Predicting Location For opening New Hotel

IBM APPLIED DATA SCIENCE CAPSTONE

Opening of a new hotel in Pune

- ▶ Coming down to business problem, I would like to open a hotel/restaurant at the best possible spot.

- ▶ As it is a famous tourist spot and also a educational hub, so there is already a lot of attention towards it. There is a lot of competition terms of hotels and restaurants.

- ▶ I want to attract various customer base foreigners as well as local people.

- ▶ The main challenge is finding a suitable location for opening a new hotel/restaurant in the centre of all venues.

Data Source and How will it be used?

- We will be completely working on **Foursquare data** to explore and try to locate our new hotel where more venues like church, temples, museums, historical places, memorials that are present nearby.

- We will be looking for midpoint area of venues to locate our new hotel.
Before that our major focus will be on all venues present in and around the core place of Pune.

- Our core location of Pune is spotted at 18.5195°, 73.8553°.

Hotels and Restaurants

▶ There are 59 hotels/restaurants within 1km radius captured through Foursquare data.

▶ Crazy Resto is the closest of all other hotels.

▶ Hotel Lajjat remains far comparative to rest of hotels/restaurants.

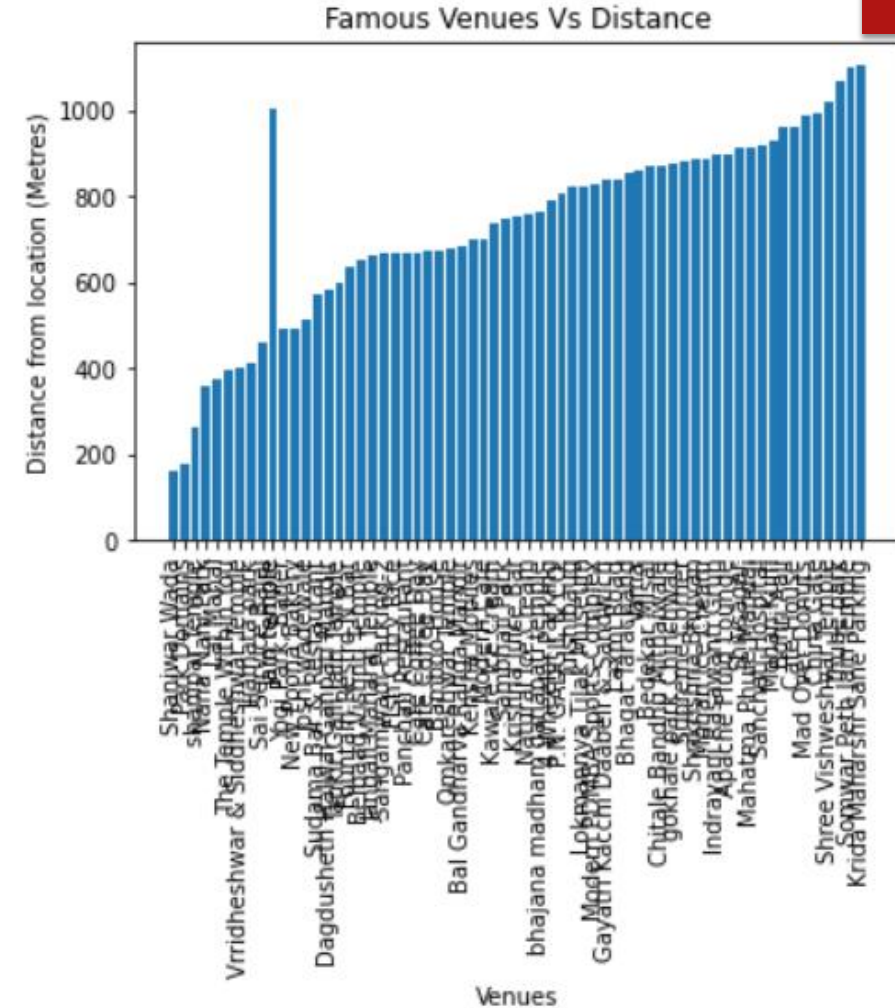▶ Average distance between all hotels to core location is 711 metres.
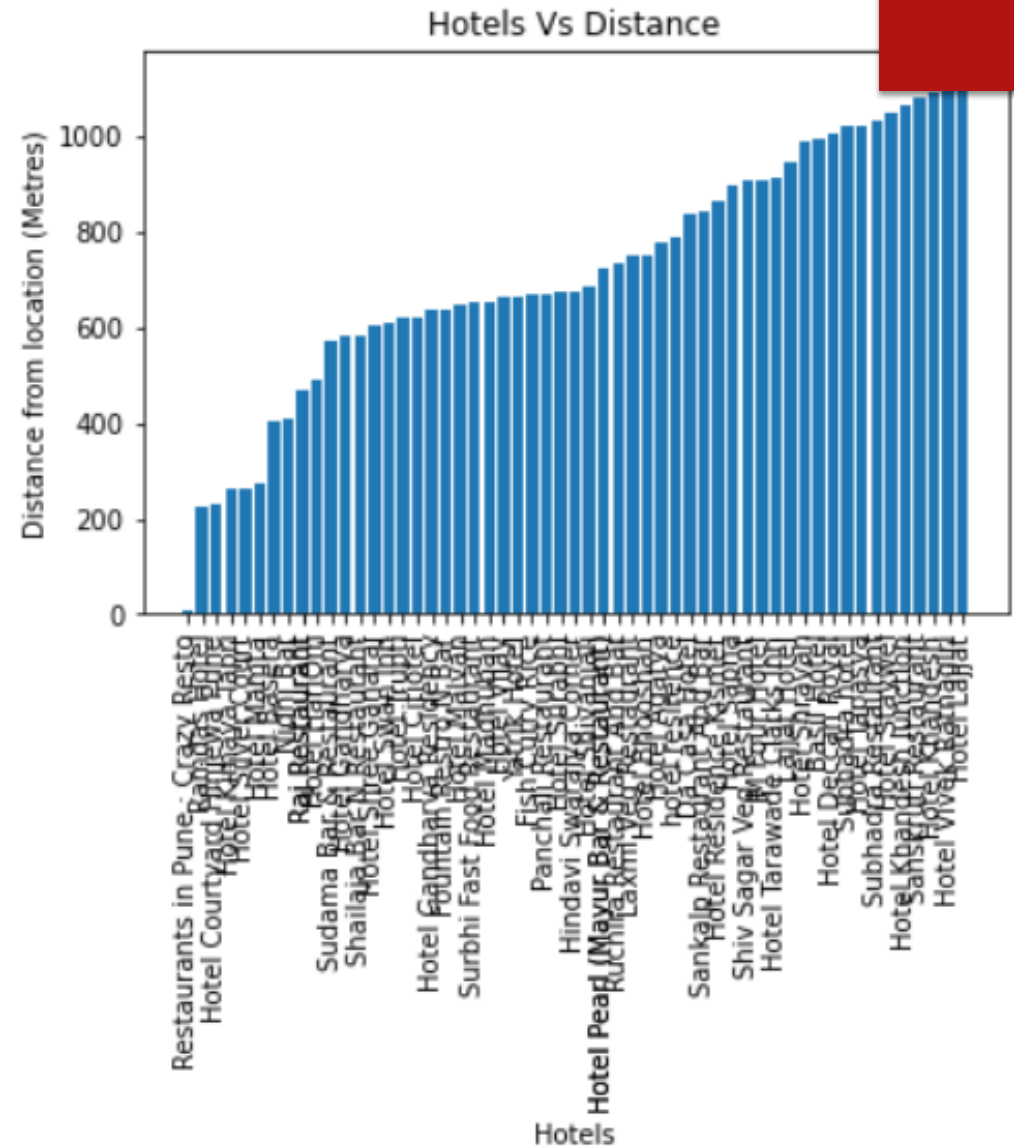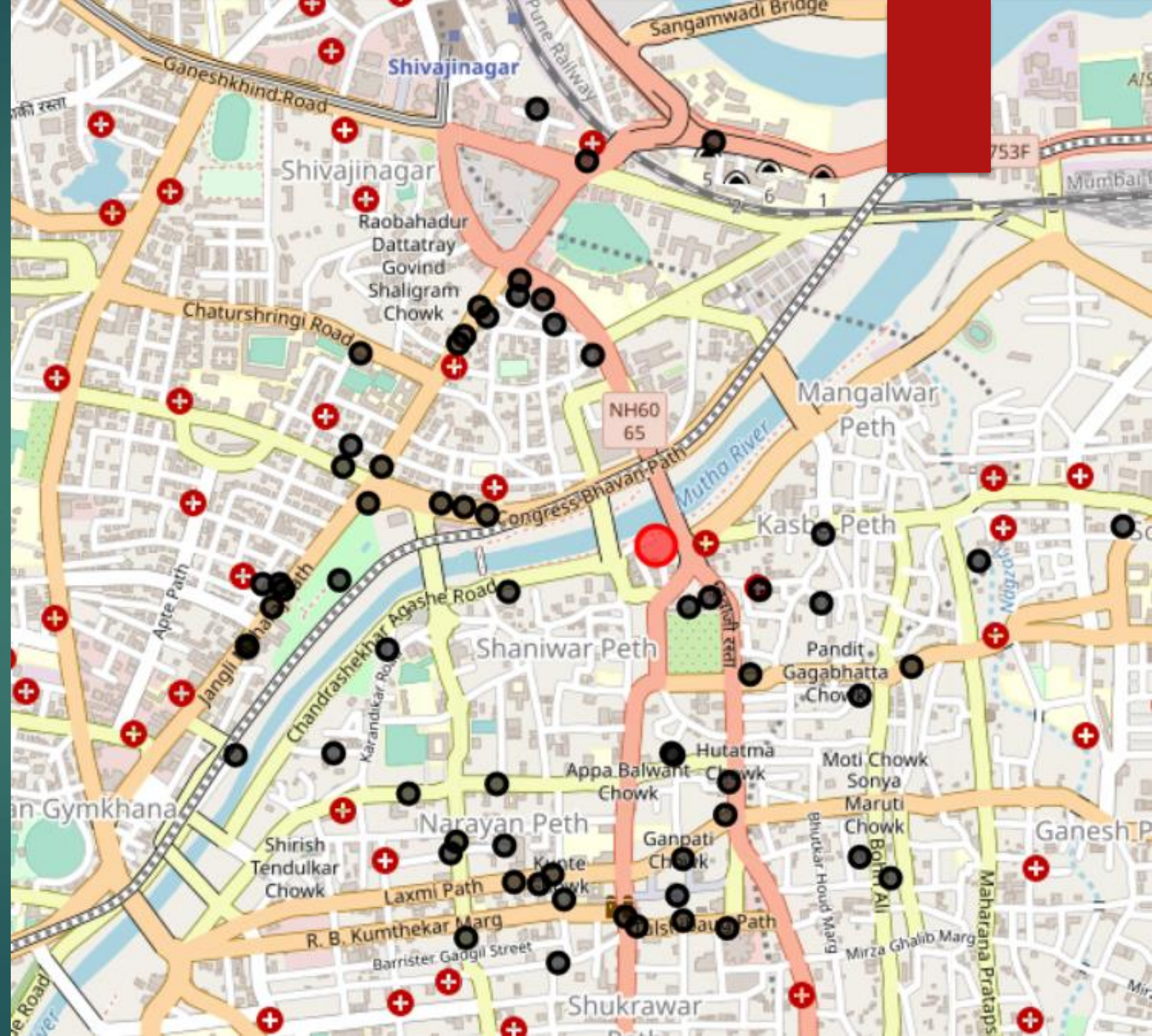
Map – Hotels/Restaurants
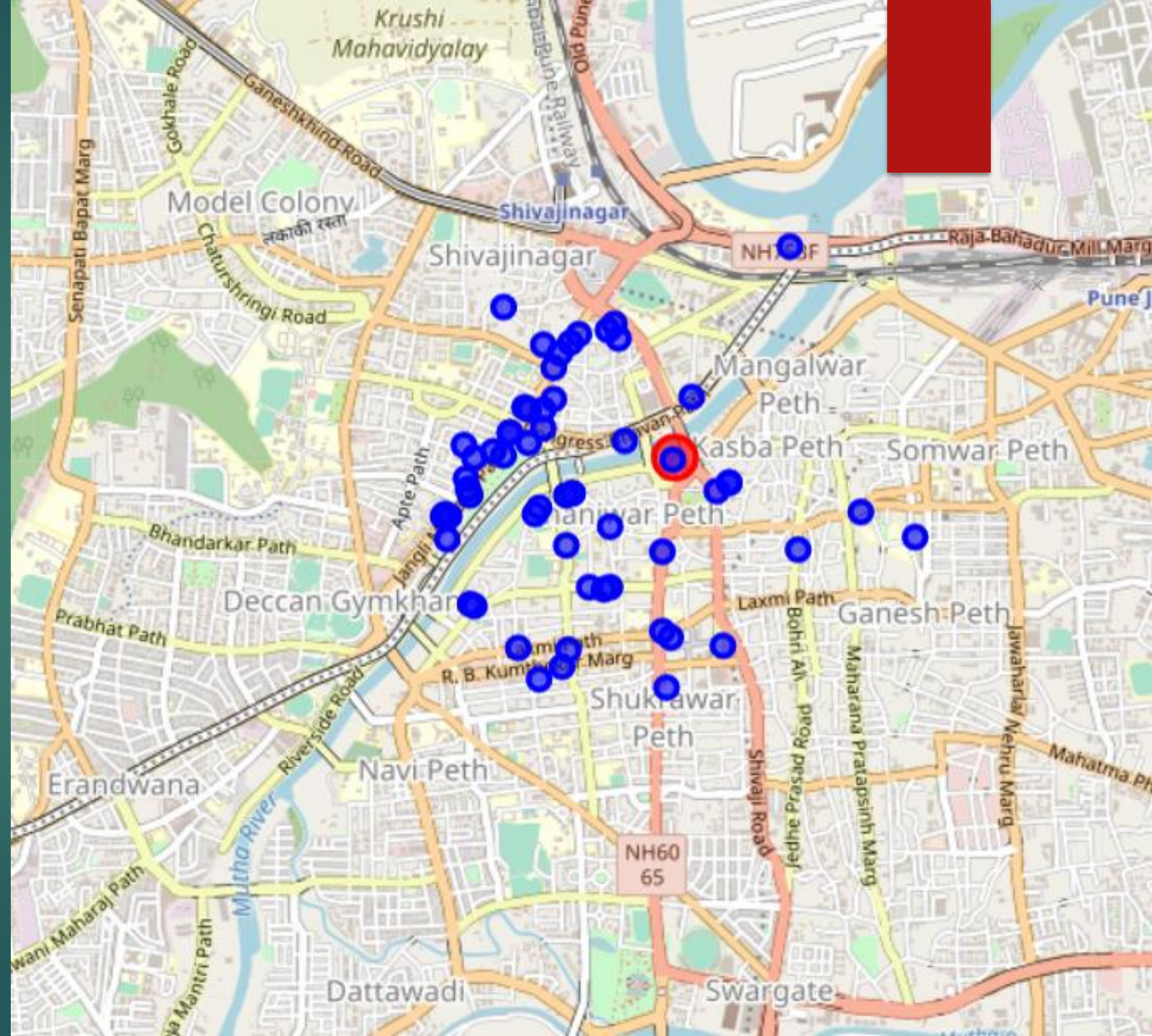
Venues

- There are 44 venues within 1km radius captures through foursquare data.

- We could see that the Shaniwar wada, Lal mahal, Mahatma phule mandai are more closer to our location.

- Krida Maharshtra sane parking is far than rest of places.

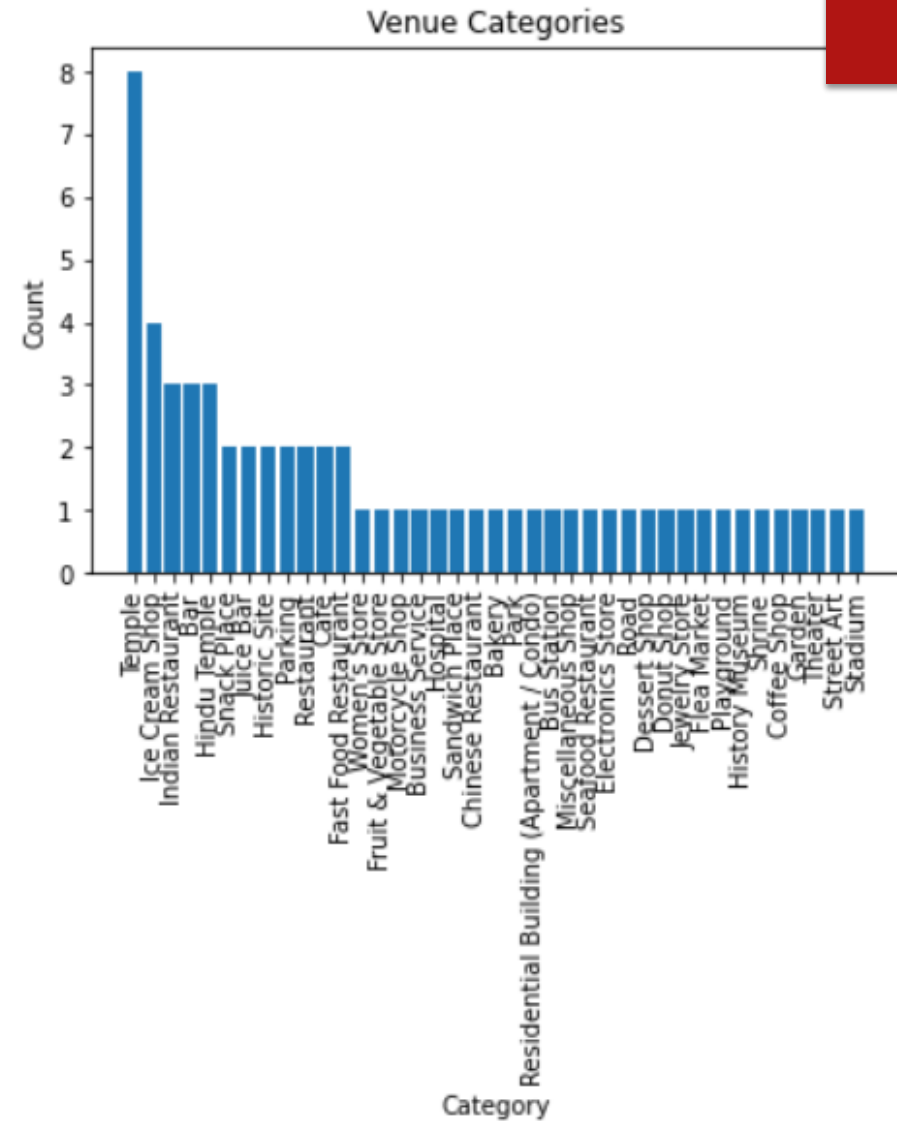Famous Venues Vs Distance

Map – Venues

Venue Categories

- There are 39 venue categories found in the data.

- We could see that Temple, Ice cream shops, historic sites, etc. are more common venues.

- There is no venue with high variations.

Ratings and Tips

	Venue	Rating	distance	Tips
0	Lal Mahal	No Rating Yet	374	No Rating Yet
1	Krishna Juice Bar	No Rating Yet	756	No Rating Yet
2	Mad Over Donuts	No Rating Yet	991	No Rating Yet
3	Bhagat Tarachand	No Rating Yet	856	No Rating Yet
4	Café Coffee Day	No Rating Yet	671	No Rating Yet
5	Fish Curry Rice	No Rating Yet	670	No Rating Yet
6	Modern PDMBA Sports Complex	No Rating Yet	830	No Rating Yet
7	Mohan Ice Cream	No Rating Yet	889	No Rating Yet
8	Bal Gandharva Ranga Mandir	No Rating Yet	686	No Rating Yet
9	Sai Service Bajaj	No Rating Yet	460	No Rating Yet
10	Shaniwar Wada	No Rating Yet	161	No Rating Yet
11	Natural Ice Cream	No Rating Yet	761	No Rating Yet
12	Modern Cafe	No Rating Yet	702	No Rating Yet
13	P.N. GADGIL & CO.	No Rating Yet	809	No Rating Yet
14	Panchali Restaurant	No Rating Yet	671	No Rating Yet
15	Supreme Corner	No Rating Yet	880	No Rating Yet

▶ We did not get any rating or tips.

▶ But many of the famous spots include Shaniwar wada, Lal mahal, Bal gandharv rang mandir etc.

Clustering and Midpoint of Venues

▶ The Ideology behind this could be to produce the centre location of all famous top rated/tips venues.

▶ First we will find the clusters and based on that, we will take avearge of all centroids.

▶ Secondly, we will get midpoint of all shortlisted rated venues.

▶ Now we will get mean of both and decide our final location.

▶ We looked for three clusters and they were sorted out as shown in map(next slide).
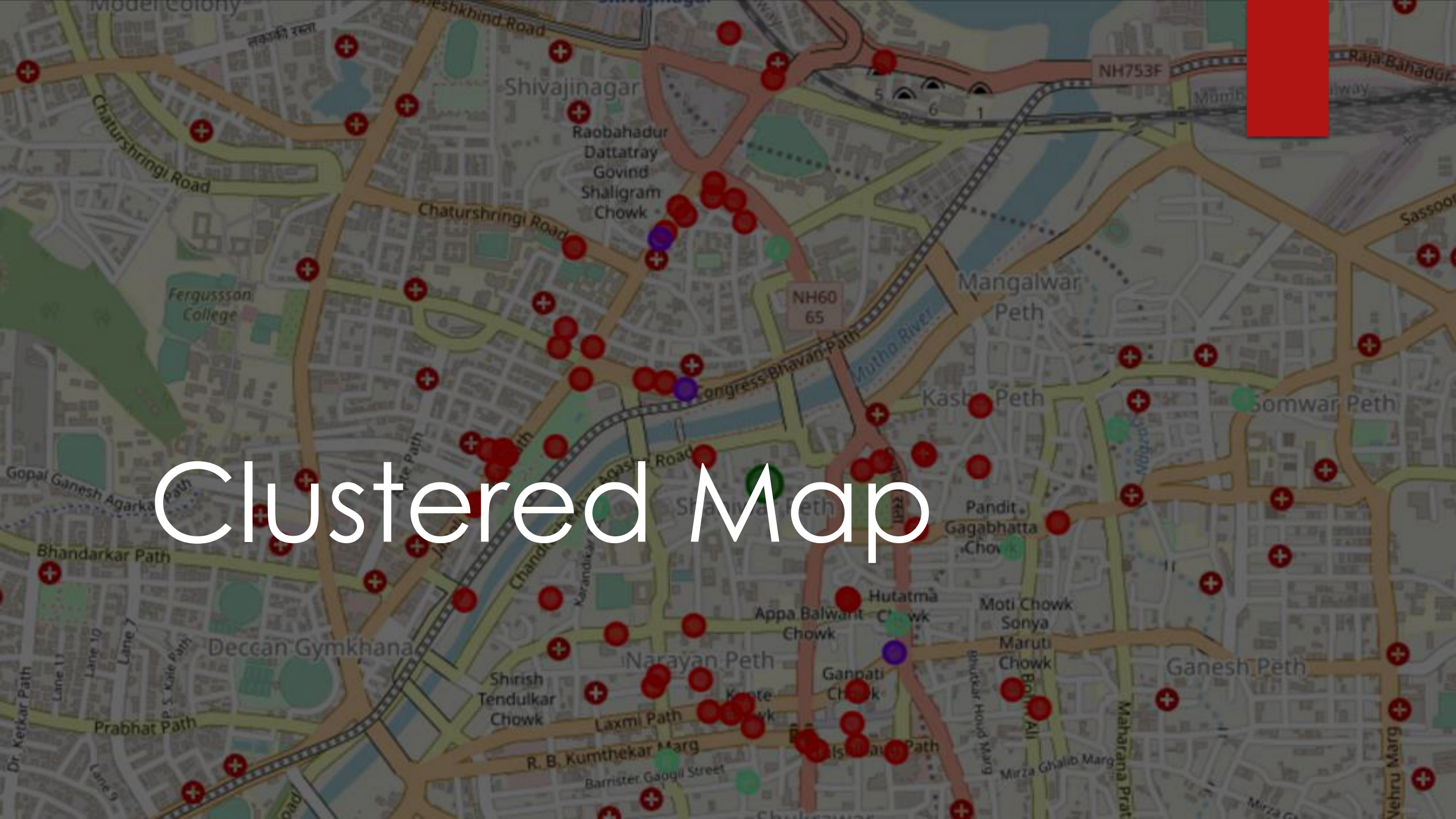
Clustered Map

Combined Map
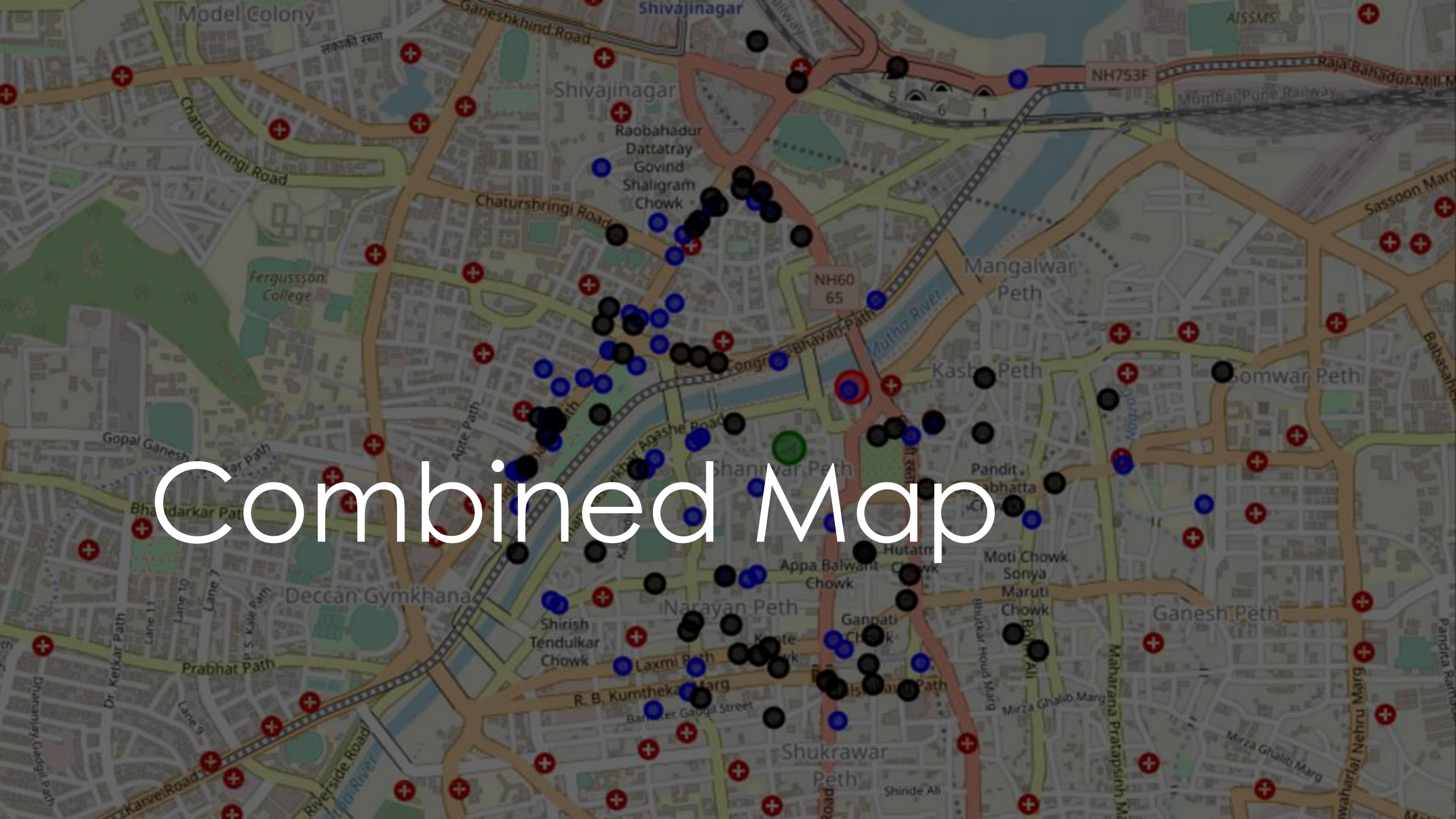
My Predicted Location

Final location is pointed at 18.5194°, 73.8519°.

This location is at Narayan peth near to Laxmi road, Bajirao Road and Omkareshwar temple.

Located at exact junction of two cross roads which can give more attention to people who passby.

Main venues are Shaniwar wada, Lal mahal, Dagduseth ganpati temple etc.

Discussion & Conclusion

▶ The output which we achieved was very adjacent to the core location. This proves the accurate spotting of our predicted algorithm.

▶ As a business person, one would be able to set up a hotel/restaurant on given spot.
This will bring revenue automatically as we have located in very near to core one.
We proved this with combination of KMeans and midpoint of coordinates.

▶ Despite of the findings, there were some lack in data. Tips and ratings were missing for most of the venues. Also when I compared Foursquare data with google map. I could see there many hotels and venues found missing in foursquare.

▶ Anyways, I enjoyed learning and implementing this capstone.