Analysis of Possible Venues for Opening a new Multicuisine Restaurant chain in India

Background

* India is rapidly urbanizing and is potential market for food and hospitality industry.

* For a client who intends to have a pan India presence of Multicuisine restaurants it is imperative to objectively know the market

Problem: Which Venue in India ?

* Diversity of Country with different levels of economic growth,demogaphy and hence with varied food habits is a challenge to have an overall view of market

* It is important for a new venture to know which cities are potential markets.

* This has to be data driven with objective indicators

Approach to the Problem: Assumptions

* It is assumed that presence of Multicuisine venues such as Pizza Huts, Plaza, Multiplex etc. are indicative of the taste of the population living there and their preferences.

* Cities across all geographic locations are mapped for these venue categories to arrive at list of potential cities which are market and also to know the location of existing markets for Multicuisine Restaurants

Approach to the Problem: Data source

* Four Square Locations data
* List of Indian cities and their Latitude and Longitudes given by
* https://simplemaps.com/data/in-cities

Approach to the Problem: Feature selection

* Venue Categories below are selected from all the 793 Venue categories given by Four square

'Plaza','Multiplex','Italian Restaurant','Sandwich Place','BBQ Joint','Pizza Place','Chinese Restaurant','Fast Food Restaurant','Coffee Shop','Stadium','Asian Restaurant','Punjabi Restarant

Approach to the Problem:Methodolgy

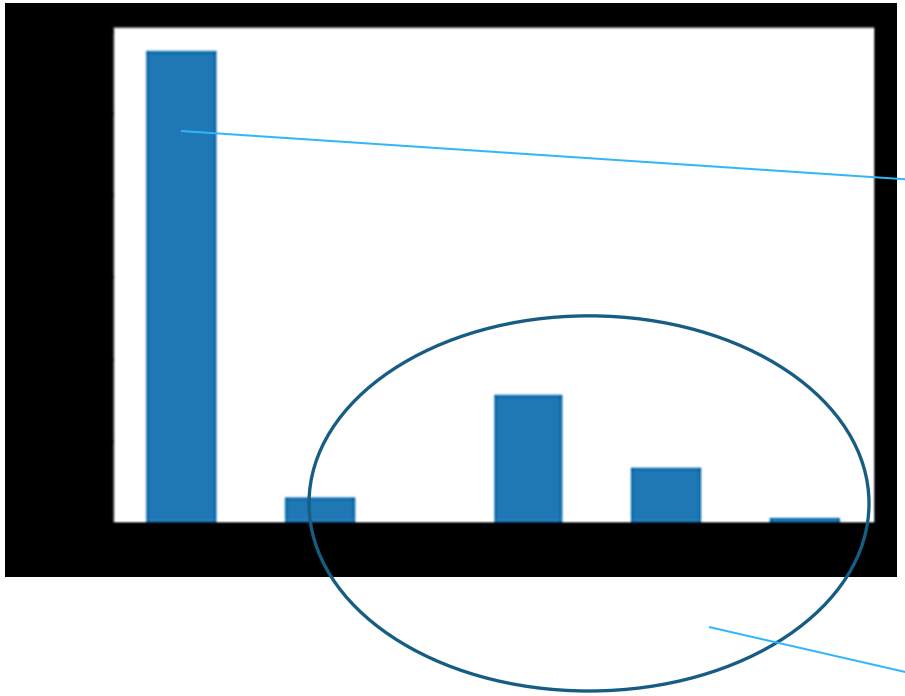
Example mapping

```
----Ahmadnagar----
                venue  freq
0      Sandwich Place   0.5
1              Plaza   0.0
2           Multiplex   0.0
3  Italian Restaurant   0.0
4           BBQ Joint   0.0
5         Pizza Place   0.0
6  Chinese Restaurant   0.0
----Ahmadābād----
                  venue  freq
0  Fast Food Restaurant   0.2
1                Plaza   0.0
2             Multiplex   0.0
3    Italian Restaurant   0.0
4        Sandwich Place   0.0
```

Mean Frequency score for each city is arrive at the sum of the mean scores multiplied by 10 is indicator of the Market Presence

Approach to the Problem: Results

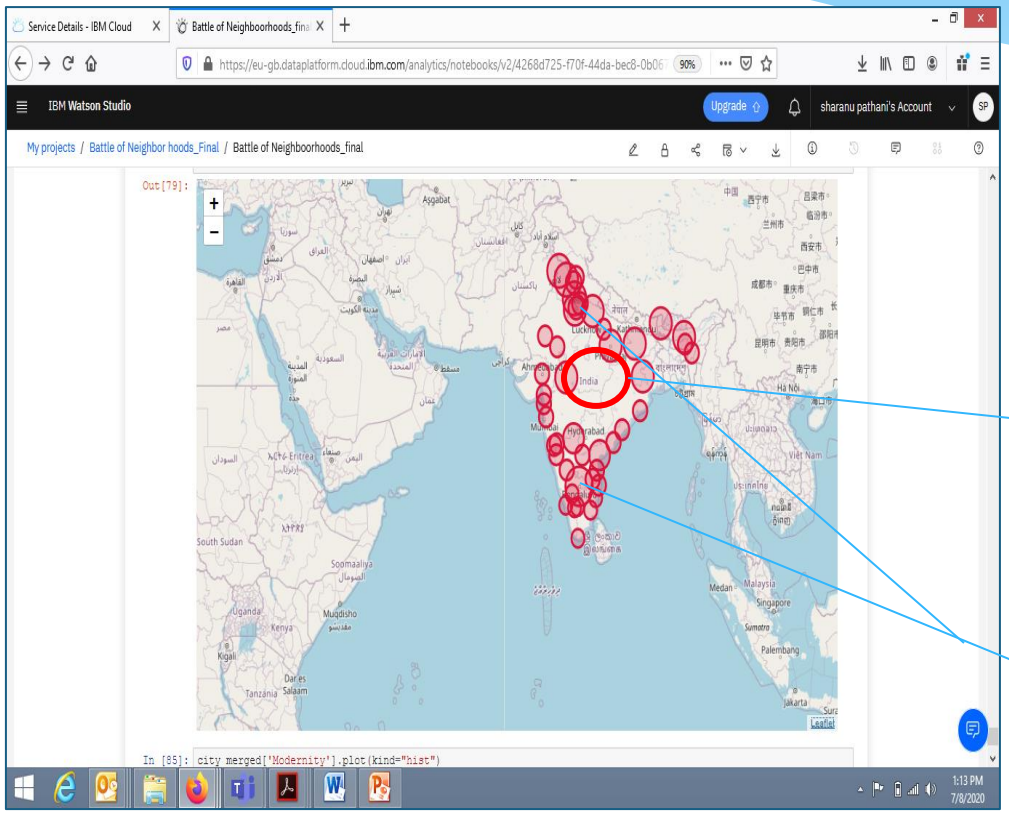
Market Presence Score distribution



211 Cities out of 256 cities score between zero and 0.1

Only about 45 cities show higher score indicating market presence

Approach to the Problem: Results

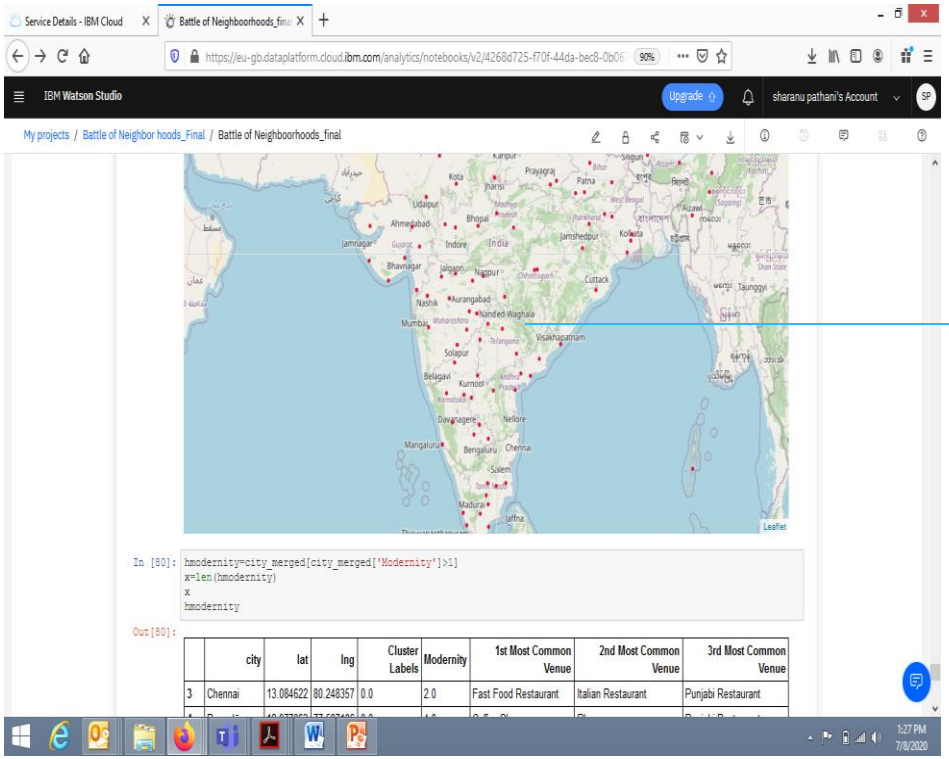


No existing market in central and vast parts of Northern India

High Market presence in certain pockets

Approach to the Problem: Results

Venues with zero score as per analysis



	city	lat	lng	Cluster Labels	Modernity	1st Most Common Venue	2nd Most Common Venue	3rd Most Common Venue
3	Chennai	13.084622	80.248357	0.0	2.0	Fast Food Restaurant	Italian Restaurant	Punjabi Restaurant

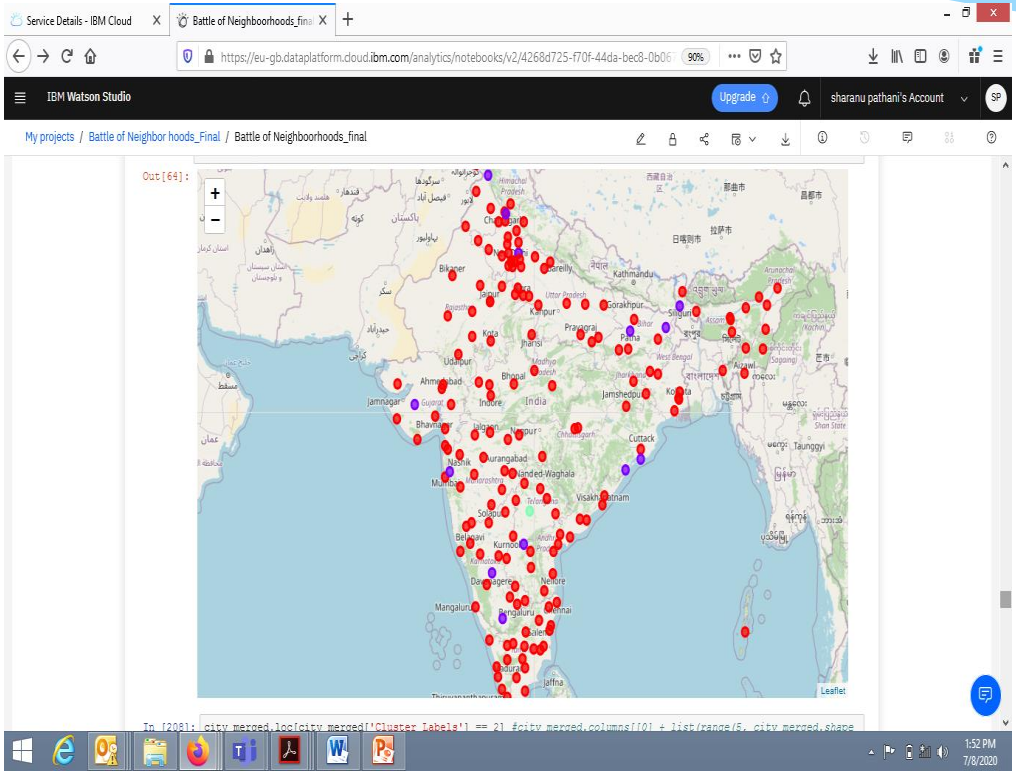
The venues of Zero score are dispersed across India

Indicates that the markets for Multicuisine/Non Traditional Food are concentrated in few locations only.

Approach to the Problem: K Means clustering

- K Means Clustering is an Unsupervised Learning algorithm
- It aims to form the clusters in data such that difference between parameters within cluster is minimized and distance between parameters between clusters is maximized.
- This algorithm is suitable to cluster the cities which are mapped for presence or absence of particular types of restaurants which are indicative of targeted market segment
- The algorithm is used to cluster the cities
- 5 clusters of cities are identified which represent similarities in terms of market presence within the cluster

K Means clustering visual representation



Given that most of the cities are not having developed markets for Multicuisine and continental restaurants they tend to fall in same cluster

Next steps

- This study can be taken forward to further analyze identified cities which are having no market presence as of now.

- The Demography and Economics of these cities can be analyzed and they can be compared with existing venues having market for Multicuisine Continental restaurants
- Based on comparison focused list can be prepared as targets for pilot projects