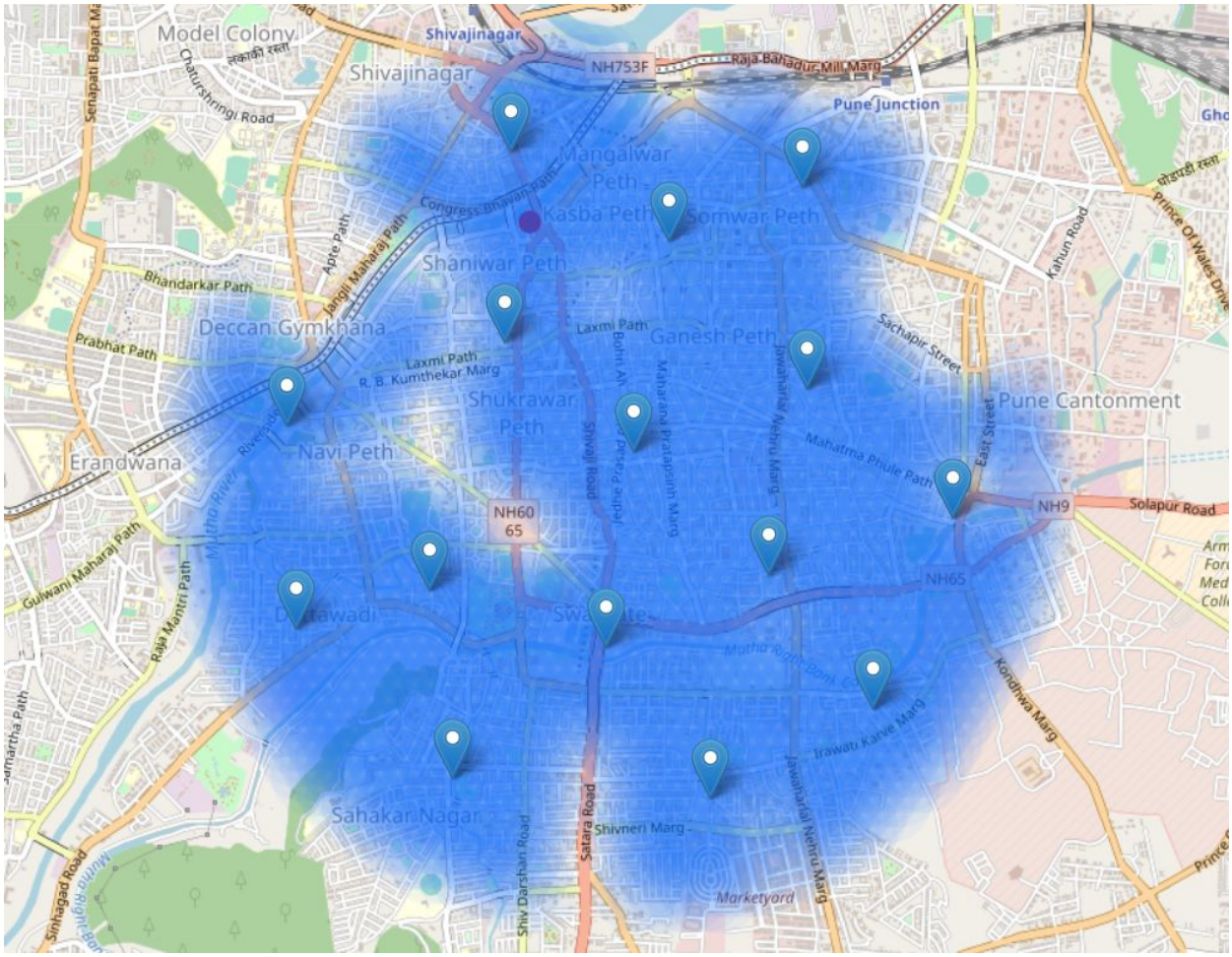

The Battle of Neighborhoods

Applied Data Science Capstone Project

19.03.2020

—

Kunal Gauraw

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Introduction

Background

Pune is the second largest city in the Indian state of Maharashtra, after Mumbai. The city has emerged as a major educational hub in recent decades, with nearly half of the total international students in the country studying in Pune. The city has the eighth largest metropolitan economy and the sixth highest per capita income in the country. The key sectors of the local economy are education, manufacturing and information technology. The educational and economic ecosystem of the city attracts a young and vibrant metropolitan crowd.

An Italian restaurant chain wants to open a restaurant in Pune city. There are lots of restaurants in Pune. They want to find an optimal location for opening an Italian restaurant near to the city center.

Business Problem

The business problem here is to generate a few most promising neighborhoods in Pune to open an Italian restaurant based on some defined criterias. There are three important criterias regarding neighborhood locations:

- The locations should not already be crowded with restaurants.
- There should not be any Italian restaurants in the vicinity.
- The locations should be as close to the city center as possible.

We will use our data science powers to find optimal neighborhood locations based on defined criterias. We will collect, explore and analyze neighborhood locations and restaurants data to answer following four questions:

1. How many restaurants are present in a radius of 6 km around the city center?
2. How many of the identified restaurants are Italian restaurants?
3. What are the locations within 2.5 km area with no more than two restaurants in a radius of 250 meters and without Italian restaurants in a radius of 400 meters?
4. What are the final 15 location recommendations with addresses?

Stakeholders

The stakeholder for this project is the Italian restaurant chain who wants to open an Italian restaurant in Pune.

Data

Based on definition of our problem, there are three factors that will influence our decision:

1. number of existing restaurants in the neighborhood (any type of restaurant)
2. number of and distance to Italian restaurants in the neighborhood, if any
3. distance of neighborhood from city center

We decided to use a regularly spaced grid of locations, centered around the city center, to define our neighborhoods.

Data Source

Following data sources will be needed to extract/generate the required information:

- **Centers of candidate areas** will be generated algorithmically and approximate addresses of centers of those areas will be obtained using the GeoPy python library.
- **Number of restaurants and their type and location in every neighborhood** will be obtained using **Foursquare API**
- **Coordinate of Pune center** will be obtained using GeoPy python library.

Data Preparation

We will collect the required data and clean them to explore and analyze further.

Geographical coordinates of Pune city

First, we find geographical coordinates of the Pune city center by converting the address into latitude and longitude values using the GeoPy python library. **The latitude and longitude of the Pune city are 18.521428 and 73.8544541 respectively**.

```
The geographical coordinate of Pune, India: [18.521428, 73.8544541]
```

Grid of neighborhood area candidates

We create a grid of neighborhood area candidates which is equally spaced and centered around the city center. These **candidate areas are within 6 km from Pune city center**. We defined **neighborhoods as circular areas with a radius of 300 meters**. **Distance between two neighborhood centers is 600 meters**.

To accurately calculate distances we convert our grid of locations in the Cartesian 2D coordinate system which allows us to calculate distances in meters (not in latitude/longitude degrees).

```
Pune center longitude=73.8544541, latitude=18.521428

Pune center UTM X=379084.4523924125, Y=2048259.8861715223
```

Then we project those coordinates back to latitude/longitude degrees to be shown on the **Folium** map.

So based on the criteria for the grid of area candidates, **total 364 candidate neighborhood centers are generated**.

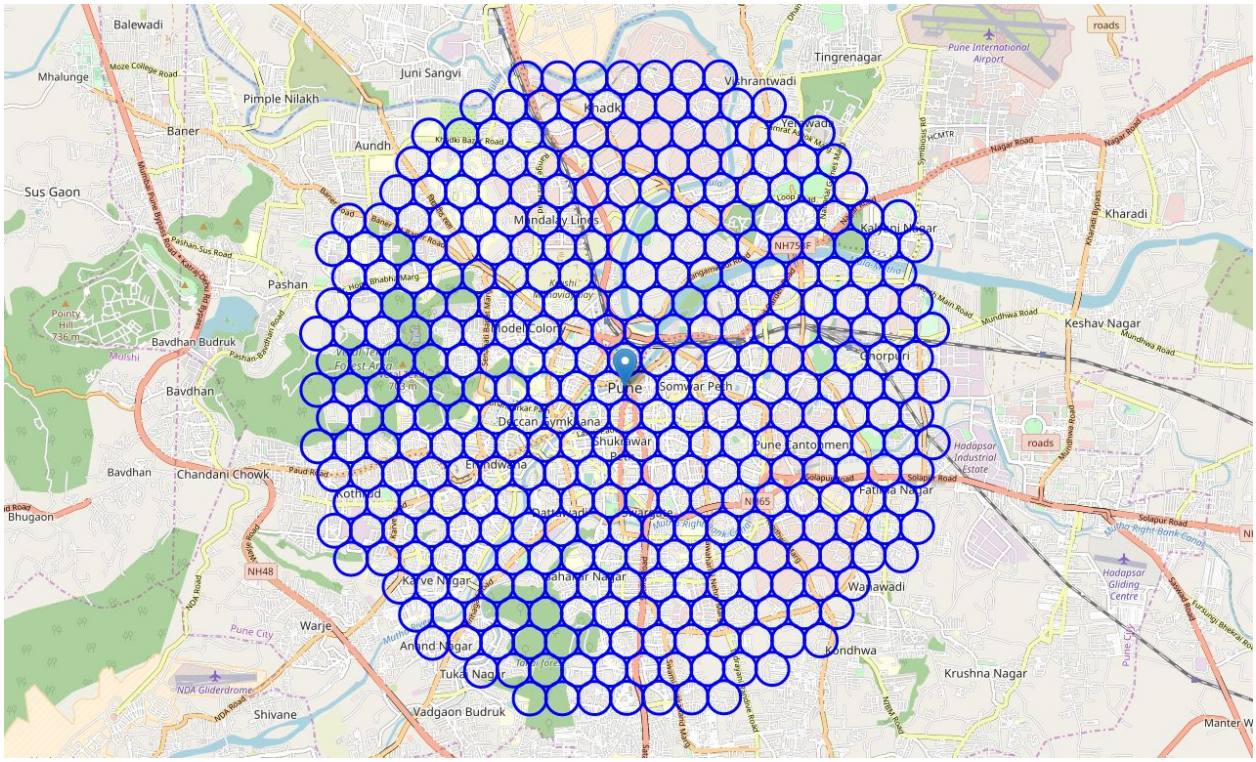

Figure 1: Map of 364 generated candidate neighborhoods

Candidate areas with addresses, locations and distance from center

Next, we use the **GeoPy** python library to reverse geocode and find addresses of each center of the neighborhood grid cell. We also find the distance to each neighborhood center from Pune city center. The list of addresses and its corresponding latitude, longitude, UTM x, UTM y, and distance from center are placed into a tabular form of Pandas data frame.

	Address	Latitude	Longitude	X	Y	Distance from center
0	Sinhagad College Wadgaon Campus, Sinhgad Cante...	18.469675	73.837752	377284.452392	2.042544e+06	5992.495307
1	Tukai Nagar, Pune, 411001	18.469709	73.843434	377884.452392	2.042544e+06	5840.376700
2	Sahakar Nagar, Pune, 411001	18.469744	73.849116	378484.452392	2.042544e+06	5747.173218
3	Sahakar Nagar, Pune, 411001	18.469778	73.854797	379084.452392	2.042544e+06	5715.767665
4	KK Market, KK Market road, Sahakar Nagar, Pune...	18.469813	73.860479	379684.452392	2.042544e+06	5747.173218
5	Sahakar Nagar, Pune, 411001	18.469847	73.866161	380284.452392	2.042544e+06	5840.376700
6	Kondhwa, Pune, 411018	18.469881	73.871843	380884.452392	2.042544e+06	5992.495307
7	Prosperity Society, Tukai Nagar, Pune, 411001	18.474317	73.829198	376384.452392	2.043064e+06	5855.766389
8	Prosperity Society, Tukai Nagar, Pune, 411001	18.474352	73.834879	376984.452392	2.043064e+06	5604.462508
9	Prosperity Society, Tukai Nagar, Pune, 411001	18.474387	73.840561	377584.452392	2.043064e+06	5408.326913

Figure 2: Candidate locations with addresses, location and distance from center (first 10 rows)

List of all restaurants along with Italian restaurants

Now we use **Foursquare API** to get venues near the center of candidate location. From the list of venues we filter out restaurants and then narrow down filtering to Italian restaurants. After statistical analysis we found that there are a total 552 restaurants, out of which 24 are Italian restaurants. This means that there are 4.35 % Italian restaurants. And, the average number of restaurants in the neighborhood is 1.32.

```
Total number of restaurants: 552

Total number of Italian restaurants: 24

Percentage of Italian restaurants: 4.35%

Average number of restaurants in neighborhood: 1.3214285714285714
```

We also prepare a list of restaurants around each candidate location. For example, there are 5 restaurants around the candidate location 101: Abhishek Veg, Purepur Kolhapur, Manali, Pavitra pure veg, and Abhishek Non Veg.

```
Restaurants around location
---------------------------
Restaurants around location 101: Abhishek Veg, Purepur Kolhapur, Manali, Pavitra pure veg, Abhishek Non Veg
Restaurants around location 102: Harvest Club, Multi Spice, Vishnu Ji Ki Rasoi, Aswan
Restaurants around location 103: Grace Biryani House
Restaurants around location 104:
Restaurants around location 105: Atharva hotel, sarasbaug chowpati
Restaurants around location 106: Sahil Hotel, Hotel Natraj
Restaurants around location 107:
Restaurants around location 108: Chandan restaurant
Restaurants around location 109: In Green
Restaurants around location 110:
```

Figure 3: List of restaurants around candidate locations (10 selected rows)

Map of collected restaurants

We visualize all the collected restaurants in our area of interest on a map in blue color with Italian restaurants in red color.

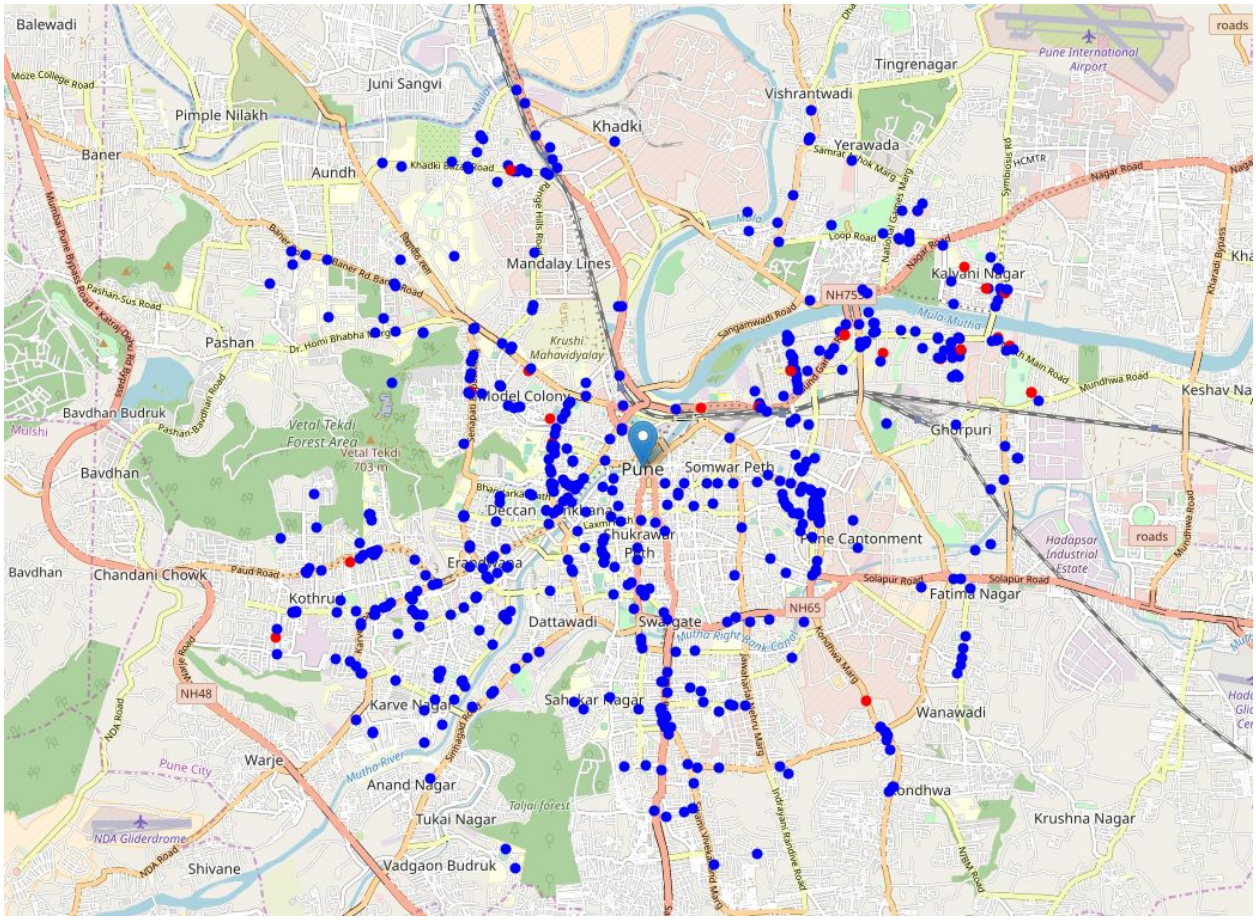

Figure 4: Map of all restaurants including Italian restaurants around Pune city center

So now we have all the restaurants in an area within 6 kilometers from Pune city center and which ones are Italian restaurants! We also know which restaurants exactly are in the vicinity of every neighborhood candidate center.

This concludes the data preparation phase. We are now ready to use this data for analysis to produce the report on optimal locations for a new Italian restaurant in Pune!

Methodology

In this project, our objective is to find and recommend a few optimal locations for opening an Italian restaurant in Pune city, India.

The optimal location for a restaurant is an area with low restaurant density, specifically Italian restaurants. We try to find such areas in Pune city. We limit our analysis to areas ~6km around the city center.

We followed following four steps methodology:

1. **Data collection and preparation**
   In the first step, we have collected and prepared the required data: location and type (category) of every restaurant within 6km from Pune city center. We have also identified Italian restaurants according to Foursquare categorization.
2. **Data analysis**
   In the second step, we will explore and analyze our restaurants data to calculate '*restaurant density*' across different areas of Pune. We will use *heatmaps* to identify a few promising areas close to the center with low number of restaurants in general and no Italian restaurants in the vicinity.
3. **Clustering**
   In the third step, we will focus on the most promising areas. We will create clusters of locations that meet some basic requirements established in discussion with stakeholders.
   There are two basic requirements of optimal location that we will take into consideration:
   - locations with no more than two restaurants in radius of 250 meters, and
   - locations without Italian restaurants in a radius of 400 meters.

4. **Results**

   In the fourth and final step, we will present a map of all promising locations. We will also provide clusters of those locations to identify neighborhoods which should be a starting point for final 'street level' exploration and search for the optimal venue location by stakeholders

Data Analysis

We perform some basic exploratory data analysis and derive some additional info from our data cleaned during the data preparation phase.

Number of restaurants in every area candidate

We calculate the total number of restaurants in each candidate area location and add it to the table as a column.

	Address	Latitude	Longitude	X	Y	Distance from center	Restaurants in area
0	Sinhagad College Wadgaon Campus, Sinhgad Cante...	18.469675	73.837752	377284.452392	2.042544e+06	5992.495307	0
1	Tukai Nagar, Pune, 411001	18.469709	73.843434	377884.452392	2.042544e+06	5840.376700	0
2	Sahakar Nagar, Pune, 411001	18.469744	73.849116	378484.452392	2.042544e+06	5747.173218	0
3	Sahakar Nagar, Pune, 411001	18.469778	73.854797	379084.452392	2.042544e+06	5715.767665	0
4	KK Market, KK Market road, Sahakar Nagar, Pune...	18.469813	73.860479	379684.452392	2.042544e+06	5747.173218	0
5	Sahakar Nagar, Pune, 411001	18.469847	73.866161	380284.452392	2.042544e+06	5840.376700	1
6	Kondhwa, Pune, 411018	18.469881	73.871843	380884.452392	2.042544e+06	5992.495307	1
7	Prosperity Society, Tukai Nagar, Pune, 411001	18.474317	73.829198	376384.452392	2.043064e+06	5855.766389	0
8	Prosperity Society, Tukai Nagar, Pune, 411001	18.474352	73.834879	376984.452392	2.043064e+06	5604.462508	0
9	Prosperity Society, Tukai Nagar, Pune, 411001	18.474387	73.840561	377584.452392	2.043064e+06	5408.326913	0

Figure 5: Number of restaurants in candidate areas (first 10 rows)

We also found that the average number of restaurants in every area with a radius of 300 meters is ~1.32.

```
Average number of restaurants in every area with radius=300m: 1.32
```

Distance to Italian restaurants

Next, we calculate the distance to Italian restaurants from each area center and add to the table as a column.

	Address	Latitude	Longitude	X	Y	Distance from center	Restaurants in area	Distance to Italian restaurant
0	Sinhagad College Wadgaon Campus, Sinhgad Cante...	18.469675	73.837752	377284.452392	2.042544e+06	5992.495307	0	4948.320729
1	Tukai Nagar, Pune, 411001	18.469709	73.843434	377884.452392	2.042544e+06	5840.376700	0	5070.048006
2	Sahakar Nagar, Pune, 411001	18.469744	73.849116	378484.452392	2.042544e+06	5747.173218	0	4537.240972
3	Sahakar Nagar, Pune, 411001	18.469778	73.854797	379084.452392	2.042544e+06	5715.767665	0	4023.397134
4	KK Market, KK Market road, Sahakar Nagar, Pune...	18.469813	73.860479	379684.452392	2.042544e+06	5747.173218	0	3536.791392
5	Sahakar Nagar, Pune, 411001	18.469847	73.866161	380284.452392	2.042544e+06	5840.376700	1	3090.317494
6	Kondhwa, Pune, 411018	18.469881	73.871843	380884.452392	2.042544e+06	5992.495307	1	2703.928821
7	Prosperity Society, Tukai Nagar, Pune, 411001	18.474317	73.829198	376384.452392	2.043064e+06	5855.766389	0	3931.159158
8	Prosperity Society, Tukai Nagar, Pune, 411001	18.474352	73.834879	376984.452392	2.043064e+06	5604.462508	0	4387.213011
9	Prosperity Society, Tukai Nagar, Pune, 411001	18.474387	73.840561	377584.452392	2.043064e+06	5408.326913	0	4816.146590

Figure 6: Distance to Italian restaurants from city center (first 10 rows)

The average distance to the closest Italian restaurant from each area center is ~1725.19 meters.

```
Average distance to closest Italian restaurant: 1725.19 m
```

Heatmap of density of restaurants

Now we create a map showing *heatmap* or *density of restaurants* and try to extract some meaningful info from that. Also, we show a few circles on the map indicating distance of 1km, 2km and 3km from Pune city center.

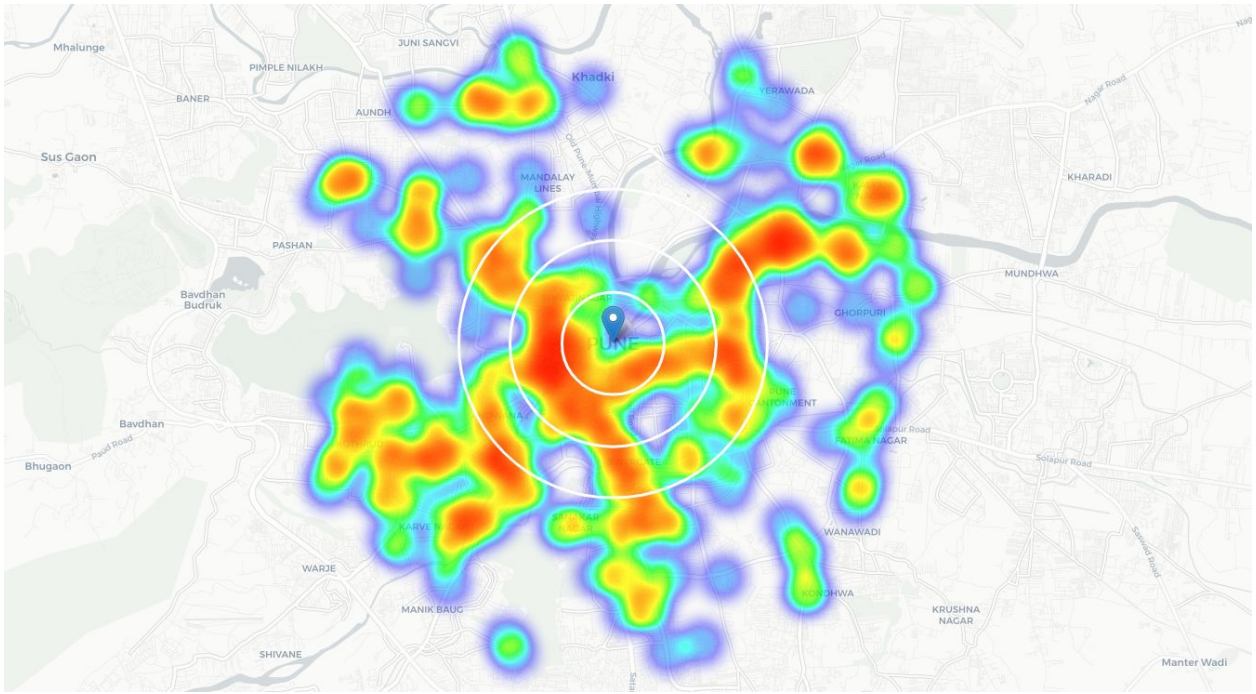

Figure 7: Heatmap of density of restaurants

This map shows that there are few pockets of low restaurant density closest to the city center that can be found **north, north-east and south-east from Pune city center**.

Heatmap of density of Italian restaurants

Next, we create a heatmap showing the density of Italian restaurants only.

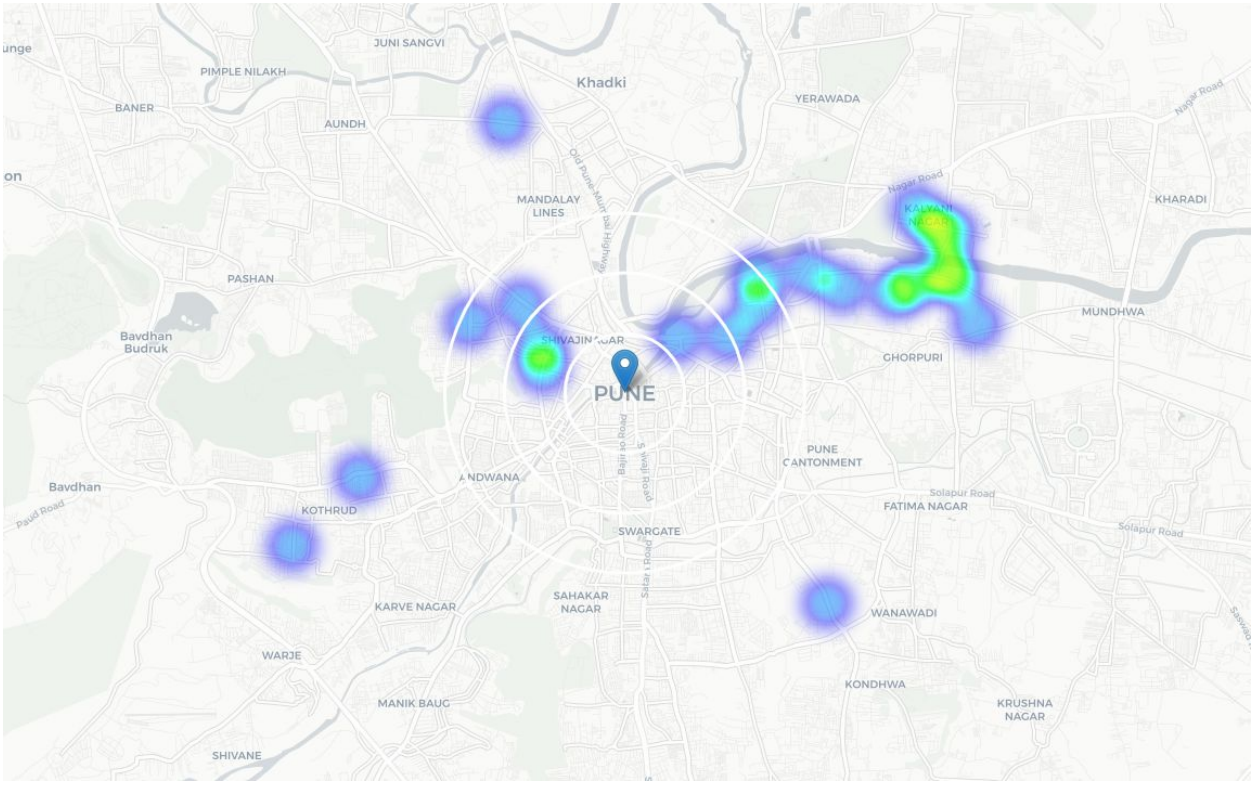

Figure 8: Heatmap of density of Italian restaurants

This map is not so 'hot'. It indicates higher density of existing Italian restaurants directly north-east and north-west from Pune center. Closest pockets of **low Italian restaurant density positioned north, south, south-east and south-west from the city center**.

This also indicates that except for a few areas clustered around two regions in the direction of north-east and north-west from the Pune city center, there are a lot of promising neighborhood areas near to the city center that can be recommended to open an Italian restaurant.

We will now narrow down our area of interest to these potential neighborhood locations within 2.5 km from the Pune city center. We will also make a new dens neighborhood grid within our region of interest.

Data analysis within 2.5 km

Based on this analysis, we will now focus our analysis on areas *north, south, south-west and south-east from Pune city center*. We will reduce the size of our area of interest to have a radius of **2.5 km**.

Heatmap of density of restaurants within 2.5 km area

Now, we create a heatmap of density of restaurants to show existing restaurants present within 2.5 km area from Pune city center.

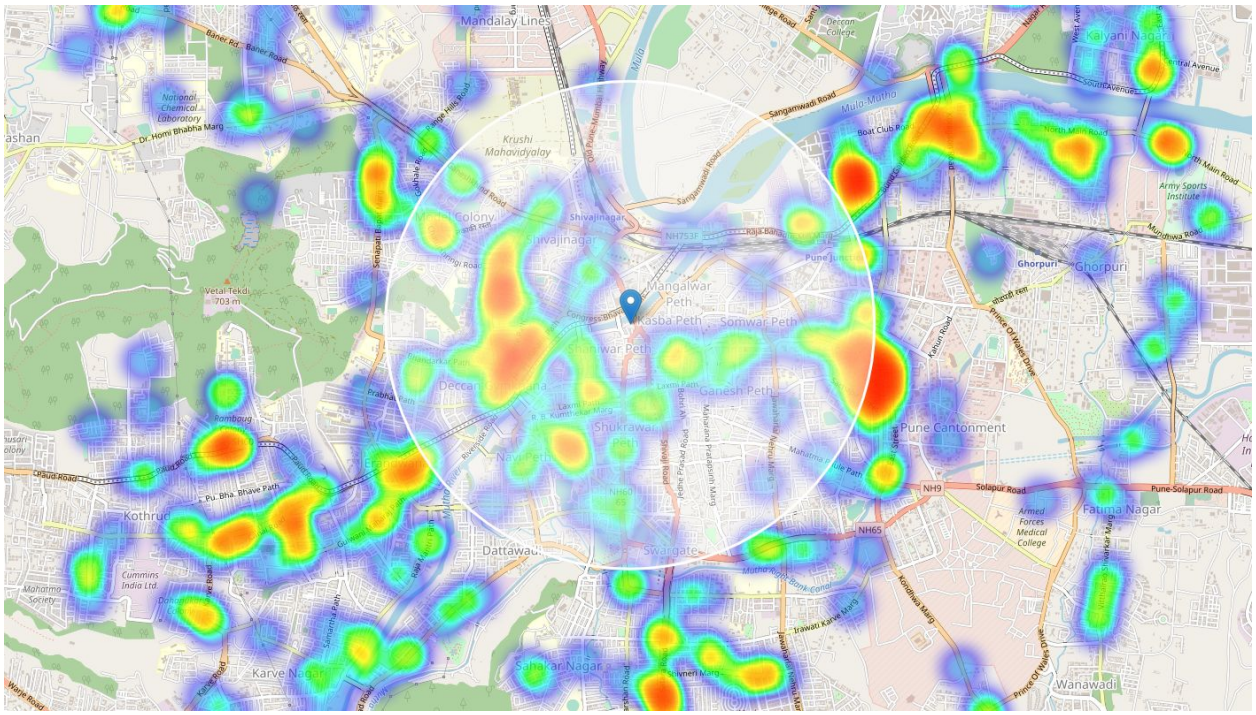

Figure 9: Heatmap of density of restaurants within 2.5 km

This map nicely covers all the pockets of low restaurant density closest to Pune city center.

New dens grid of location candidates

We now create a new, more dense grid of location candidates within 2.5 km and 100m apart. **Total 2261 candidate neighborhood centers are generated**.

```
2261 candidate neighborhood centers generated.
```

List of restaurants within 250m for each location candidate

Next, we calculate two most important things for each location candidate: **number of restaurants in vicinity** within radius of **250 meters** and **distance to closest Italian restaurant**. We convert the data into a Pandas dataframe.

	Latitude	Longitude	X	Y	Restaurants nearby	Distance to Italian restaurant
0	18.498834	73.854131	379034.452392	2.045760e+06	3	3191.948781
1	18.498840	73.855078	379134.452392	2.045760e+06	3	3234.294842
2	18.499585	73.848916	378484.452392	2.045846e+06	0	2924.506242
3	18.499591	73.849864	378584.452392	2.045846e+06	0	2952.094658
4	18.499597	73.850811	378684.452392	2.045846e+06	0	2982.782086
5	18.499602	73.851758	378784.452392	2.045846e+06	0	3016.473948
6	18.499608	73.852705	378884.452392	2.045846e+06	1	3053.070780
7	18.499614	73.853652	378984.452392	2.045846e+06	2	3092.469449
8	18.499620	73.854599	379084.452392	2.045846e+06	2	3134.564307
9	18.499625	73.855546	379184.452392	2.045846e+06	2	3179.248261

Figure 11: Restaurants within 250m for each candidate location (first 10 rows)

Filtered candidate locations

Next, we filter out these locations to find **locations with no more than two restaurants in radius of 250 meters**, and **no Italian restaurants in radius of 400 meters**.

	Latitude	Longitude	X	Y	Restaurants nearby	Distance to Italian restaurant
0	18.498834	73.854131	379034.452392	2.045760e+06	3	3191.948781
1	18.498840	73.855078	379134.452392	2.045760e+06	3	3234.294842
2	18.499585	73.848916	378484.452392	2.045846e+06	0	2924.506242
3	18.499591	73.849864	378584.452392	2.045846e+06	0	2952.094658
4	18.499597	73.850811	378684.452392	2.045846e+06	0	2982.782086
5	18.499602	73.851758	378784.452392	2.045846e+06	0	3016.473948
6	18.499608	73.852705	378884.452392	2.045846e+06	1	3053.070780
7	18.499614	73.853652	378984.452392	2.045846e+06	2	3092.469449
8	18.499620	73.854599	379084.452392	2.045846e+06	2	3134.564307
9	18.499625	73.855546	379184.452392	2.045846e+06	2	3179.248261

Figure 12: Distance to Italian restaurants from center of each location

We perform statistical analysis on these data to find a filtered list of restaurants. There are 1807 candidate locations with no more than two restaurants nearby and total 2000 candidate locations with no Italian restaurants within 400 meters. If we combine these two constraints then there are a **total 1635 candidate locations with no more than two restaurants nearby and with no Italian restaurants within 400 meters**.

```
Locations with no more than two restaurants nearby: 1807

Locations with no Italian restaurants within 400m: 2000

Locations with both conditions met: 1635
```

Map of filtered candidate locations

We create a map of all filtered 1635 candidate locations with no more than two restaurants nearby and with no Italian restaurants within 400 meters.

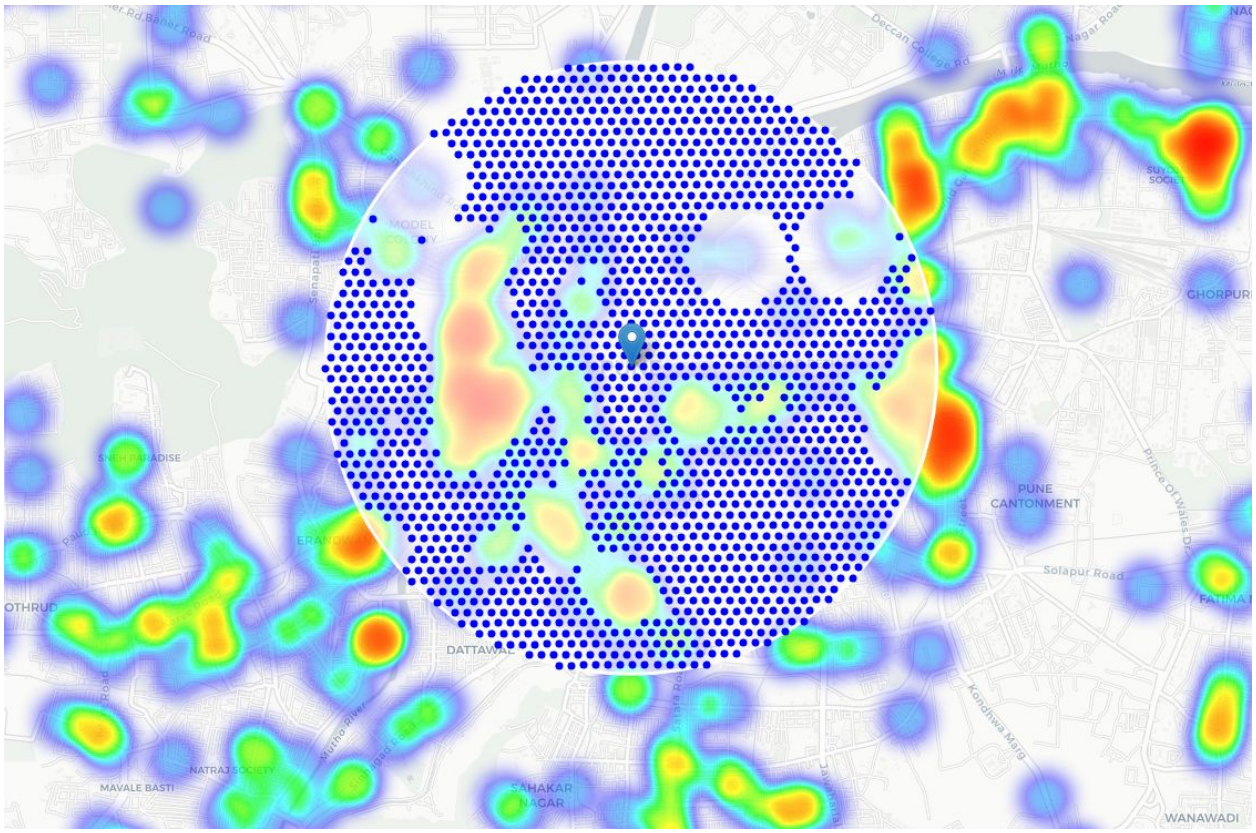

Figure 13: Map of filtered candidate locations

Now we have a bunch of locations fairly close to Pune city center mostly in *north*, *south*, *south-east* and *south-west* areas. We know that each of these locations has no more than two restaurants in a radius of 250m, and no Italian restaurant closer than 400m. Any of these locations is a potential candidate for a new Italian restaurant, at least based on nearby competition.

Heatmap of all good locations

Let's now show those good locations in a form of heatmap.

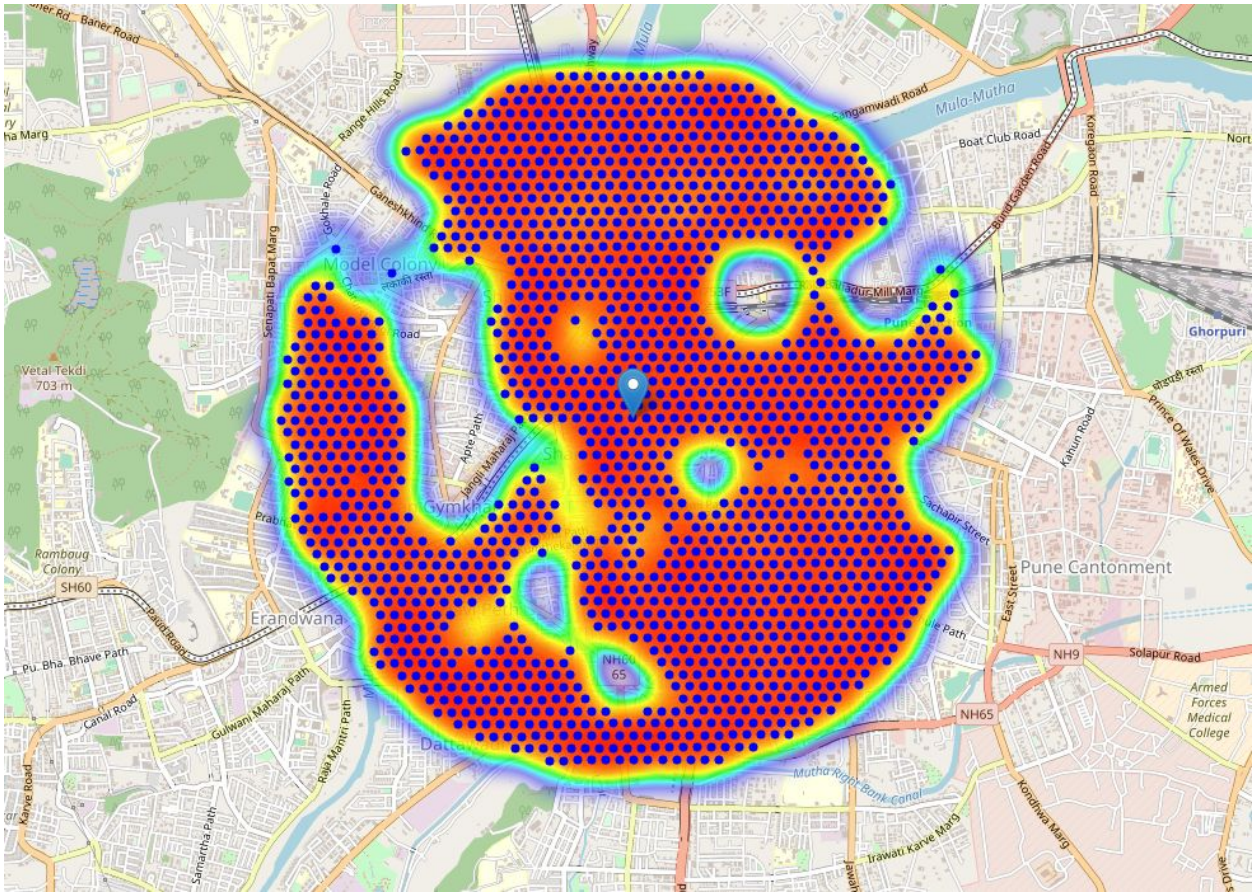

Figure 14: Heatmap of all good locations

Looking good! What we have now is a clear indication of zones with low number of restaurants in vicinity, and *no* Italian restaurants at all nearby.

We will further cluster these promising good locations using a non-supervised Machine Learning technique called k-means clustering to cluster these candidate locations into 15 clusters. The centers of these 15 clusters will be our final recommendations.

Cluster good locations using k-means clustering.

Let us now **cluster** those locations to create **centers of zones containing good locations**. Those zones, their centers and addresses will be the final result of our analysis. We use unsupervised machine learning technique k-means clustering to cluster these promising good locations. We have defined 15 clusters.

Map of 15 clusters of good locations with heatmap

We create a map showing 15 clusters of good locations along with heatmap.

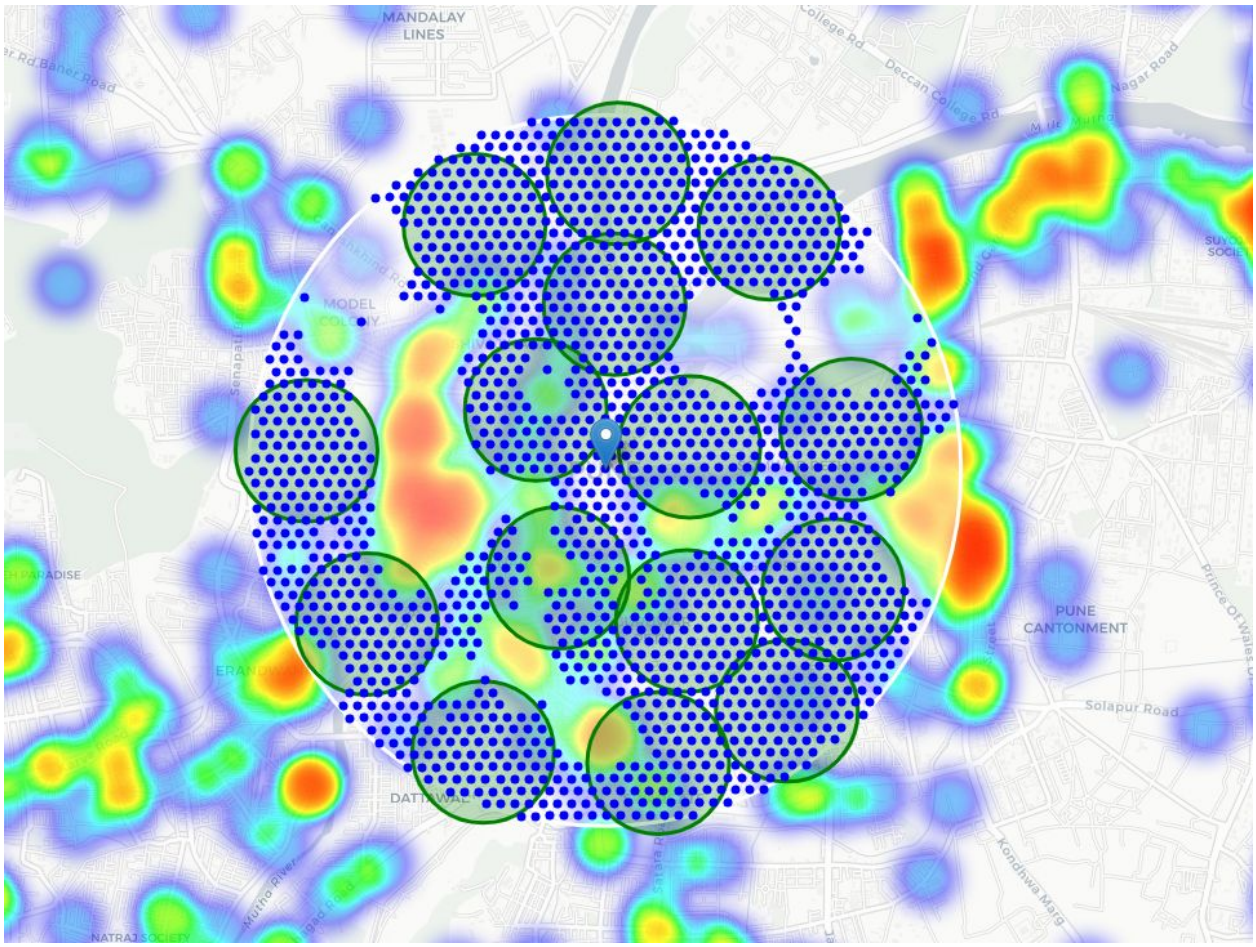

Figure 15: Map of 15 clusters of good locations with heatmap

These clusters represent groupings of most of the candidate locations and cluster centers are placed nicely in the middle of the zones 'rich' with location candidates.

Addresses of those cluster centers will be a good starting point for exploring the neighborhoods to find the best possible location based on neighborhood specifics.

Shaded map of 15 clusters without heatmap

Let's see those zones on a city map without a heatmap, using shaded areas to indicate our clusters.

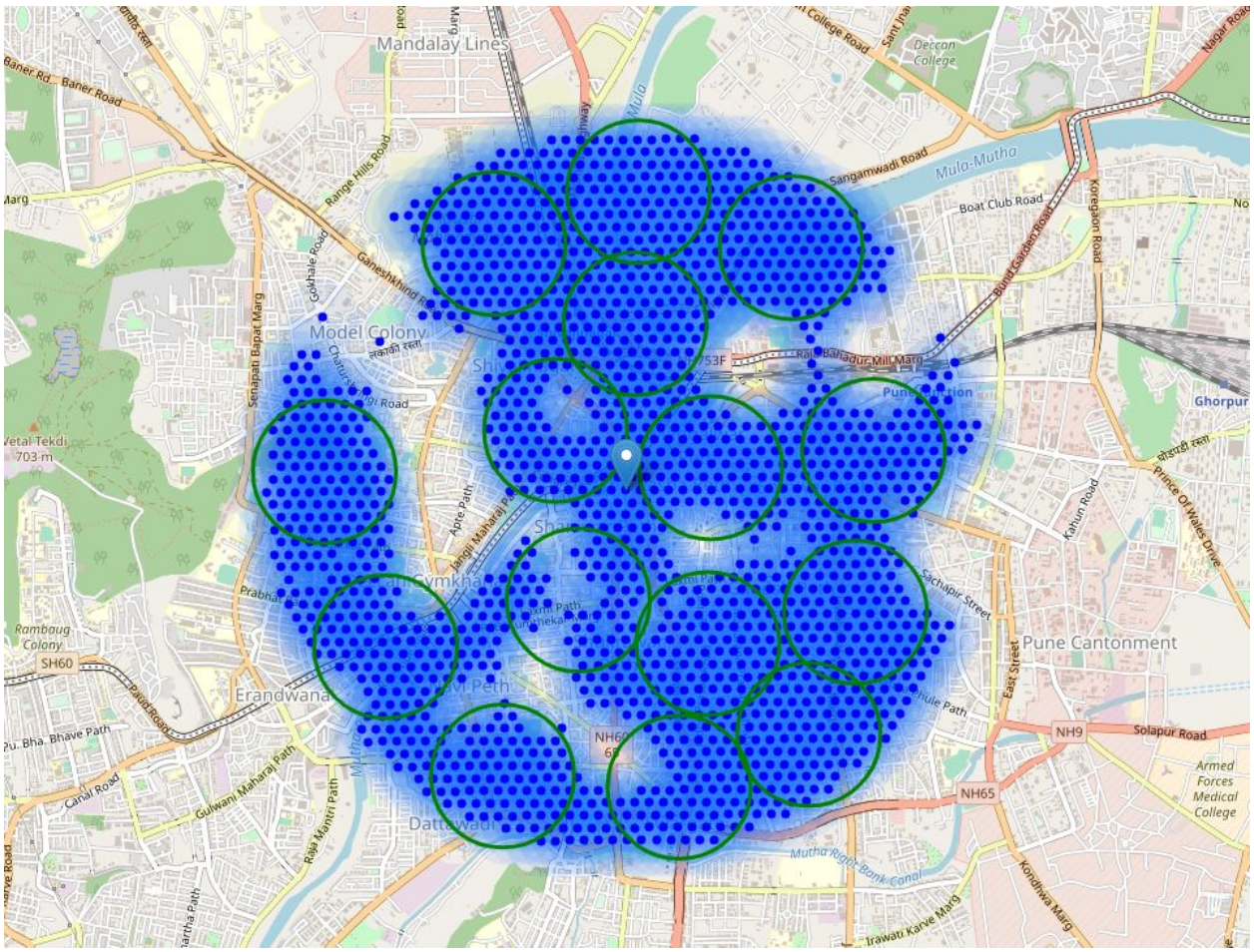

Figure 16: Map of 15 clusters as shadows without heatmap

List of 15 recommended locations with addresses

Now we find the center location of each cluster and get their latitude and longitude values. Then we apply reverse geocode to these cluster centers to get the addresses which can be presented to stakeholders.

This list contains addresses of the center of areas recommended for further analysis and their distance from the Pune city center. The figure below shows the list of 15 such recommendations based on our data analysis. All these recommended locations are within 2.5 km radius from the Pune city center.

```
============================================================
Addresses of centers of areas recommended for further analysis
============================================================

Mokshagundam Vishweshvarayya Flyover, Shivajinagar, Pune => 1.2km from Pune
Hamalwada Parking, Bhat Bol, Narayan Peth, Pune    => 0.8km from Pune
Swargate, Pune                                     => 2.1km from Pune
Timber Market, Ganesh Peth, Pune                   => 2.1km from Pune
Abasaheb Garware College, Karve Road, Deccan Gymkhana, Pune, Pune City, Pune District, Maharashtra, 411004, India => 2.0km from Pune
Krushi Mahavidyalay, Ganeshkhind Road, Model Colony, Pune => 1.9km from Pune
Ganesh Peth, Pune                                  => 1.8km from Pune
Shivajinagar, Pune                                 => 2.1km from Pune
Sangamwadi Road, Mangalwar Peth, Pune, Pune City, Pune District, Maharashtra, 411011, India => 2.0km from Pune
Madhavrao Peshve Marg, Dattawadi, Pune             => 2.1km from Pune
Shivajinagar, Pune                                 => 0.6km from Pune
Mangalwar Peth, Pune, Pune City, Pune District, Maharashtra, 411011, India => 0.6km from Pune
Guruwar Peth, Pune, Pune City, Pune District, Maharashtra, 411002, India => 1.2km from Pune
Sneh Paradise, Deccan Gymkhana, Pune, Pune City, Pune District, Maharashtra, 411004, India => 2.1km from Pune
Somwar Peth, Pune                                  => 1.8km from Pune
```

Figure 17: Addresses of 15 recommended locations

This concludes our analysis. We have created 15 addresses representing centers of zones containing locations with low number of restaurants and no Italian restaurants nearby, all zones being fairly close to Pune city center within 2.5 km.

Although zones are shown on map with a radius of ~500 meters (green circles), their shape is actually very irregular and their centers/addresses should be considered only as a starting point for exploring area neighborhoods in search for potential restaurant locations.

Results

Based on our data analysis, we found answers to all four questions defined in business problem:

1. There are 552 restaurants present in a radius of 6 km around Pune city center.
2. There are 24 Italian restaurants out of these 552 identified restaurants. This means 4.35 % existing Italian restaurants.
3. There are 1635 locations with no more than two restaurants nearby and with no Italian restaurants within 2.5 km area.
4. The final list of 15 recommended locations with addresses are given below.

Final recommendations of 15 good locations

The final list of recommendations as as follows:

Sl. No.	Recommended Location Address	Distance from Pune city center
1.	Mokshagundam Vishweshvarayya Flyover, Shivajinagar, Pune	1.2 km
2.	Hamalwada Parking, Bhat Bol, Narayan Peth, Pune	0.8 km
3.	Swargate, Pune	2.1 km
4.	Timber Market, Ganesh Peth, Pune	2.1 km
5.	Abasaheb Garware College, Karve Road, Deccan Gymkhana, Pune	2.0 km
6.	Krushi Mahavidyalay, Ganeshkhind Road, Model Colony, Pune	1.9 km
7.	Ganesh Peth, Pune	1.8 km
8.	Shivajinagar, Pune	2.1 km
9.	Sangamwadi Road, Mangalwar Peth, Pune,	2.0 km
10.	Madhavrao Peshve Marg, Dattawadi, Pune	2.1 km
11.	Shivajinagar, Pune	0.6 km
12.	Mangalwar Peth, Pune	0.6 km
13.	Guruwar Peth, Pune	1.2 km
14.	Sneh Paradise, Deccan Gymkhana, Pune	2.1 km
15.	Somwar Peth, Pune	1.8 km

Map of 15 recommended good locations

We display 15 recommended locations on the map of Pune city center.

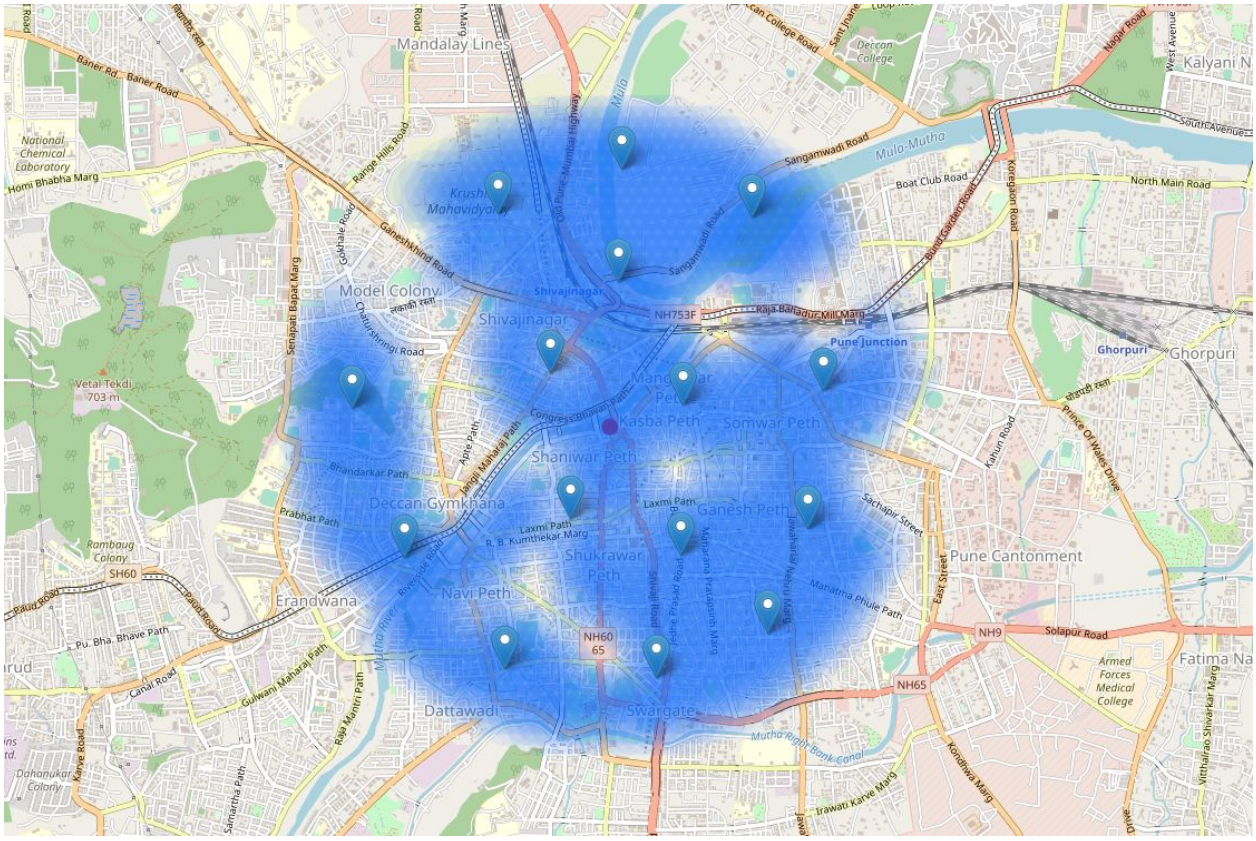

Figure 18: Map of final 15 recommended locations

Discussion

Our data analysis shows that there is a good number of restaurants in Pune, 552 in our initial area of interest which was in a radius of 6 km around Pune city center. However there are pockets of low restaurant density fairly close to the city center. Highest concentration of restaurants is detected *north-east* and *north-west* from the city center, so we focused our attention to areas *south*, *south-east*, *south-west* and *north*.

We further narrowed down our area of interest with a radius of 2.5 km around Pune city center. We first created a dense grid of location candidates, spaced 100 m apart. These locations are then filtered such that the locations with more than two restaurants in a radius of 250 m and with an Italian restaurant closer than 400m were removed.

These location candidates were then clustered to create zones of interest which contain the greatest number of location candidates. Addresses of centers of those zones were also generated using reverse geocoding to be used as markers/starting points for more detailed local analysis based on other factors.

Result of all this is 15 zones containing the largest number of potential new restaurant locations based on number of and distance to existing venues - both restaurants in general and Italian restaurants particularly.

This, of course, does not imply that those zones are actually optimal locations for a new restaurant! Purpose of this analysis was to only provide info on areas close to Pune city center but not crowded with existing restaurants (particularly Italian). It is entirely possible that there is a very good reason for a small number of restaurants in any of those areas, reasons which would make them unsuitable for a new restaurant regardless of lack of competition in the area. Recommended zones should therefore be considered only as a starting point for more detailed analysis which could eventually result in location which has not only no nearby competition but also other factors taken into account and all other relevant conditions met.

Conclusion

Purpose of this project was to identify Pune areas close to the city center with low number of restaurants, particularly Italian restaurants, in order to aid stakeholders in narrowing down the search for optimal location for a new Italian restaurant.

By calculating restaurant density distribution from Foursquare data we have first identified general locations that justify further analysis, and then generated an extensive collection of locations which satisfy some basic requirements regarding existing nearby restaurants.

Clustering of those locations was then performed in order to create major zones of interest containing greatest number of potential locations and addresses of these zone centers were created to be used as starting points for final exploration by stakeholders.

Final decision on optimal restaurant location will be made by stakeholders based on specific characteristics of neighborhoods and locations in every recommended zone,

taking into consideration additional factors like attractiveness of each location (proximity to park or water), levels of noise or proximity to major roads, real estate availability, prices, social and economic dynamics of every neighborhood etc.
