

Applied Data Science Capstone

Week 5

Final Assignment

-Atharva Ramgirkar

TOPIC

**To find optimal location in Maharashtra, India to set up a
New Restaurant**

Business Problem

- ◆ **Objective:** To find the optimal location for an entrepreneur to open a new restaurant in Maharashtra state in India.
- ◆ **Question:** In Maharashtra, if an entrepreneur wants to open a restaurant, what should be the optimal location in the state?

DATA

- ◆ Talukas : https://en.wikipedia.org/wiki/List_of_talukas_of_Maharashtra
- ◆ District Details : <https://www.census2011.co.in/census/state/districtlist/maharashtra.html>
- ◆ About State : <https://en.wikipedia.org/wiki/Maharashtra>
- ◆ Coordinates : Folium and Foursquare API



**MAHARASHTRA,
INDIA**

METHODOLOGY

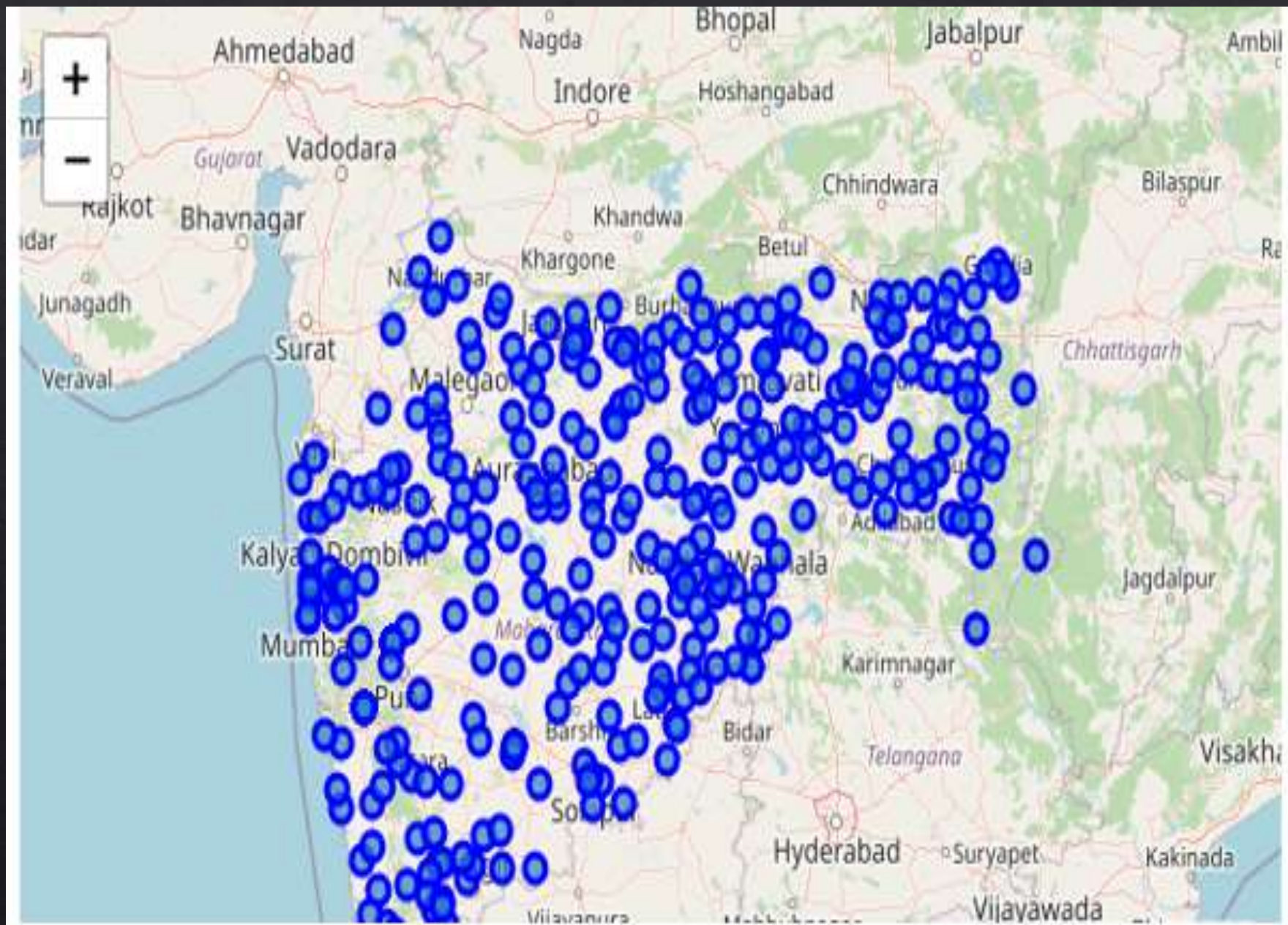
- ◊ Web scraping for the list of Districts and Talukas from above-mentioned sources
- ◊ Coordinates using Geocoder library
- ◊ Venue Data using Foursquare API
- ◊ Group Data by Taluka and finding mean of the frequency of occurrence of each venue category
- ◊ Finding the 'Restaurants' in Venue name
- ◊ Clustering using the k-Means Clustering approach
- ◊ Visualize using Folium

```
[73]: mh_merged.loc[mh_merged['Cluster Labels'] == 2]
```

```
print[73]:
```

	Taluka	Restaurant	Cluster Labels	District	Latitude	Longitude
15	Andheri 400069	0.030000	2	Mumbai Suburban District	19.10393	72.86698
59	Gaganbawada	0.047619	2	Kolhapur district	21.17497	79.07479
101	Khandala 410301	0.037037	2	Satara district	18.76027	73.38759
140	Osmanabad 413501	0.052632	2	Osmanabad	18.19431	76.04478
113	Mahabaleshwar 412806	0.058824	2	Satara district	17.93210	73.66779
206	Yavatmal 445500	0.066667	2	Yavatmal district	20.38967	78.12734
132	Nagpur (Urban)	0.027027	2	Nagpur district	21.13677	79.08227
35	Borivali 400066	0.065574	2	Mumbai Suburban District	19.23496	72.85508
108	Kurla 400070 (Mulund) 400081	0.044444	2	Mumbai Suburban District	19.17437	72.95068
115	Majalgaon 431131	0.066667	2	Beed district	18.96836	72.84174
112	Maan (Dahiwadi) 411057	0.037037	2	Satara district	18.57792	73.70953

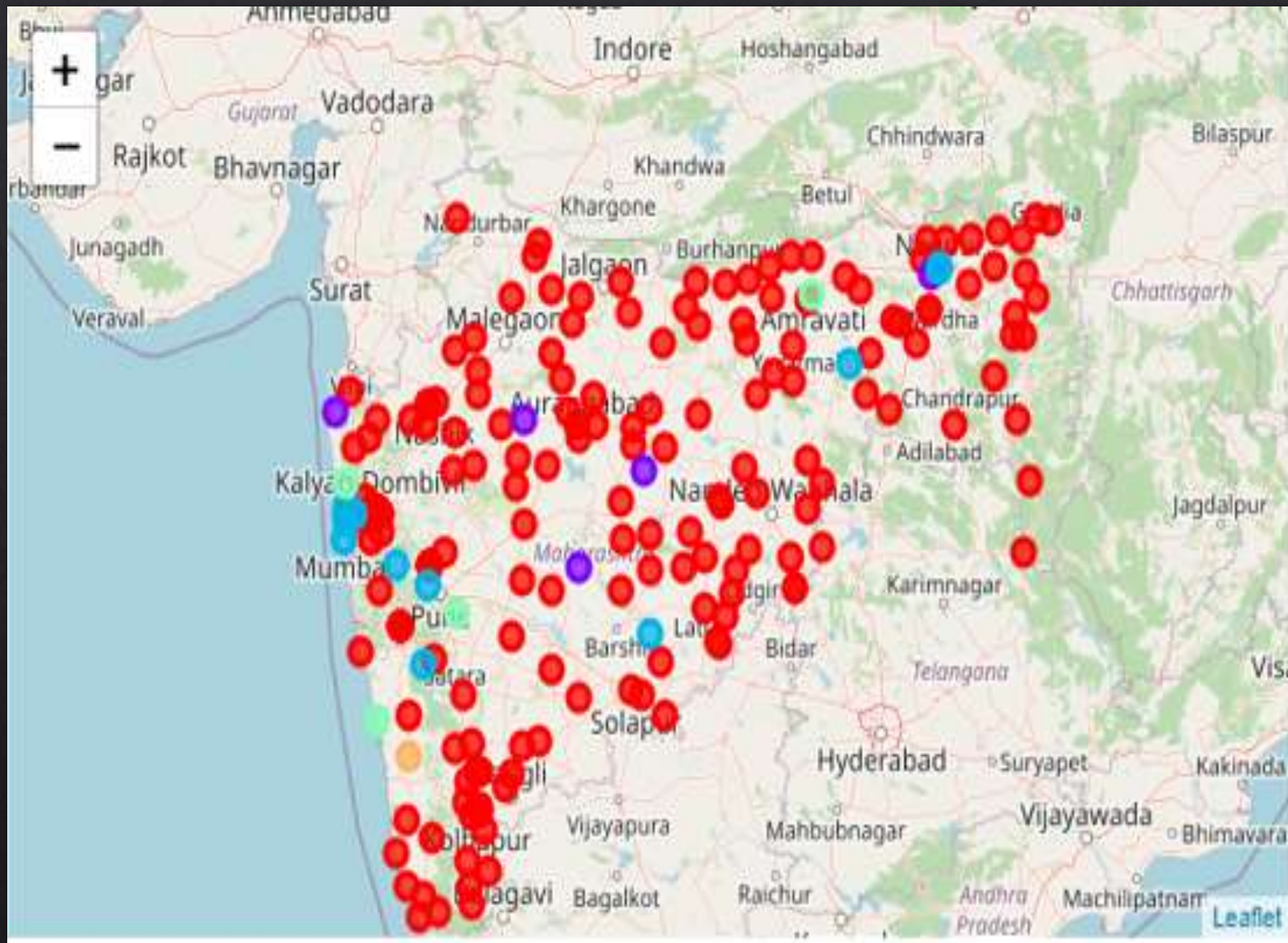
DATAFRAME



**FOLIUM
MAPS**

RESULTS

- ◆ Cluster Label 0 has the least (pretty much zero) number of restaurants
- ◆ Cluster 1 and Cluster 4 have very high competition.
- ◆ Cluster 2 and Cluster 3 have fair number of restaurants.
- ◆ **Top 5 populated Districts:** Thane, Pune, Mumbai Suburban, Nashik, Nagpur



**CLUSTERED
MAP**

DISCUSSION

- ◆ Cluster 1 and 4 are not good to start a new restaurant due to existing competition
- ◆ Cluster 2 and 3 may be okay due to less competition
- ◆ Cluster 0 is the most optimum cluster to start a new restaurant as it has very less competition
- ◆ Locate the new restaurant in one of the top 5 populated Districts.

CONCLUSION

Question: -

I am an entrepreneur and want to set up a new restaurant in the state of Maharashtra, where is the optimum location to set it up?

Answer: -

Any of the Talukas in Cluster 0 and among the following Districts - Thane, Pune, Mumbai Suburban, Nashik, Nagpur.

THANK YOU