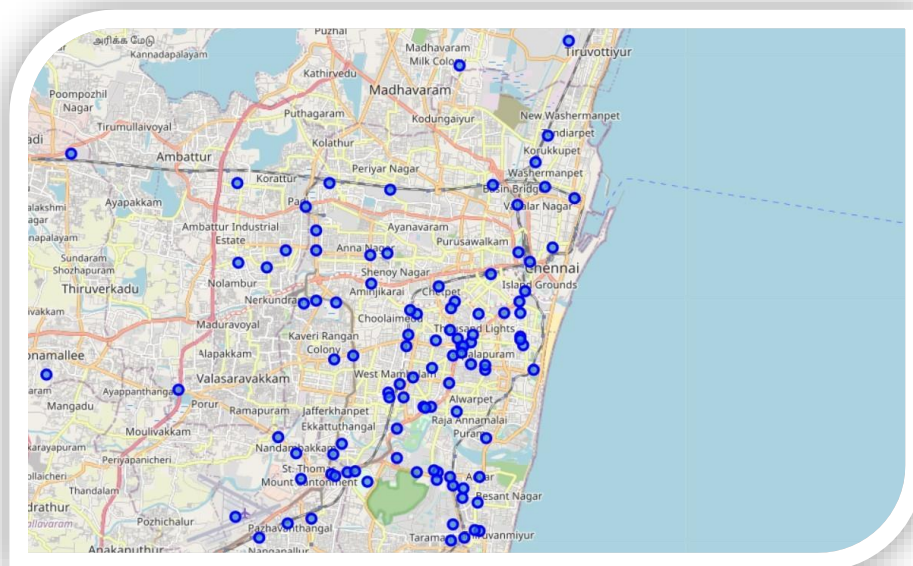# The Battle of Neighborhoods – CAPSTONE Project

For major venue categories in the neighborhoods of Chennai, The Detroit of India.

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DATA REQUIREMENTS:

Chennai has multiple neighborhoods. The chennaiiq.com website has a dataset which has the list of locations in Chennai along with their Latitude and Longitude in Degrees Minute Seconds format. There is a total of 105 neighborhoods as shown in Fig 2.1.

- ✓ https://chennaiiq.com/chennai/latitude_longitude_areas.asp


```
chennai_data.head()
(105, 3)
```

	Neighborhood	Latitude	Longitude
0	Adyar Bus Debot	12°59'50" N	80°15'25" E
1	Adyar Signal	13°00'23" N	80°15'27" E
2	Alandur	13°00'28" N	80°12'35" E
3	Ambattur	13°06'36" N	80°10'12" E
4	Anna Arch	13°04'28" N	80°13'06" E

Fig 2.1 Chennai Neighborhoods Dataset

But the Latitude and Longitude data obtained are in Degrees Minute Seconds format which needs to be converted to Decimal Degrees Format as shown in Fig. 2.2.


```
chennai_data.head()
(105, 3)
```

	Neighborhood	Latitude	Longitude
0	Adyar Bus Debot	12.997222	80.256944
1	Adyar Signal	13.006389	80.257500
2	Alandur	13.007778	80.209722
3	Ambattur	13.110000	80.170000
4	Anna Arch	13.074444	80.218333

Fig 2.2 Chennai Neighborhoods Dataset with Location Data in Decimal Degrees Format

Next the details of venues in each neighborhood namely **Venue, Venue Latitude, Venue Longitude, Venue Category** data needs to be obtained. Here, Foursquare API is used to obtain this data

a) https://foursquare.com/

A total of 1130 venues data have been obtained from Foursquare. The resultant venues dataset, (shown in Fig 2.3) is used for the analysis process.

```
print(chennai_venues.shape)
chennai_venues.head()
```

(1130, 7)

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Adyar Bus Debot	12.997222	80.256944	Zaitoon Restaurant	12.996861	80.256178	Middle Eastern Restaurant
1	Adyar Bus Debot	12.997222	80.256944	Kuttanadu Restaurant	12.997010	80.257799	Asian Restaurant
2	Adyar Bus Debot	12.997222	80.256944	Zha Cafe	12.999730	80.254806	Café
3	Adyar Bus Debot	12.997222	80.256944	Adyar Ananda Bhavan, Besant Nagar	12.996678	80.258275	Fast Food Restaurant
4	Adyar Bus Debot	12.997222	80.256944	Kovai Pazhamudir Nilayam	12.996522	80.259776	Fruit & Vegetable Store

A total of 1130 venues were obtained. Now lets check the number of venues returned per neighbourhood.

Fig 2.3 Chennai Venues Dataset