RESTAURANT RECOMMENDER SYSTEM IN YANGON

14/01/2020 IBM DATA SCIENCE CAPSTONE PROJECT

1.INTRODUCTION

1.1 Problem Background :

Yangon formerly known as Rangoon, is the capital of the Yangon Region and the largest city of Myanmar (also known as Burma). Yangon served as the capital of Myanmar until 2006, when the military government relocated the administrative functions to the purpose-built city of Naypyidaw in central Myanmar.With over 7 million people, Yangon is Myanmar's most populous city and its most important commercial centre.

Yangon is administered by the Yangon City Development Committee (YCDC). YCDC also coordinates urban planning.The city is made up of 33 townships and is part of Yangon Region. Yangon Region is divided into four districts, which overlap with the city's jurisdiction.

Myanmar's foodie capital, we can find plenty of cheap and tasty bites to eat in Yangon. While we'll easily be able to eat street food and local eats anywhere in the city.Roadside vendors, tea shops,Traditional Burmese foods, Indian foods,Chinese foods,Japense foods, Korean foods, Thai foods and Western fast food are all very popular in the city.As it’s a big city, you can try all sorts of regional Burmese dishes as well as modern and international dishes.

1.2 Business Problem

Suppose I travel and keep changing places very frequently from one state to another state in other country.This is very tumultuous and get to different experience from its environment, however i do not have much knowledge about.Travel from different places or different states or different countries can learn different things including their foods.
In such case, food is one of the attraction to the people around the world to try it out if it is to be the best.Sometimes, we have the language problems if we can't speak their local language but we want to find the right place,suitable cost to serve us the best possible way.So there are few questions that must be addressed on:

1. How many types of foods are available in the restaurant ?
2. which is the most nearest to me with good rating ?
3. How many "similar" restaurants are available near by me ?
4. Do the "similar" restaurants cost more ? if so, what speciality do that have ?

To address such question, ABC company's manager decides to allocate this project to me not just to find out solutions to the questions but also build a system that can help in recommending new places based on their rankings compared to the previously visited by me.

Expectations from this recommender system is to get answer for the questions, and in such a way that it uncovers all the perspective of managing recommendations. It is sighted to show :

1. What types of restaurants are present in a particular area ?
2. where are the similar restaurant present based on a preference to particular food ?
3. How do different restaurants rank with respect to my preferences ?

1.3 Purpose

Purpose for this project is not only for the travellers but also everyone who rarely use restaurants would prefer to have the most rated restaurants nearby them and all this could be easily handed by our recommender system. It is basically everyone who is exploring different places or similar places and they can easily check the restaurant rating around them.

2.DATA SECTION

Data requirements :

Before creating restaurant recommender system , we need data that can collect everywhere but we have to know which data is related in our system .A restaurant recommender system refers to a system that is capable of predicting a set of restaurants based on our locations , search for the restaurant near us and them recommend the top items.

Data collection :

I collected geographical coordinates using google maps API to fectch latitude and longiude but google API has limited number of calls that i could make with my free account.

I have used beautifulSou4 libarary to scrap the list of distircts and neighborhoods of Yangon from wikipedia.Yangon has 4 boroghs and 33 neighborhoods.

So i manually googled each neighborhood to find its corresponding latitude and longitude.

Use of foursquare is focused to fetch nearest venue locations so that we can use them to form a cluster.

3.Methodology

3.1 Exploratory Data Analysis

Collecting from data is a difficult task because it was scrapped from different sources and combining it to form a single-ton dataset.

EDA is important because it gives us initial insights and may help us to get partial idea of the answers that we are looking to find out from the data.

In this problem, I collected 4 borough (districts) and 33 cities in Yangon. While exploring the dataset, I found out that Kyauktada has most number of venues
while (North Dagon, Shwe Pyithar, Botataung and Tharketa) have the least.

Before going through modeling part, I have used one hot encoding for letting us to compare different venues based on some common scale. After applying one hot encoding , I checked the number of top venues in each neighborhood showing with the number of frequency.

3.2 Inferential analysis:

Inferential analysis a way to learn from data, and one of the tool of Machine Learning. Both use a set of observations to discover underlying processes or patterns, then be able to predict.

Most important factors while building the recommender system were population and income. My dataset is not a linear relationship so that I have used k-mean clustering method to understand this nonlinear relationship.

4. Results

The result of the recommender system is that it produces a list of top restaurants and the most common venue item that the user can enjoy.
During the runtime of the model, a simulation was done by taking ‘Kyauktada’ as the neighborhood and then processed through our model so that it could recommend neighborhoods with similar characters as that of ‘Kyauktada’.

5.Conclusion

A recommender system is a subclass of information filtering system that seeks to predict the ‘rating’ or preference a user would give to an item.

The restaurant recommender system is a system that considers factors such as population , locations to determine nearby venues for not only visitors but also everyone.

Suppose , a visitor is going to different country however he or she can’t speak its local language. In this situation, he or she may have a trouble to find venue so he or she can use restaurant recommender system that can help him or her.

The system does not intent only for the visitors but for everyone who is searching for the venue nearby. It can provide the best recommendation to fulfill all their needs.