

# COURSERA CAPSTONE PROJECT

RESTAURANTS IN COIMBATORE

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# INTRODUCTION

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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

[11]:

	uid	name	shortname	address	postalcode	lat	lng
0	5468b5c0498e0e047a092e94	Nicky's Cafe & Fine Pastries	Café	Fagun Mansion, #74, Ethiraj Salai,	600008	13.063923	80.259764
1	4d57f2a5de8f6dcb5b790591	Coffee Day Lounge	Café	4, 3rd Avenue, Besant Nagar	600006	13.060967	80.251423
2	516fe170e4b0c56ebcb78cda	Lloyds Tea House - lloyds road	Tea Room	179, lloyds roads	600086	13.050559	80.255895
3	4f37ad22e4b01139d5fd20e2	Radisson Blu Hotel	Hotel	Commander In Chief Road, Egmore	600008	13.066939	80.255549
4	4f5278c6e4b0b589381414ed	Anise	Indian	Taj Coromandel	600034	13.058417	80.247327

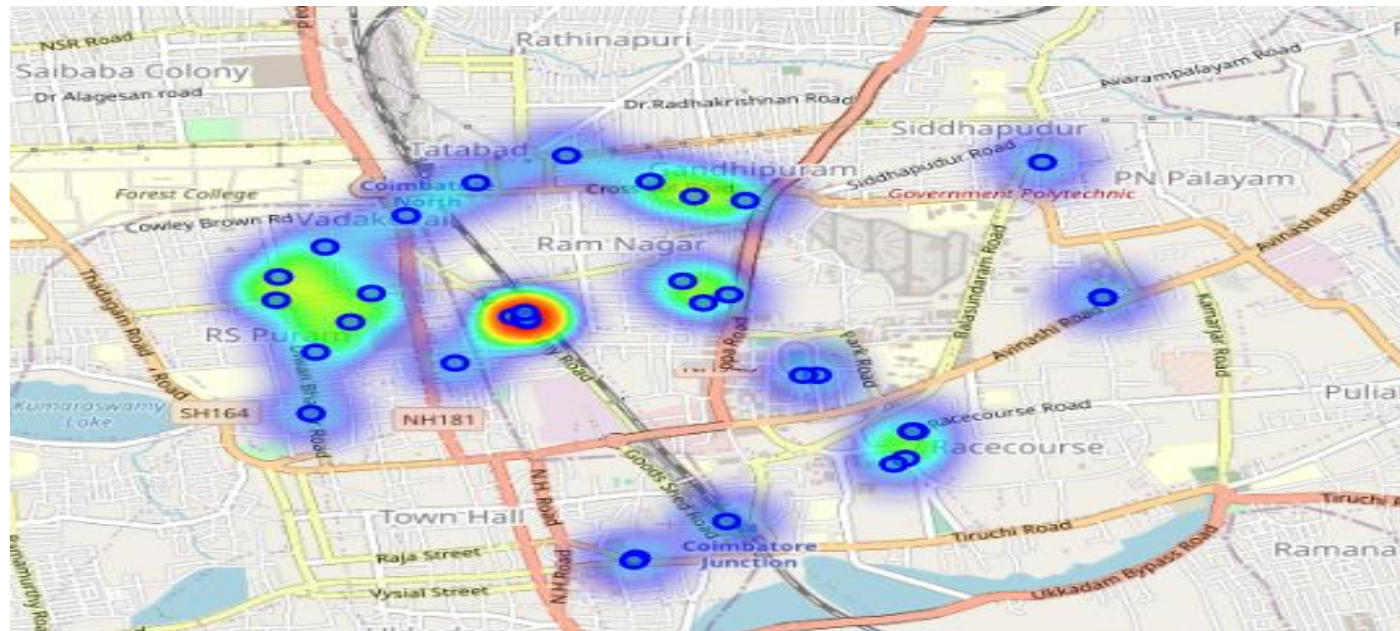
DATA DESCRIPTION: The Data used to solve this problem is geolocation data collected from FourSquare. Data used is a single dataframe, containing at least a location of the restaurant. Explanation of the location data is a standard tuple (lat, lng), where lat stands for latitude and lng for longitude. 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

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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:



# RESULT

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:

