Coursera Capstone Project

IBM Applied Data Science Capstone

By: Pratyush Ambastha

January 2020

Business Problem

- Lots of student studying in the college, 'RNS Institute of Technology ' stay away from their homes during their 4 years of tenure of study.

- Objective: The main aim of this Capstone Project is to explore the venues of each neighborhood of this college and look for the neighborhoods having ample hostels, malls, restaurants, departmental stores, book stores and transportation etc.

- . This analysis may help students who wish to reside nearby the college campus.

Data

- Data required:
1. List of neighborhoods in Bangalore
2. Latitude and Longitude coordinates of the neighborhood
3. Venue data

Sources of data:

1.Data of all india pincode directory to be downloaded from a website of Government of India

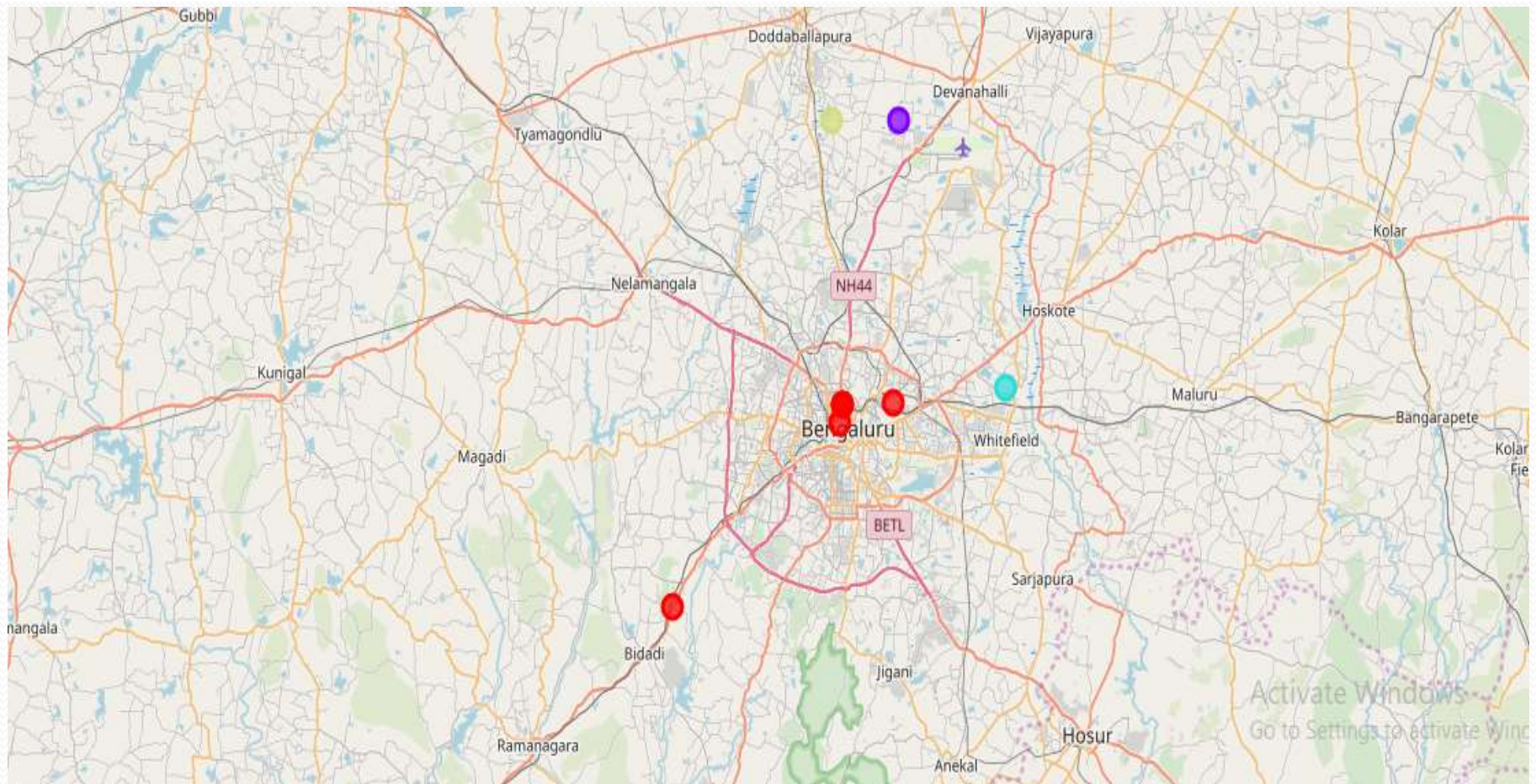https://data.gov.in/resources/all-india-pincode-directory-contact-details-along-latitude-and-longitude

2. Geocoder package for latitude and longitude coordinates

3. Foursquare API for venue data

Methodology

- Formating and Cleaning data for pincode data
- Get latitude and longitude coordinates using Geocoder
- Use Foursquare API to get venue data
- Perform clustering on the data by using k-means clustering
- Visualize the clusters in a map using folium
- Examine all the clusters

Results

Visualization : The map formed out of the data of RNSIT neighborhoods is given below:

Results: The dataframes for each clusters is shown in the next few slides

- Cluster 0

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Mavalli, Basavanagudi H.O, Pampamahakavi Road,...	Hotel	Indian Restaurant	Vietnamese Restaurant	Office	Coffee Shop	Gym	Hotel Pool	Juice Bar	Hotel Bar	Racetrack
1	Deepanjalinagar, Nayandahalli, Governmemnt Ele...	Clothing Store	Shopping Mall	Multiplex	Fast Food Restaurant	Vietnamese Restaurant	Gym	Art Gallery	Asian Restaurant	Boutique	Café
5	Chickpet	Café	Indian Restaurant	Boutique	Hotel	Dance Studio	Pub	Andhra Restaurant	Restaurant	Art Gallery	Soccer Field
6	Bengaluru Vishwavidyalaya, Mallathahalli	Café	Indian Restaurant	Boutique	Hotel	Dance Studio	Pub	Andhra Restaurant	Restaurant	Art Gallery	Soccer Field
7	Rv Niketan	Café	Indian Restaurant	Boutique	Hotel	Dance Studio	Pub	Andhra Restaurant	Restaurant	Art Gallery	Soccer Field

Cluster 1

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
3	Agara, Koramangala, Koramangala I Block, St. J...	Asian Restaurant	Vietnamese Restaurant	Hotel	Art Gallery	Boutique	Café	Chinese Restaurant	Clothing Store	Coffee Shop	Convenience Store

Cluster 2

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
4	Carmelram	Convenience Store	Vietnamese Restaurant	Hotel	Art Gallery	Asian Restaurant	Boutique	Café	Chinese Restaurant	Clothing Store	Coffee Shop

Cluster 3

	Neighborhood	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
2	Adugodi	Farm	Vietnamese Restaurant	Hotel	Art Gallery	Asian Restaurant	Boutique	Café	Chinese Restaurant	Clothing Store	Coffee Shop

Discussion

- After examining the areas in Cluster 0, we can see that they are more common in Hotel, Clothing Store, Café, Indian Restaurant etc. whereas cluster 1 is more popular for Asian Restaurant and Hotels.

- So, students who prefer Hotel and Clothing store or café is more likely to stay in Neighborhoods of cluster 0 .i.e. Chickpet, Basavanagudi, Rv Niketan, Bengaluru Vishwa Vidyalaya, Mallathahalli etc.

- On the other hand if the students prefer Convenience stores more near their neighborhoods, students are more likely to prefer to stay in Neighborhoods of cluster 2 . i.e., Carmelram neighborhood.

Conclusion

The result of this report provides a general overview of ideal neighborhoods around an institution named RNS Institute of Technology. This report is helpful for students or people who wish to reside nearby the institute.

THANK YOU!!!