Predicting suitable Location for Restaurants

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Predicting location for Restaurant success is valuable

- good idea to identify ones competitor in that area
- Evaluating the competition would help restaurant’s success
- Bussiness may fail during their first year, due to a lack of planning
- the more streamlined you can make it, the better your chances for success.

Data Acquisition and Cleaning

- Location data is acquired from online scraping of sites. I got required data from finkado here.
- table had just pin-codes and location name in it
- geopy package was used to extract the latitude and longitude data from table

Using Foursquare API for getting Venue data

- **Foursquare City Guide**, commonly known as **Foursquare**, is a local search-and-discovery Application
- Foursquare lets users search for restaurants, nightlife spots, shops and other places of interest
- foursquare API is popular for getting venue list for specific location provided

Visualizing venues

- Venue objects with 6 Features was selected
  - Latitude,
  - Longitude,
  - Venue,
  - Venue Latitude,
  - Venue Longitude, and
  - Venue Category

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	Area	Latitude	Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	Aminjikarai S.O, Chennai	13.07214	80.220545	McDonald's	13.073759	80.221388	Fast Food Restaurant
1	Aminjikarai S.O, Chennai	13.07214	80.220545	Westside	13.073687	80.221380	Clothing Store
2	Aminjikarai S.O, Chennai	13.07214	80.220545	@home	13.071499	80.222309	Furniture / Home Store
3	Aminjikarai S.O, Chennai	13.07214	80.220545	PVR	13.073799	80.221392	Multiplex
4	Aminjikarai S.O, Chennai	13.07214	80.220545	Landmark	13.073781	80.221393	Bookstore

Splitting as per categories for each location

- mean was taken to understand the data more correctly and to normalize it

	Area	ATM	African Restaurant	Airport	American Restaurant	Amphitheater	Antique Shop	Arcade	Arts & Crafts Store	Asian Restaurant	...	Thai Restaurant	Theater	Toy / Game Store	Train Station	Vegetarian / Vegan Restaurant
0	Aminjikarai S.O, Chennai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.000000	0.000000
1	Anna Nagar S.O (Chennai), Chennai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.500000	0.000000
2	Anna Road H.O, Chennai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.166667	0.000000
3	Chepauk S.O, Chennai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.066667	0.066667
4	Chintadripet S.O, Chennai	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	...	0.0	0.0	0.0	0.086957	0.086957

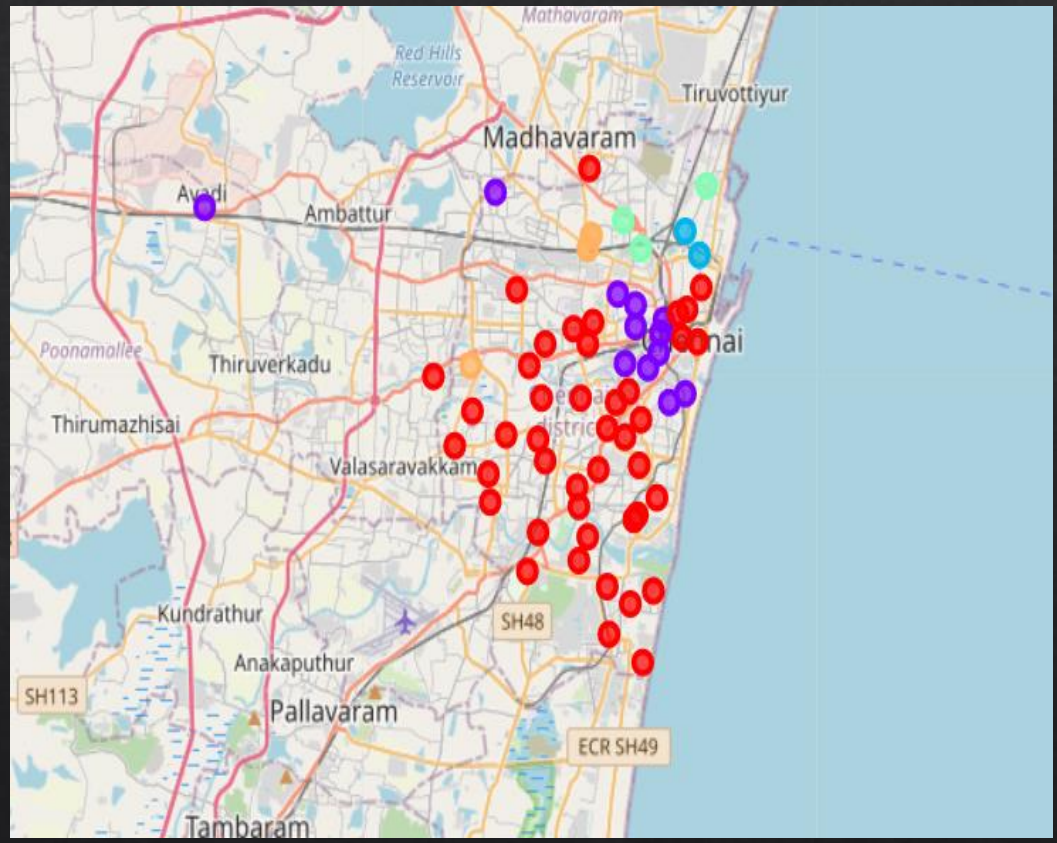
5 rows × 166 columns

Top 10 Venues for each location

	Area	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue	4th Most Common Venue	5th Most Common Venue	6th Most Common Venue	7th Most Common Venue	8th Most Common Venue	9th Most Common Venue	10th Most Common Venue
0	Aminjikarai S.O, Chennai	Fast Food Restaurant	Pizza Place	Event Space	Furniture / Home Store	Clothing Store	Men's Store	Bakery	Playground	Burger Joint	Electronics Store
1	Anna Nagar S.O (Chennai), Chennai	Burmese Restaurant	Train Station	Yoga Studio	Farmers Market	Food Court	Food & Drink Shop	Food	Flower Shop	Flea Market	Field
2	Anna Road H.O, Chennai	Indian Restaurant	Department Store	Train Station	Movie Theater	Farmers Market	Food & Drink Shop	Food	Flower Shop	Flea Market	Field
3	Chepauk S.O, Chennai	Indian Restaurant	Memorial Site	Beach	Music Store	Platform	Middle Eastern Restaurant	Light Rail Station	Seafood Restaurant	Cricket Ground	Vegetarian / Vegan Restaurant
4	Chintadripet S.O, Chennai	Hotel	Indian Restaurant	Movie Theater	Bookstore	Vegetarian / Vegan Restaurant	Train Station	Sandwich Place	Flea Market	Fast Food Restaurant	Farmers Market

Predictive model used

- Clustering Algorithm was used.
- Specifically K-means algorithm was used
- Number of cluster for model is 5.
- It was pre-assumed during data cleaning, two clusters will contain maximum restaurant in them.
- One cluster had majority of Indian themed restaurants
- other cluster had mix of each restaurants along with public facilities



Result and Conclusion

- Purple circles are for location having majority of Indian themed restaurants
- red circles are for the cluster which had mix of each restaurants along with public facilities
- The owner of the restaurant may choose any of the location in two cluster depending on his/her requirements.
  - If he choose to open another themed restaurant with public facilities near them, then choose red Circle clusters
  - If he choose to open specifically Indian themed restaurant, then choose purple Circle Clusters