

Finding a suitable place to run a restaurant in the city of Visakhapatnam, India

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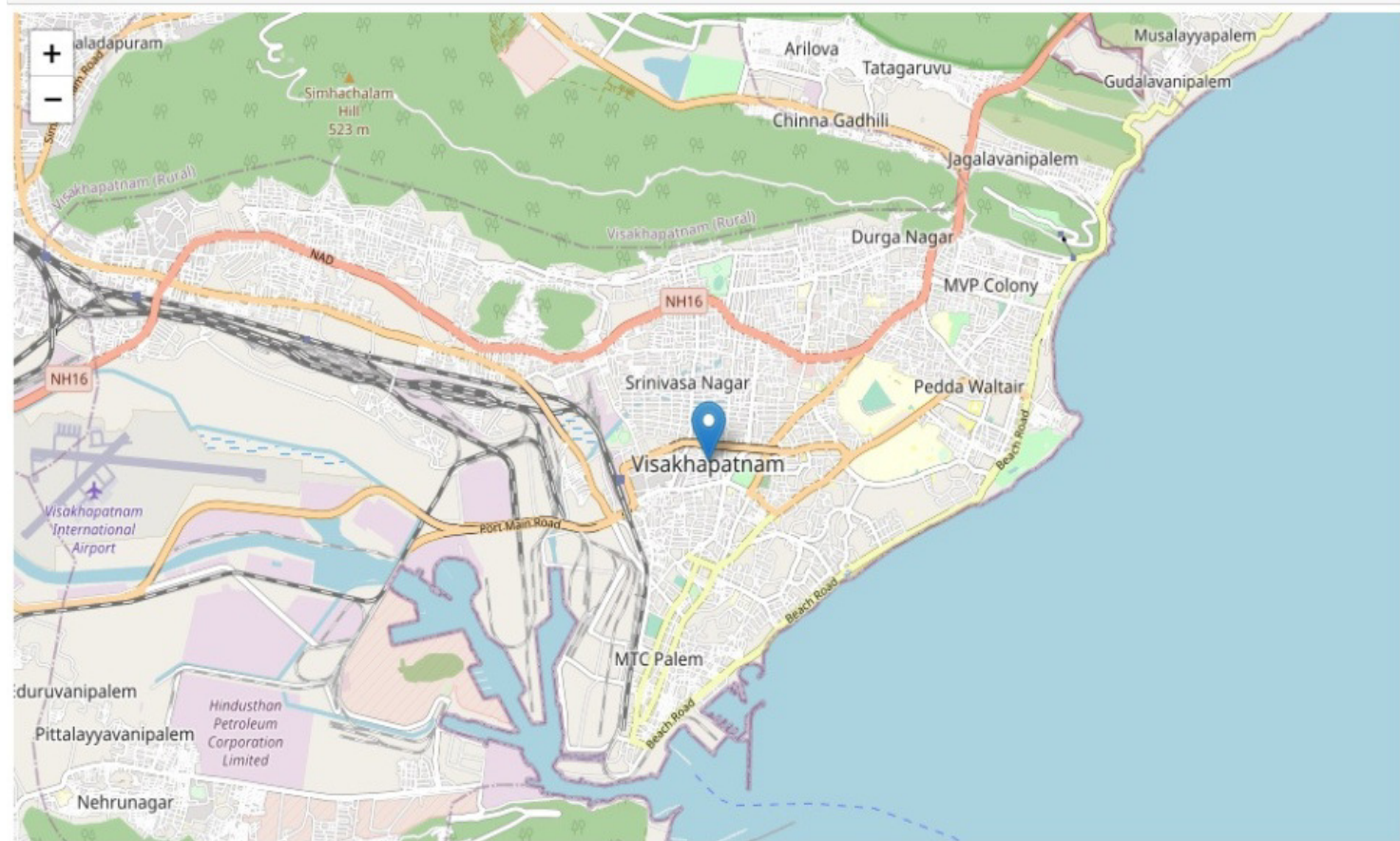
1. Introduction: Business problem

Target audience

Any Business man who is willing to establish a restaurant in the city of Visakhapatnam; India

Use the plots and maps from this work to quickly select places that suit their budget and quality preferences

Map of
Visakhapatnam



2. Data

Data Sources

•Foursquare API

- used to fetch venues in Visakhapatnam with a range of 15 Kilometres from centre.
- Foursquare API gives the following information for each venue:

Name: The name of the venue.

Category: The category type as defined by the API.

Latitude: The latitude value of the venue.

Longitude: The longitude value of the venue.

	name	categories	lat	lng
0	Ramakrishna Mission Beach	Beach	17.715271	83.324016
1	Cream & Fudge	Ice Cream Shop	17.719339	83.311927
2	Novotel Varun Beach	Restaurant	17.710712	83.316263
3	Novotel Visakhapatnam Varun Beach	Hotel	17.710829	83.316218
4	Food Ex	Fast Food Restaurant	17.722155	83.318422

Zomato API gives the the following information for each venue:

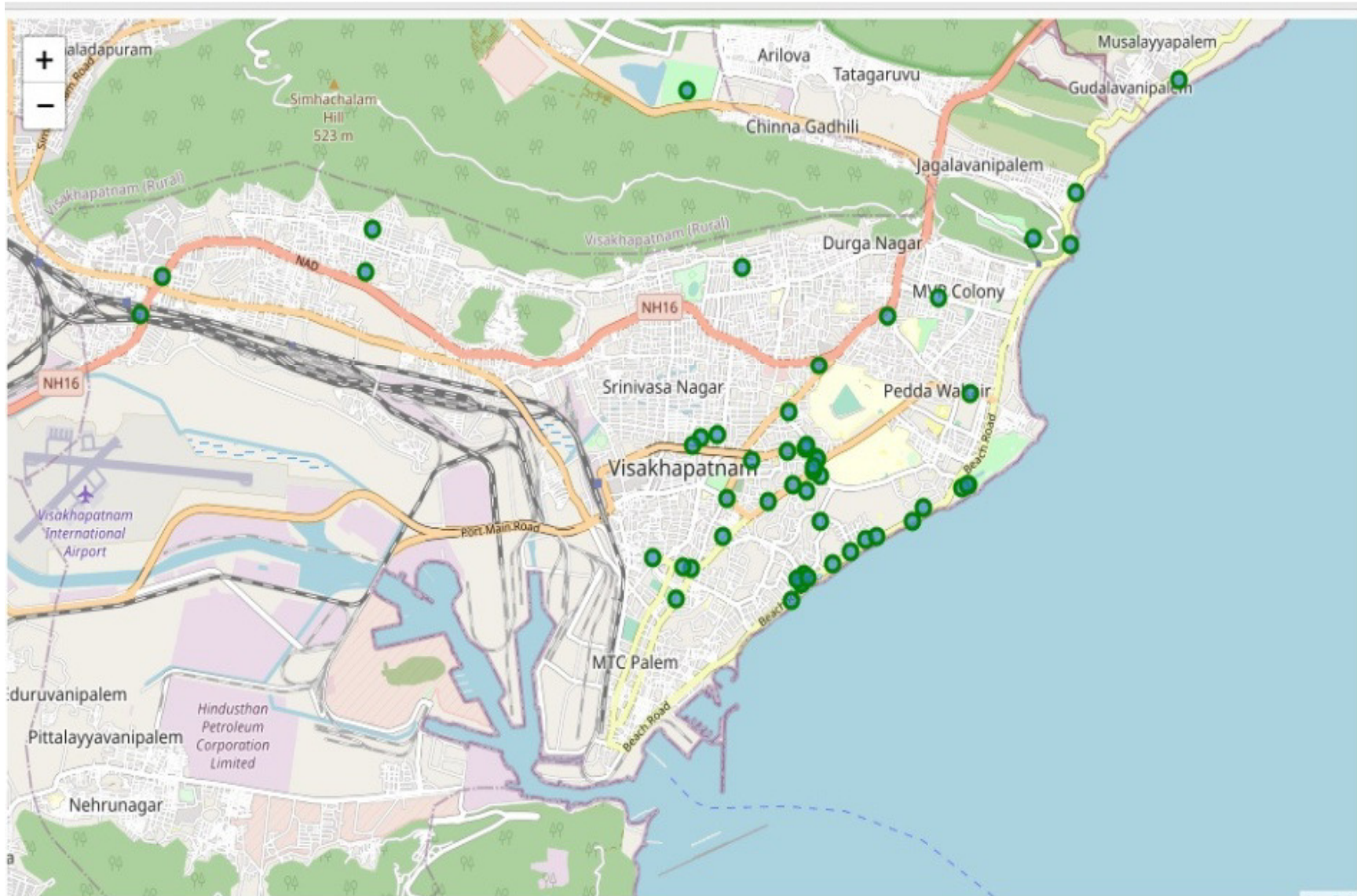
- Name:** The name of the venue.
- Address:** The complete address of the venue.
- Rating:** The ratings as provided by many users.
- Price range:** The price range the venue belongs to as defined by Zomato.
- Price for two:** The average cost for two people dining at the place. I later convert the same to average price per person by dividing by 2.
- Latitude:** The latitude value of the venue.
- Longitude:** The longitude value of the venue.

Out[7]:

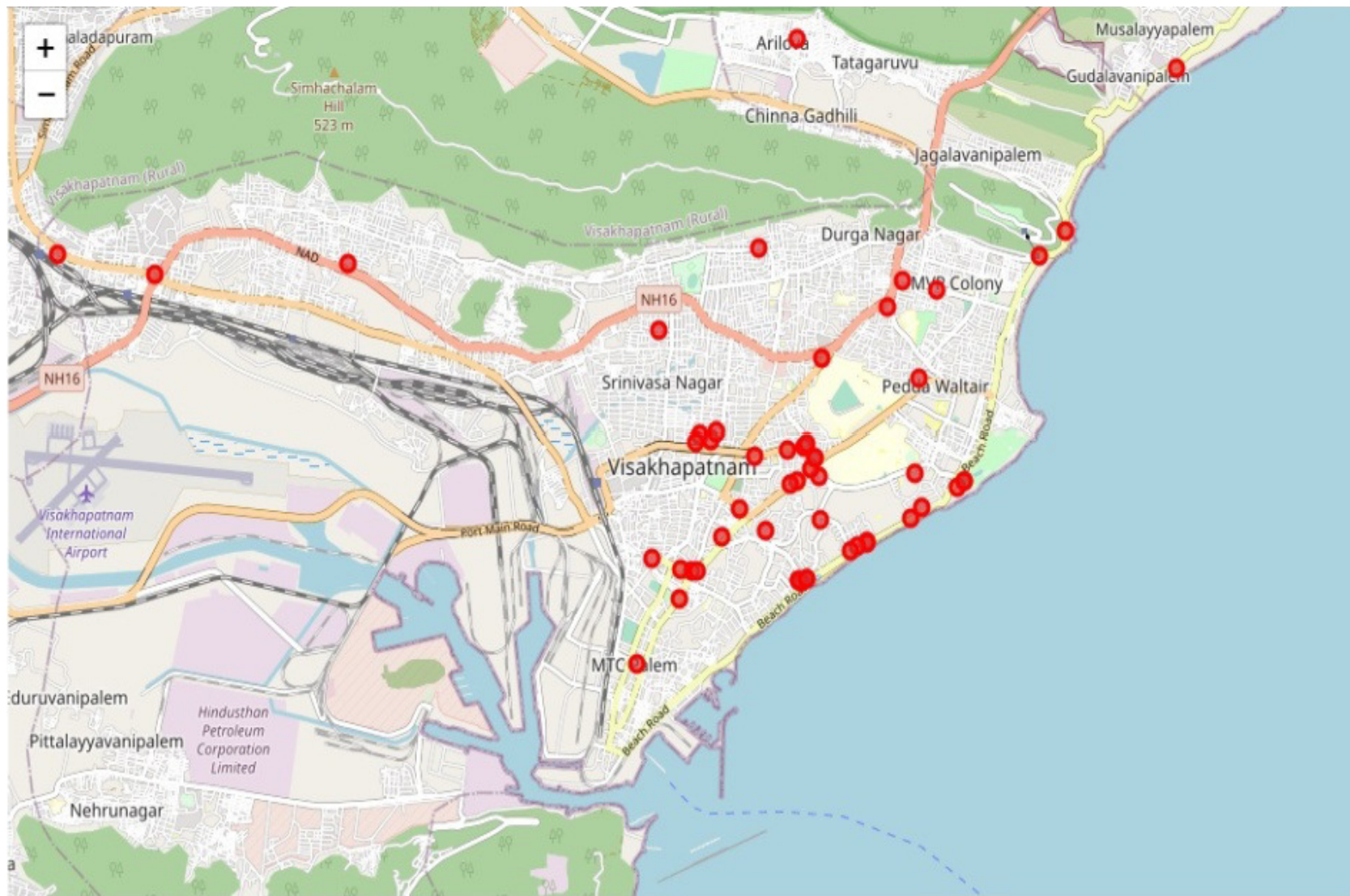
Unnamed: 0	venue	latitude	longitude	price_for_two	price_range	rating	address
0	Coffee Wave	17.715136	83.324426	500	2	3.8	RK Beach Road, Next to Bay Fashion, Panduranga...
1	Mumbai Kulfi	17.718523	83.308448	150	1	4.0	10-53-280, LIG-6/3, Nehrunagar Quarters, Ram N...
2	Infinity - Hotel Novotel	17.710937	83.316146	2000	4	4.1	Hotel Novotel, Beach Road, Maharani Peta, Vizag
3	Infinity - Hotel Novotel	17.710937	83.316146	2000	4	4.1	Hotel Novotel, Beach Road, Maharani Peta, Vizag
4	Food Ex	17.721970	83.318490	700	2	4.2	Block A, VUDA Complex, Udyog Bhavan, Behind HS...
5	Sam's Griddle	17.721625	83.315758	1000	3	4.1	3rd Floor, Srikanya Canopy, Waltair Main Road,...
6	Hotel Attarillu	17.712026	83.302462	250	1	3.8	Beside KLM Shopping Mall Jagadamba Junction, V...
7	Sri Sairam Parlour	17.726345	83.303422	300	1	4.4	Diamond Park, Railway New Colony Road, Dwaraka...
8	Sweet India	17.725141	83.316610	150	1	4.3	Dno: 10-1-44, CBM Compound, Visakhapatnam, Sri...
9	Satya Sea park food court	17.716372	83.311767	200	1	2.7	Opposite to submarine near YMCA, Maharani Peta...
10	Baskin Robbins	17.711039	83.315791	200	1	3.4	Sarvani traders(baskin robbins), Ground Floor,...

3. Data Processing

Try to find differences in both data sets derive differences
The venues of data retrieved from Foursquare API.



The venues of data retrieved from Zomato API



The latitude and longitude values of each corresponding venue need to match

Drop all respective venues from the two datasets that had their latitude and longitude values differ by more than 0.0004

The final data set

	categories	Unnamed: 0	venue	latitude	longitude	price_range	rating	address	average_price
0	Beach	0.0	Coffee Wave	17.7151	83.3244	2.0	3.8	RK Beach Road, Next to Bay Fashion, Panduranga...	250.0
1	Restaurant	2.0	Infinity - Hotel Novotel	17.7109	83.3161	4.0	4.1	Hotel Novotel, Beach Road, Maharani Peta, Vizag	1000.0
2	Fast Food Restaurant	4.0	Food Ex	17.7220	83.3185	2.0	4.2	Block A, VUDA Complex, Udyog Bhavan, Behind HS...	350.0
3	Indie Movie Theater	6.0	Hotel Attarillu	17.7120	83.3025	1.0	3.8	Beside KLM Shopping Mall Jagadamba Junction, V...	125.0
4	Indian Restaurant	7.0	Sri Sairam Parlour	17.7263	83.3034	1.0	4.4	Diamond Park, Railway New Colony Road, Dwaraka...	150.0
5	Snack Place	8.0	Sweet India	17.7251	83.3166	1.0	4.3	Dno: 10-1-44, CBM Compound, Visakhapatnam, Sri...	75.0
6	Multiplex	10.0	Baskin Robbins	17.7110	83.3158	1.0	3.4	Sarvani traders(baskin robbins), Ground Floor,...	100.0

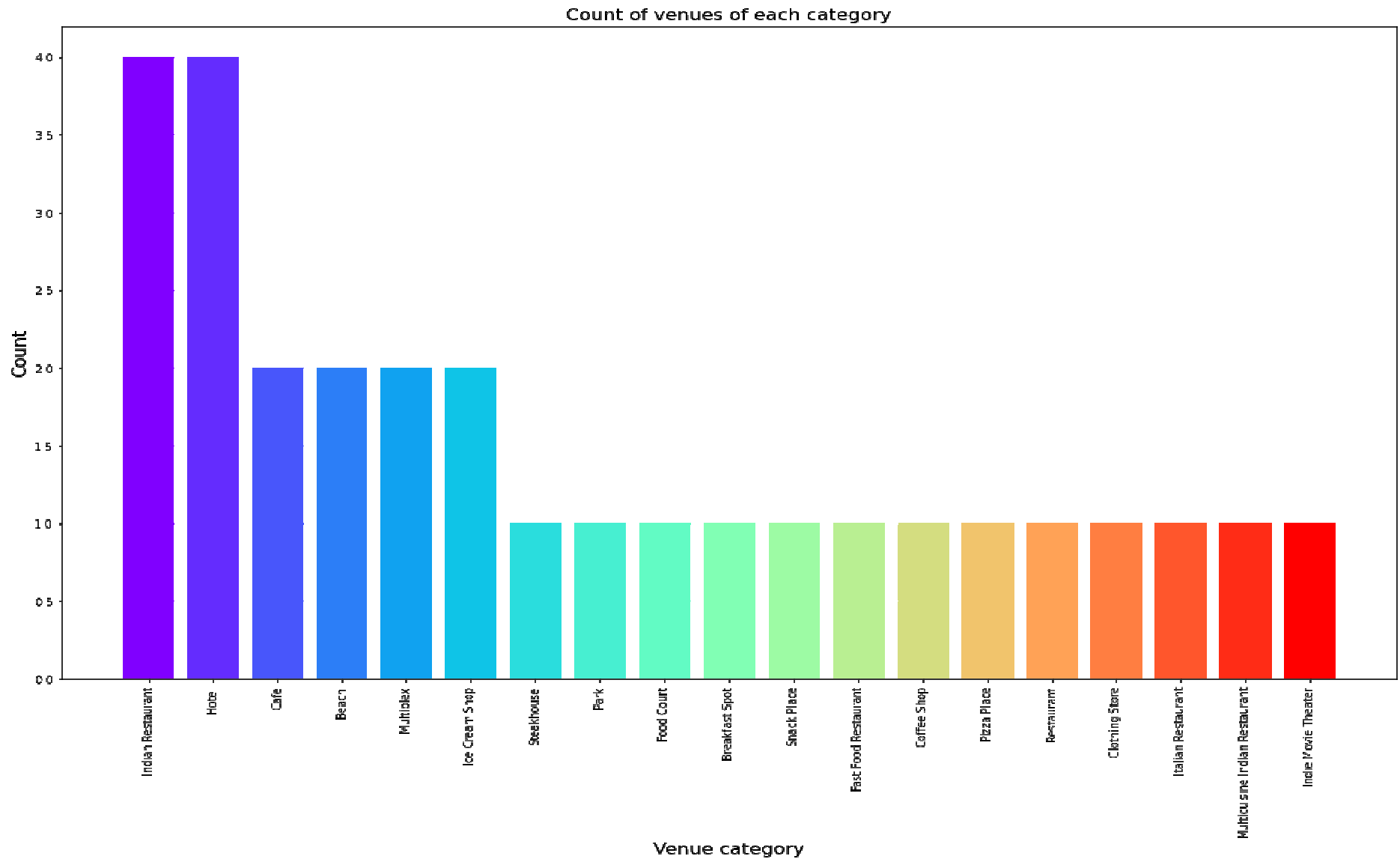
The dataset is left with 33 venues after dropping venues with similar locations

The final dataset is left with 29 venues after dropping venues with no rating

4. Methodology and Exploratory Data Analysis

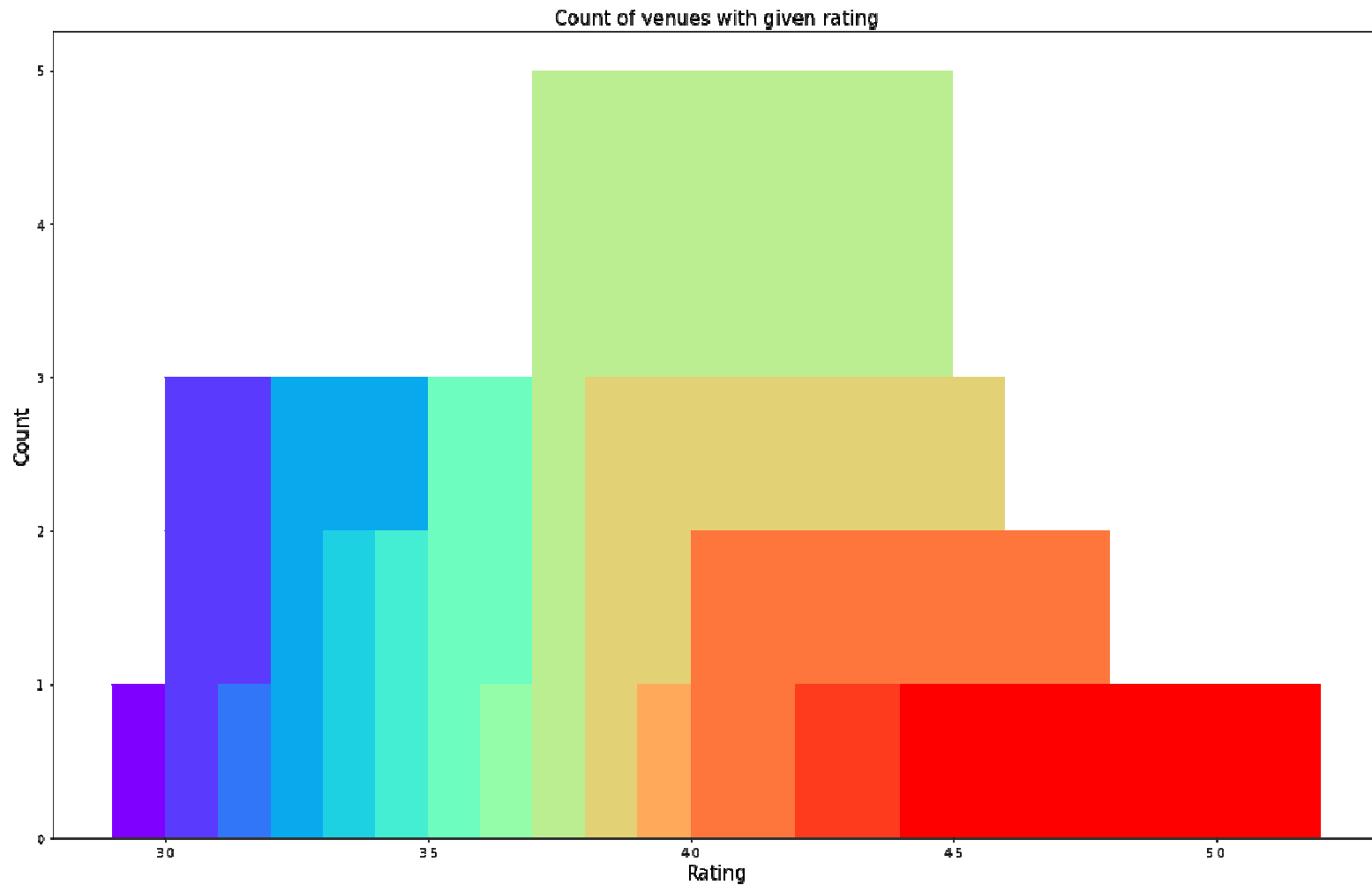
- Identify the **best business** in the city
- **Analyze the data** that is created based on the ratings and price of each venue.
- **Identify places where many venues are located** so that any investor can choose the place amongst many venue options.
- Explore **areas that are high rated and those that are low rated**
- Explore **high and low priced venues**.
- **Cluster the venues** based on the available information of each venue. This will allow us to clearly identify which place can be recommended and with what characteristics.

The venues count category wise



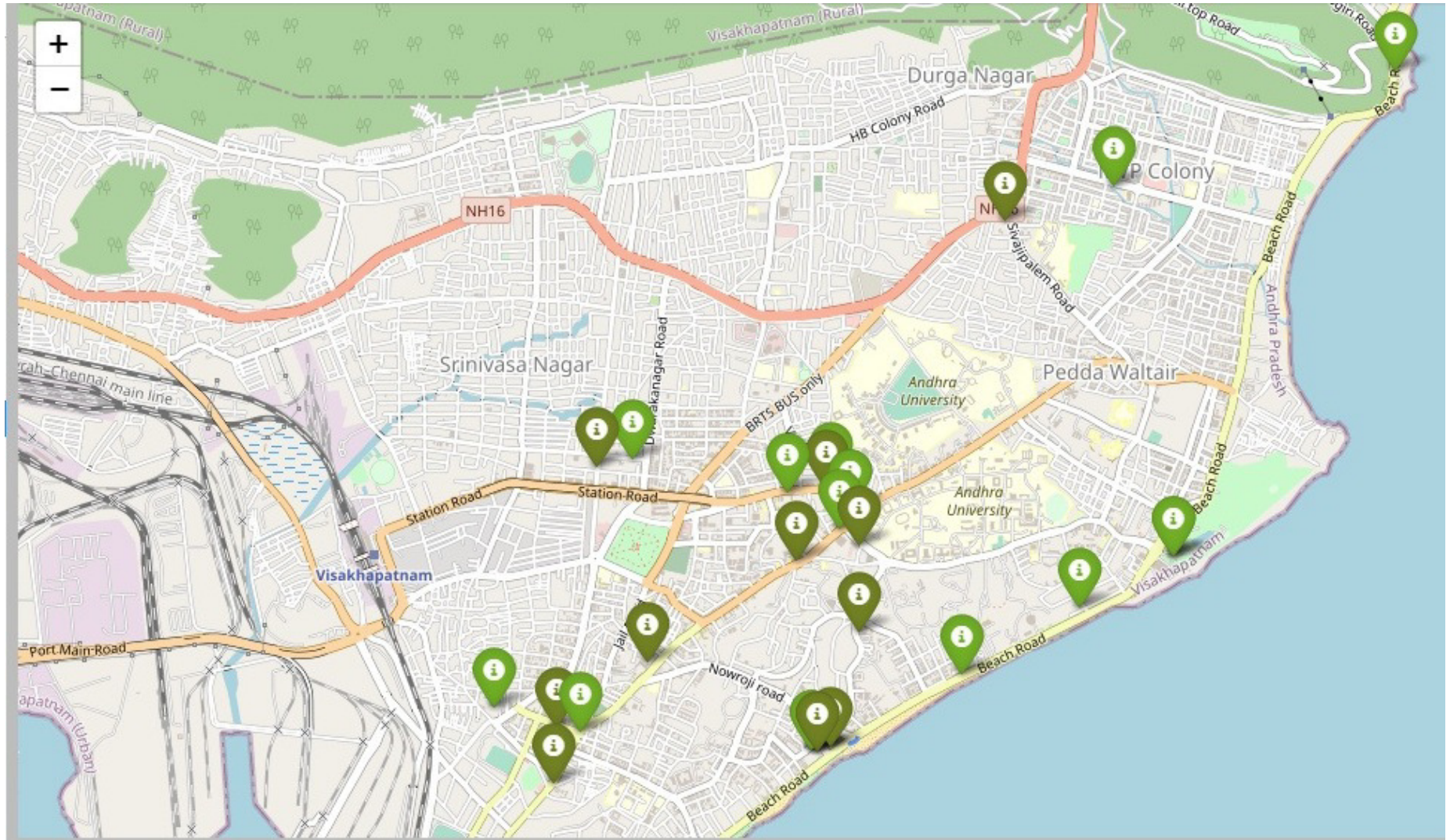
The profitable business in Visakhapatnam must be restaurant.

The average rating venues in Visakhapatnam



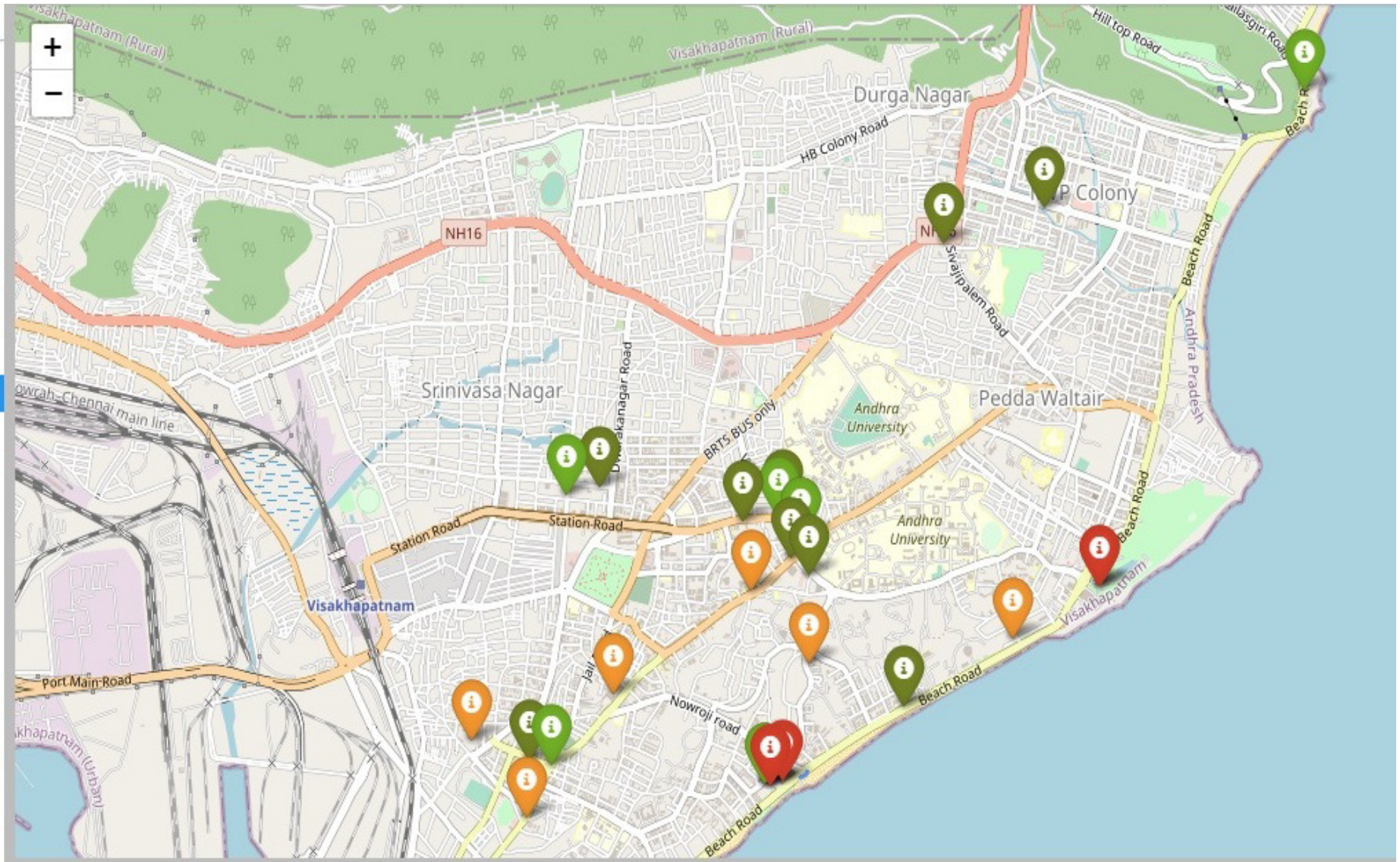
The average rating is spread across 4 with maximum number of venues scoring between 3 and 5.

Plot of venues with different ratings. The venues that were rated below 3 were marked by red and orange while the venues that were rated more than or equal to 3 were plot as green and dark green



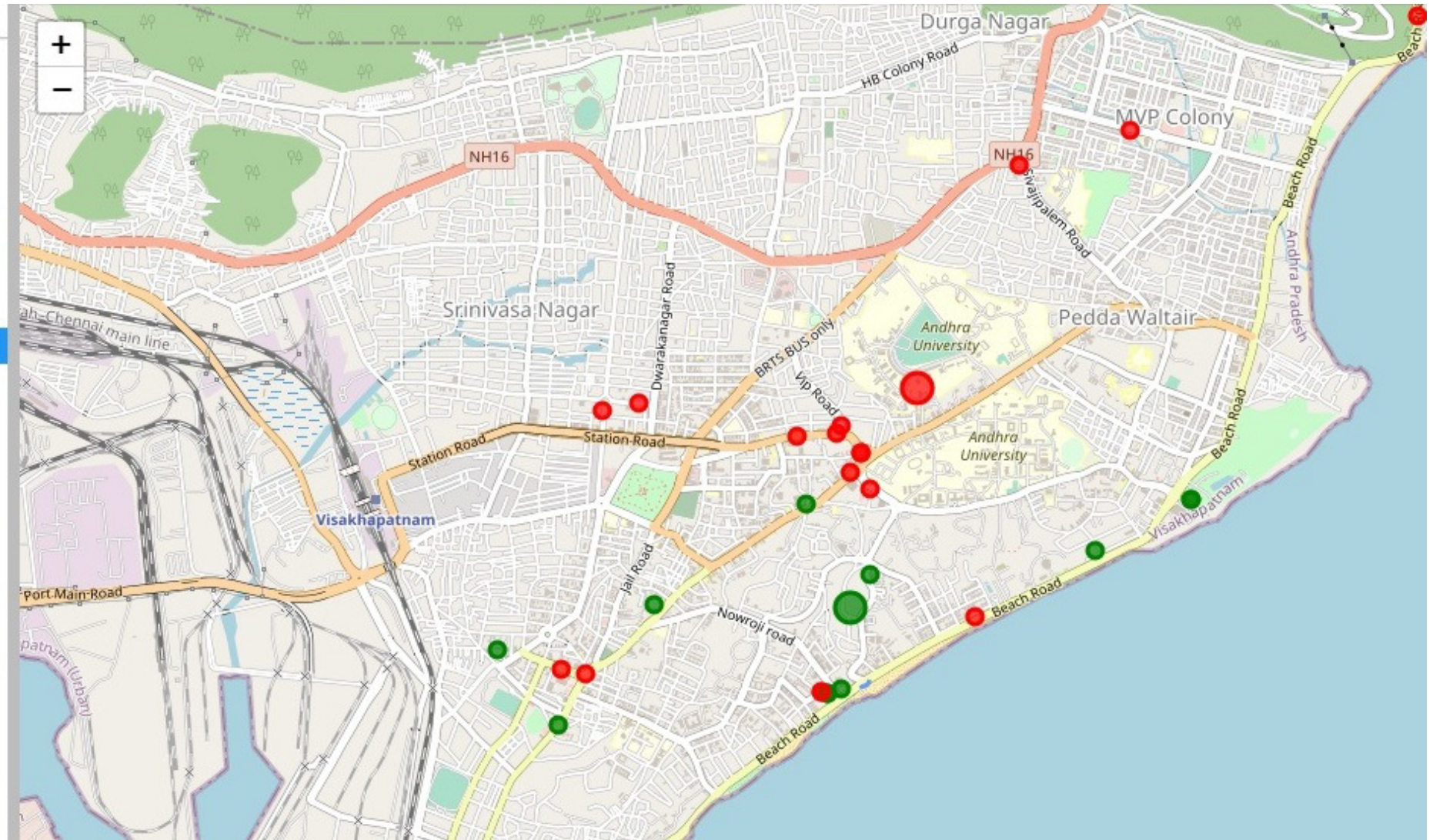
mix of high and low rated venues are located around Siripuram, Waltair uplands
Low rated venues are located mostly in Beach road

Plot of Average prices of all venues



Siripuram and central Visakha are primarily lower priced. The venues in Beach area and Waltair uplands have steep prices

Plot of clusters of venues



- The first cluster (green) is spread across the whole city and includes the majority venues. These venues have mean price range of 3.45 and rating spread around 4.01.
- The second cluster (red) is very sparsely spread and has very limited venues. These venues have mean price range of 1.61 and rating spread around 3.89.

5. Results and Conclusion

- If the entrepreneur wish to establish a high priced high rated restaurant he better opt for beach road.
- If entrepreneur wish to establish a mid priced and high rated restaurant he better choose Siripuram or central Vizag.

It can be concluded that the best place to choose for establishing a quality restaurant would be the Siripuram area or central Vizag as there are less number of good rated venues are existing in those areas.