neighbourhoods based on these 7 clusters



**Result:**



Answers: Based on the map generated with 7 clusters, a new hotel businessman can get an idea of what type of restaurant to start or any new type or to start a restaurant where currently restaurants are not being served.

Example, Lets think we want to start a restaurant at neighbourhood ‘Valiathura’, which is in Cluster 1 (violet in Map), so we can see the most type of restaurant served here is the SeaFood restaurant. So, Business man can opt for opening a Seafood restaurant here.

**Conclusion:**

There is always room for improvement and hence the above solution I have provided can also be improved for best results depending upon the data we have.

Like we can analyse neighborhoods by including Population data etc.