COURSERA CAPSTONE PROJECT

'Restaurants in Coimbatore'

Pirthvi Hasan G.

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ABSTRACT

If a local restaurant entrepreneur wants to start a new business, he/she wants an optimal place to build their restaurant. It must be in far enough proximity from existing ones and we need more customers. To do so we use machine techniques to find an optimal place.

CONTENTS

INTRODUCTION

In the city of **Coimbatore**, if someone is looking to open a restaurant, the question is, where would you recommend that they open it? The background of the problem is that in order for a restaurant to be profitable, there must be enough customers, and in order to have enough customers, it is not worth setting up it in the immediate proximity of existing ones.

Let's also make sure that audience is explicitly defined to be the local restaurant **entrepreneurs** in Coimbatore and they should care about this problem because the location of the new restaurant has a significant impact on the expected returns.
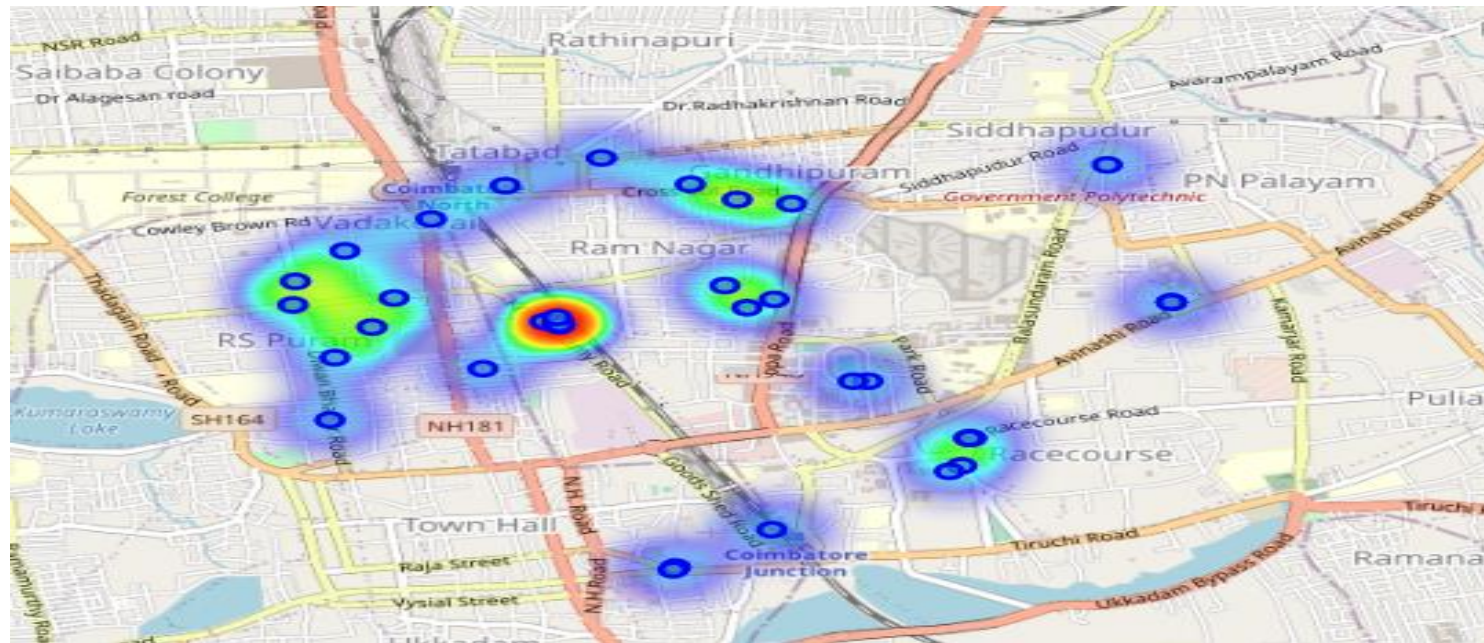
DATA

DATA DESCRIPTION: The Data used to solve this problem is geolocation data collected from FourSquare.

Data used is a single dataframe, containing at least a location of the restaurant. Explanation of the location data is a standard tuple (lat, lng), where lat stands for latitude and lng for longitude. Some other metadata like name, postal code and so on is also collected, but let us discuss that they are not absolutely necessary for the analysis.

DATA USAGE: By knowing the locations of already existing restaurants, it's possible to apply unsupervised learning technique like Kernel Density Estimation (KDE) to determine the area of influence of the existing restaurants, and start up new restaurant which is not in the area of influence.

METHODOLOGY

Heatmap-based kernel density estimation was used. Heatmap was already implemented as plugin for Folium, which was used to visualize data to map. Visualization is shown in figure

Data visualized to the map of Coimbatore, including heatmap-based kernel density estimation.

RESULTS

Based on the observed results, one possibly good location for our new restaurant would be in 'Dr.Nanjappa Road' in the area around 'Jawaharlal Nehru Stadium' as shown in the figure below:
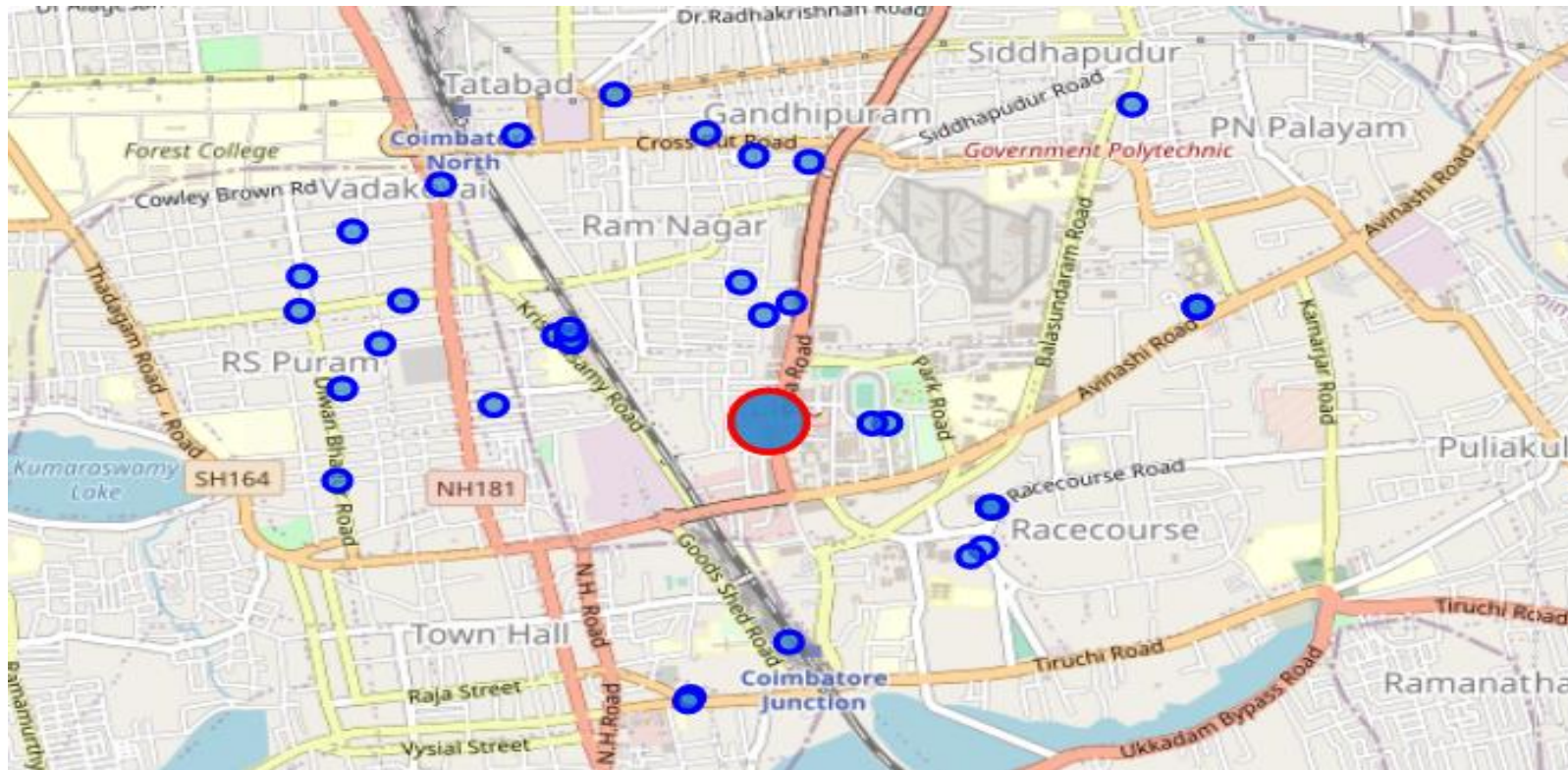
DISCUSSION

The recommended optimal location we obtained may not be perfect, but it will be in somewhere around that recommended location. So, further study about the region will be required to decide the location to start out business.

This analysis may include features like land cost, analysis of population around the region, etc. Doing so, we can find the Apt location for our restaurant.

CONCLUSION

Using Unsupervised Machine Learning, we have obtained an optimal location to start the restaurant. Features like land cost, population of that region must also be considered to get an even more optimal location for the business to start.