

IBM Applied Data Science Capstone Course by Coursera

**Finding Suitable Location for
Shopping mall In Chennai city India**

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Introduction



- Problem Statement
- The objective of this capstone project to identify location, to open a new shopping mall in the city of chennai.

Data Used

To solve the problem we need following data.

- List of neighbourhood in the city of Chennai which is located in Tamilnadu state of India.
- latitude and longitude of the neighbourhood to map the data and to select the venue.
- To perform clustering on neighbourhood we need venue data related to shopping mall.

Methodology

- Find list of neighbourhoods in the city of Chennai
- Find geographical coordinates in the form of latitude and longitude
- clustering on the data by using k-means clustering

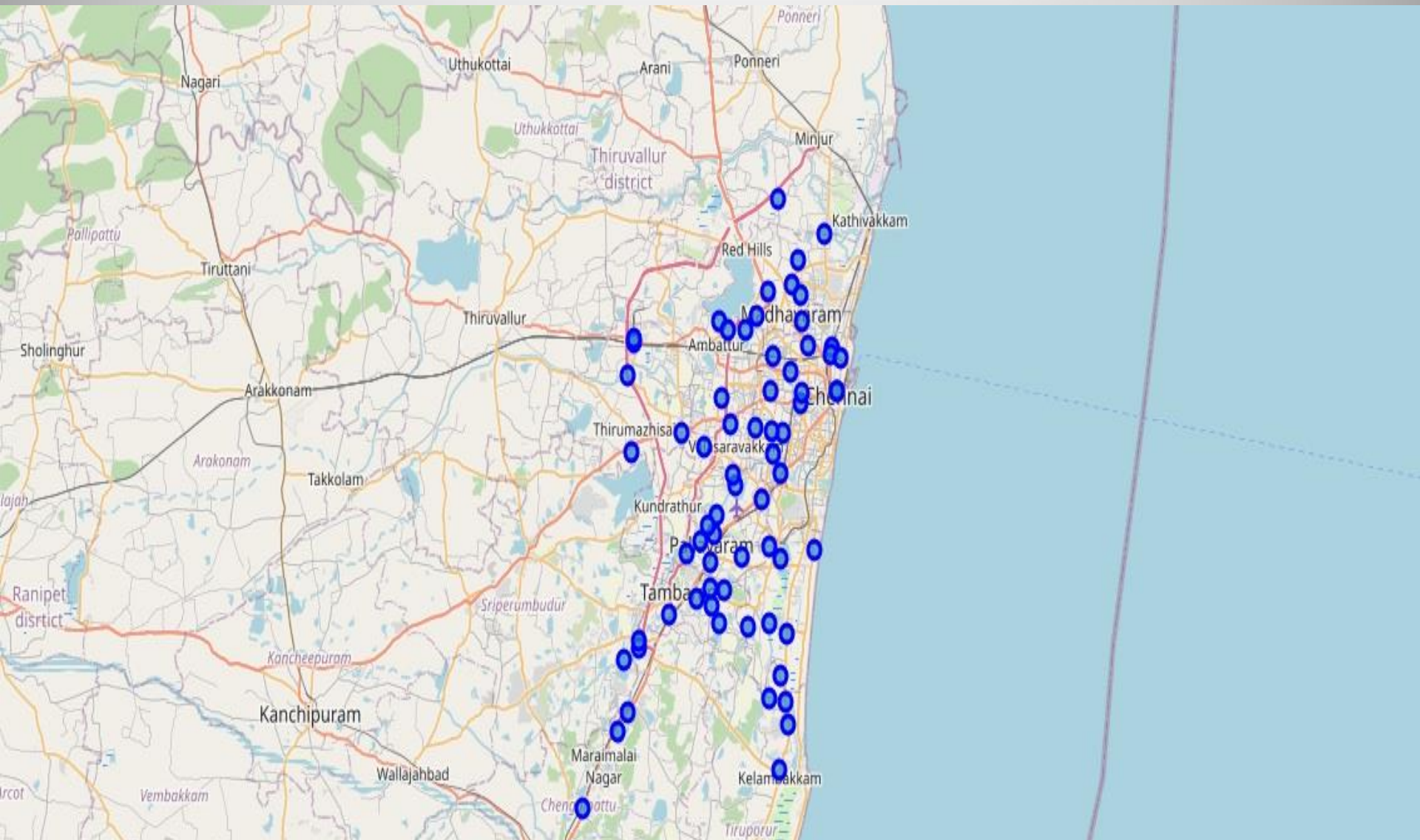
list of neighbourhoods in the city of Chennai

```
kl_df.head(10)
```

Out[47]:

	Neighborhood
0	Alandur
1	Anna Nagar
2	Ashok Nagar, Chennai
3	Assisi Nagar
4	Ayanavaram
5	Chennai city
6	Chitlapakkam
7	Chromepet
8	Cowl Bazaar
9	Egattur (Kanchipuram District)

map of the Chennai suburbs neighbourhood



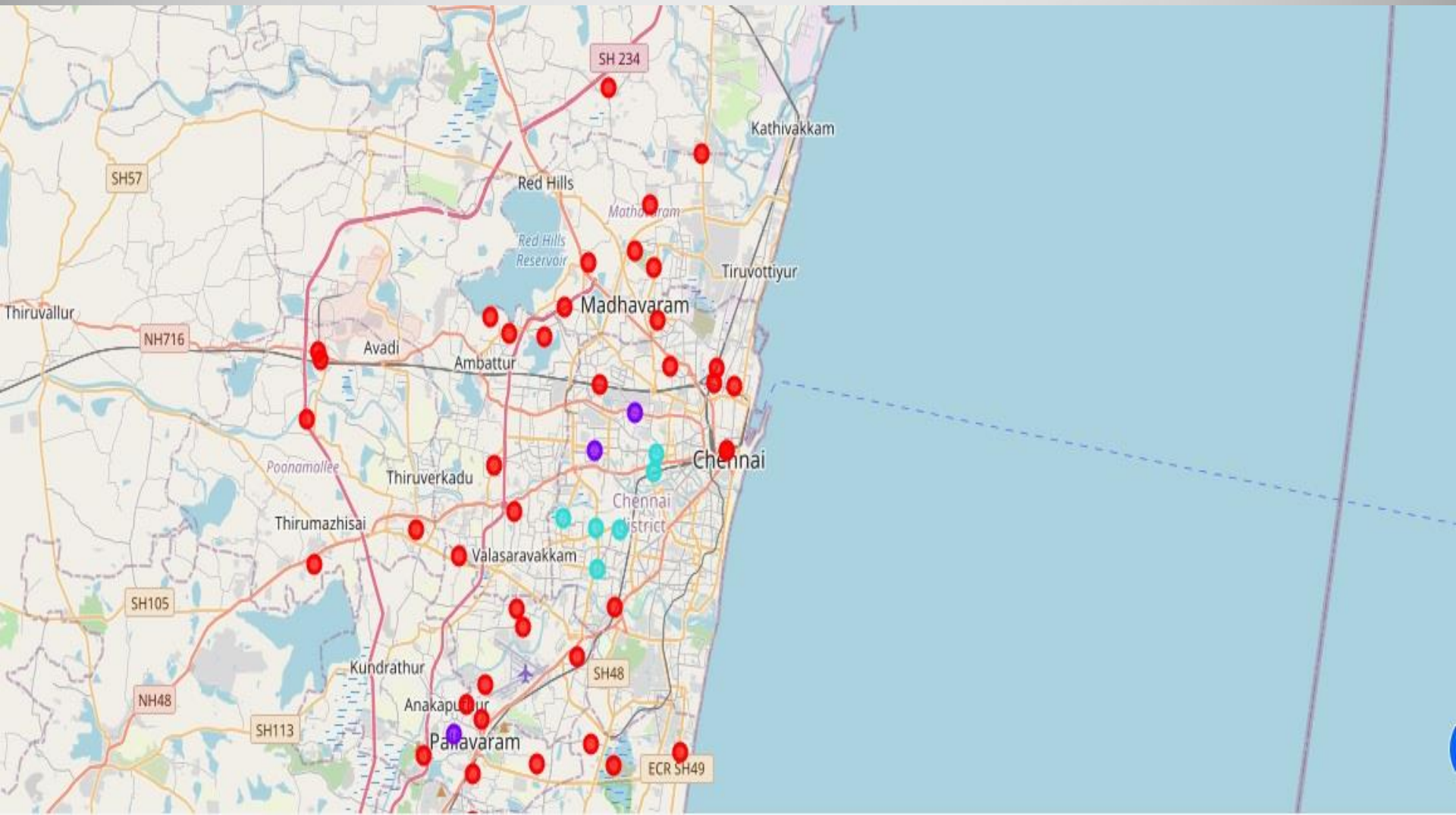
geographical coordinates in the form of latitude and longitude

(68, 3)

Out[54]:

	Neighborhood	Latitude	Longitude
0	Alandur	13.000130	80.200600
1	Anna Nagar	13.083590	80.210200
2	Ashok Nagar, Chennai	13.035390	80.212200
3	Assisi Nagar	13.164570	80.232740
4	Ayanavaram	13.098830	80.232380
5	Chennai city	13.074622	80.242777
6	Chitlapakkam	12.932770	80.143870
7	Chromepet	12.952340	80.144110
8	Cowl Bazaar	12.988610	80.151000
9	Egattur (Kanchipuram District)	12.827250	80.228660

The results from the k-means clustering



The results from the k-means clustering

```
kl_merged.head()
```

Out[74]:

	Neighborhood	Shopping Mall	Cluster Labels
0	Alandur	0.000000	0
1	Anna Nagar	0.030000	1
2	Ashok Nagar, Chennai	0.014085	2
3	Assisi Nagar	0.000000	0
4	Ayanavaram	0.032258	1

Result and Discussion

- Cluster 0: Neighbourhoods with low number to no existence number of shopping malls
- Cluster 1: Neighbourhoods with moderate number of shopping malls
- Cluster 2: Neighbourhoods with high concentration of shopping malls
- cluster 3: Neighbourhoods with high concentration of shopping malls
- cluster 0 has very low number to no shopping mall in the neighbourhoods.
- **This represents a great opportunity and high potential areas to open new shopping malls as there is very little to no competition from existing malls**

References

- Category: Suburbs in Chennai. Wikipedia. Retrieved from [https://en.wikipedia.org/wiki/Category:Suburbs of Chennai](https://en.wikipedia.org/wiki/Category:Suburbs_of_Chennai)
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- Chennai malls information from [https://en.wikipedia.org/wiki/Category:Shopping malls in Chennai](https://en.wikipedia.org/wiki/Category:Shopping_malls_in_Chennai)