

Location recommendation for Restaurant



Comprehensive study of venues in Hyderabad, India to recommend suitable location for new Restaurant

For **TeamV5**,
Hyderabad, India

By Venu Siva Vardhan Sivuni

Introduction

I was approached by a startup team, named 'TeamV5' restaurant to help in finding best place for those to start a new restaurant in Hyderabad, India. Hyderabad is the capital city of Telangana State of India, has an estimated population of around 8 million.

Hyderabad is a hub of trade and commerce and an international center for information technology (IT).

Some of team members are based out of hyderabad but they don't have prior experience on restaurant business. Other team members having experience in restaurant business but relatively new to Hyderabad, India and customer tastes.

So the team decided to take help of data and approached me (data scientist).

Business Probelem (requirements)

Upon initial agreement to assist TeamV5, following requirements/business needs are identified in series of discussions:

1. Type of Restaurant - Italian or Muti-cuisine
2. What are the key decision making factors that 'TeamV5' decide restaurant's location, such as shopping centers, gaming zones, Night life etc.
3. Is team want's rent the place or they would like to buy/start in their own location
4. Are there any existing Italian restaurant in same/nearby location where TeamV5 considering to setup their restaurant? and ratings of such existing restaurants?
5. Is it risky to open new restaurant in same location or it helps to grab customers more quickly?
6. Are there any locations shortlisted by the team yet or they are open anywhere in Hyderabad?

Out of scope: Investment/budget limitations, decisions on staff recruitmentment/chefs, offers etc are out of scope from Data Scientist.

Discussion

In a series of further discussions with TeamV5, it is mutually agreed/concluded as below (response/answers to problems identified at requirements section):

- TeamV5 confirmed they are going to setup "ITALIAN" Restaurant. TeamV5 clarified, they would like to go for rent to minimize investment cost being a startup company. (Though have long term plans to buy property of their own)
- TeamV5 considering locations such as Jubilee Hills/Banjara Hills where existing Italian restaurants running since many years.
- I have assured to provide list of Italian restaurants in and around same location of Hyderabad city (with help of data from foursquare.com).
- TeamV5 considering locations close by to existing other Italian restaurants to grab like minded customers and confident to hold them with their quality of food and service. I have assured to provide ratings of existing Italian restaurants, provided available in foursquare website/database.
- TeamV5 considered to open restaurant in close by location of existing Italian restaurant, as this is less risky than opening restaurant in all together new location and experiment. (As this is their business decision, haven't interfered and respected their decision)

Solution1

Exploratory Analysis of the locations
using **Foursquare Location API** with **Python**



- Foursquare is reliable application in terms of location-specific information like user reviews, location tips and much more.
- Foursquare gives useful insights of popular venues of selected location.

Implementation

First:

Fetch Geolocation parameters (latitude, longitude) of the location and access the Foursquare location API to get info of venues offer Italian cuisine.

Then:

Visualize the analysis using library – Folium (for geographically visualize the venues).

Conclusion:

Draw conclusion based on the information collected out of above analysis.

Observations:

Listed existing restuarants offer Italian cuisine

Out[9]:

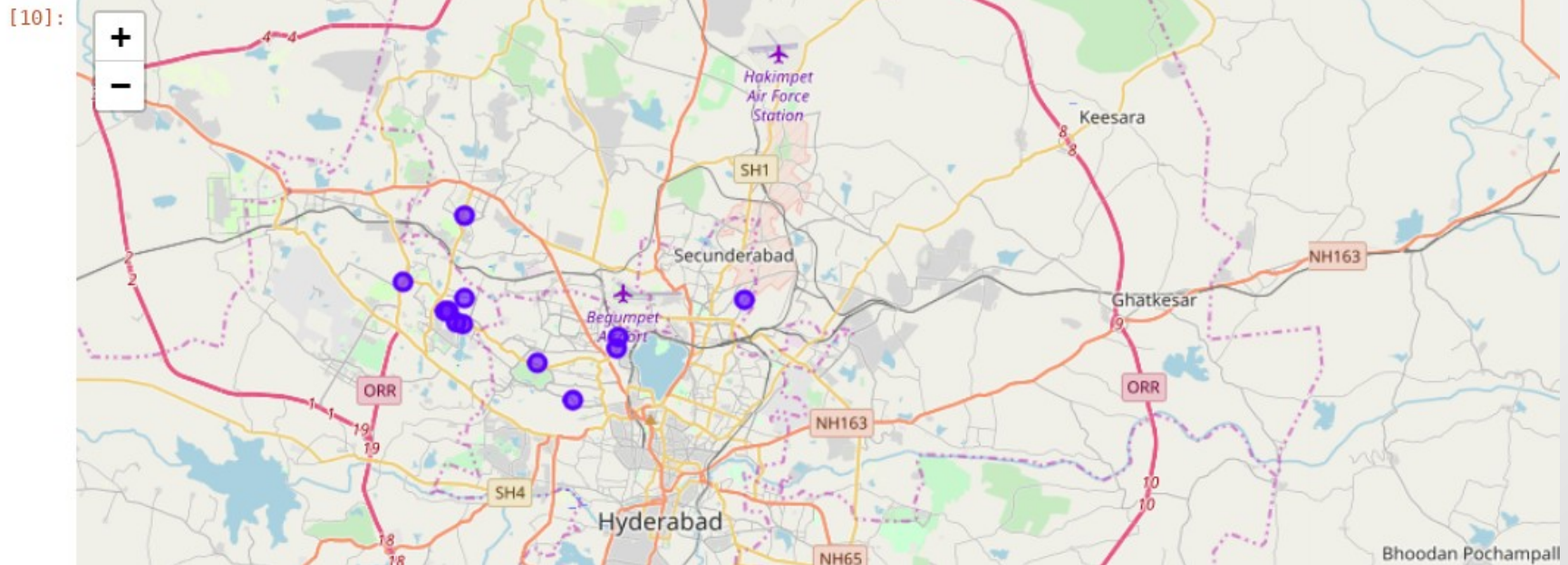
	name	categories	address	cc	city	country	crossStreet	distance	formattedAddress	labeled
0	Italian Pizza	Pizza Place	NaN	IN	Secunderabad	India	NaN	21072	[Secunderabad, Telangana, India]	[{"label": 17.4508}
1	Italian Pizza	Pizza Place	Ratnadeep, Hitech City	IN	Hyderabad	India	Hitech City	32126	[Ratnadeep, Hitech City (Hitech City), Hyderabad...	[{"label": 17.4462}
2	Italian Pizza	Pizza Place	Ratnadeep Hitech City	IN	Hyderabad	India	Hitech City	32278	[Ratnadeep Hitech City (Hitech City), Hyderabad...	[{"label": 17.4462}
3	Mozzarella Italian	Italian Restaurant	Rd No:12	IN	Hyderabad	India	Banjara Hills	25427	[Rd No:12 (Banjara Hills), Hyderabad, Telangan...	[{"label": 17.4104}
4	Amore Gourmet Italian Gelato	Ice Cream Shop	Car Khana	IN	Hyderabad	India	Jubilee Hills	27502	[Car Khana (Jubilee Hills), Hyderabad 500034, ...	[{"label": 17.4250}
5	Minus 4 - Italian concept Icecreams	Dessert Shop	NaN	IN	NaN	India	NaN	31727	[India]	[{"label": 17.4517}
6	Gelato Italiano	Dessert Shop	NaN	IN	NaN	India	NaN	24768	[India]	[{"label": 17.4357}
7	dinshaw's Italian Pizza And Ice Cream Parlour	Pizza Place	NaN	IN	NaN	India	NaN	34531	[India]	[{"label": 17.4576}
8	Gelato Italiano	Ice Cream Shop	Greenlands Flyover, Telangana Region, Punjagutta	IN	Secunderabad	India	NaN	24576	[Greenlands Flyover, Telangana Region, Punjagu...	[{"label": 17.4311}
9	Gelato Italiano @Sameplace	Ice Cream Shop	NaN	IN	NaN	India	NaN	31320	[India]	[{"label": 17.4410}
10	Gelato Italiano	Ice Cream Shop	Madhapur	IN	Hyderabad	India	NaN	31589	[Madhapur, Hyderabad, Telangana, India]	[{"label": 17.4416}
11	Gelato Italiano	Ice Cream Shop	NaN	IN	NaN	India	NaN	33526	[India]	[{"label": 17.4846}

Generated map with Italian restaurants

```
[10]: venues_map = folium.Map(location=[latitude, longitude], zoom_start=11) # generate map of Hyderabad with Italian restaurants

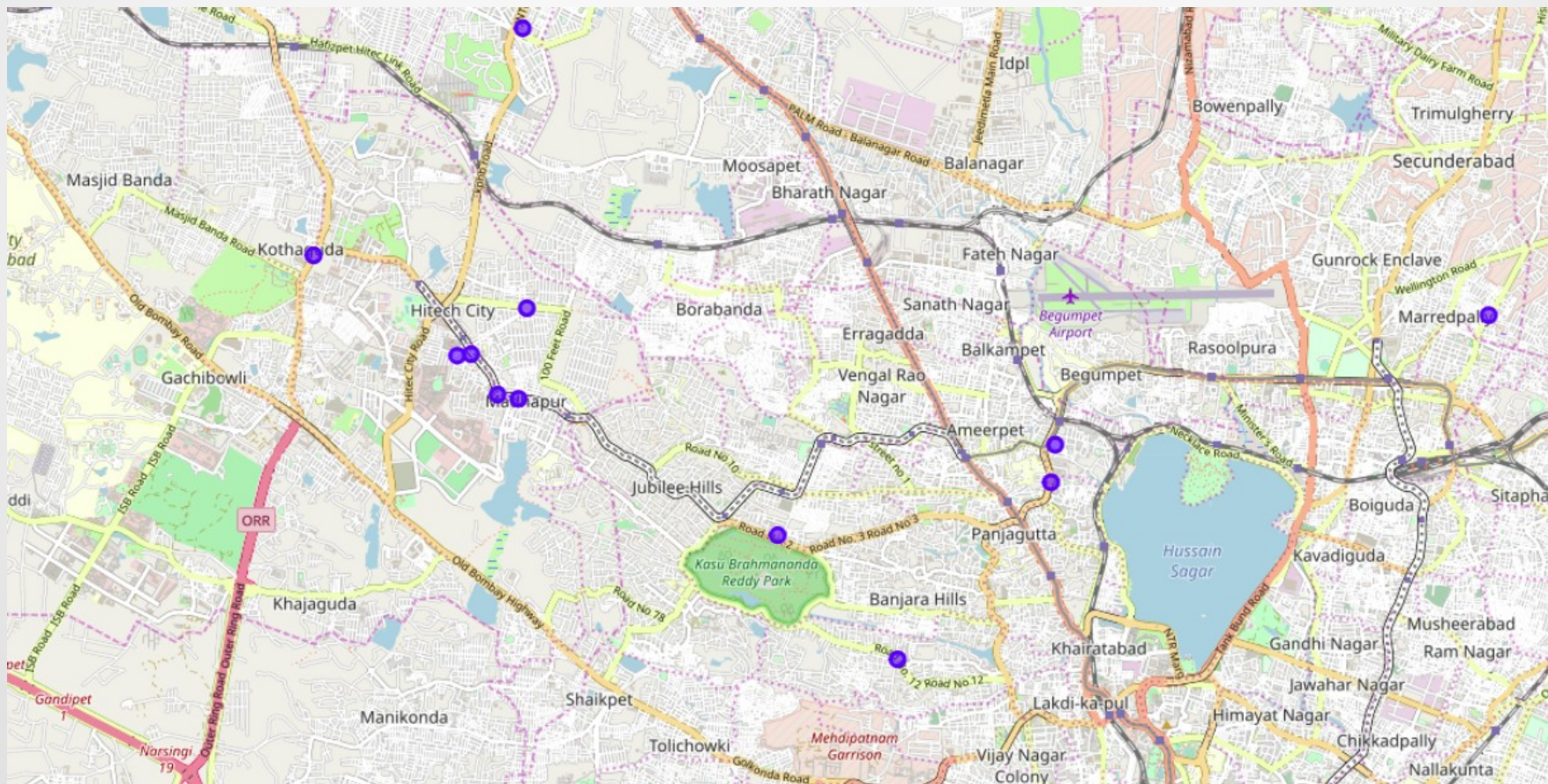
# add the Italian restaurants as blue circle markers
for lat, lng, label in zip(dataframe_filtered.lat, dataframe_filtered.lng, dataframe_filtered.categories):
    folium.features.CircleMarker(
        [lat, lng],
        radius=5,
        color='blue',
        popup=label,
        fill = True,
        fill_color='blue',
        fill_opacity=0.6
    ).add_to(venues_map)

# display map
venues_map
```



Zooming of map for more clarify

It is clear that Banjara Hills/ Jubilee Hills are perfect location to setup new Italian restaurant



Conclusion

TeamV5 decided to setup new restaurant in Jubilee Hills/Banjara Hills depending on the rental space they are going to get, as other Italian restaurants are mostly close by to these locations and also have existing customer base in these locations. Opening restaurants in all together new areas may be risky per TeamV5.



Thank you

End Note

Please note this is a humble attempt to demonstrate for assignment and in real life, it requires in depth analysis and gathering data for other than foursquare website is required. (such as rental values).

THANK YOU