The Battle of the Neighbourhoods

1. Introduction and business Problem

1.1. Problem Background:

The City of Manchester is the second biggest city in the United Kingdom. It is:

- A multicultural and multi-ethnic populated city.
- Second most peoples from Asia are leaving in this city.
- Famous for the different business operations and official hub.
- Various businesses are playing in the market in Manchester.
- The city is a significant centre for retailing, world trade, transportation, tourism, real estate, media, advertising, legal services, accountancy, insurance, fashion, and the arts in the United Kingdom.

This also means that the market is highly competitive. As it is a highly developed city, so the cost of doing business is also one of the highest. Thus, any new business venture or expansion needs to be analysed carefully. The insights derived from the analysis will give a good understanding of the business environment, which helps in strategically targeting the market. This will help in the reduction of risk. And the Return on Investment will be reasonable.

1.2. Problem Description:

There are lot of Asian business are operating in this city, A restaurant is one of the business mostly India restaurants which prepares and serves food and drink to customers. It also offers the takeaway and homedelivery services. Most of British peoples are like India cuisine, and busiest time is weekends and holidays. The main challenge is there a lot of Indian restaurant but few of them are genuine. Generally, peoples are searching Indian restaurant with different factors like

1. Restaurants should have maintained hygric.
2. It should have serving some British cuisine, like chips.
3. Free home deliver with less minimum ordering cap.
4. Neared to bus stop and easily accessible.
5. Good hospitality.
6. The foods are prepared from halal.

So, it is evident that to survive in this competitive market it is very important to strategically plan. Various factors need to be studied in order to decide on the Location such as:

1. Asian Population
2. Manchester Demographics
3. In which area of the city mostly Asians live?
4. Are there any bus or metro stop nearby?
5. Who are the competitors in that location?
6. Menu of the competitors.
7. Any gathering places nearby?

8. How soon people can come to know about this restaurant.
9. Franchise of restaurant if any.
   The list can go on...

Even though well-funded Company need to choose the correct location to start its first venture.

1.3. Target Audience:

The owner of the restaurant and its management.

This would interest anyone who wants to start a new restaurant in Manchester city.

1.4. Success Criteria:

The success criteria of the project will be a good recommendation of location choice to start the restaurant with successful business.

2. Data Collection

2.1. Data source 1: Getting Manchester postal codes

On this problem the only data will be analysed on the city map of Manchester, which can be found from wiki page https://en.wikipedia.org/wiki/M_postcode_area. from this page:

- Scarp the postcode district, local authority and coverage area.
- Create a data frame from this data.
- Using foursquare, cluster the various location of Indian restaurant.
- Identify where large number of restaurants is present.
- Identify the bus stops, metro stops on that area.
- Identify any public events places nearby.
- Any nearest Indian grocery shop for easy purchase of the raw materials.
- Identify home delivery areas.
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2.2. Data source 2: Manchester longitude and latitude co-ordinates.

The co-ordinates of Manchester city postcodes can be downloaded from below link. https://raw.githubusercontent.com/binodpanda/github-example/master/manchester_uk_cordinates.csv

2.3. Data Cleaning

Some postal codes have multiple records based on sectors as show below. Here M3 have two records.

	PostCode	PostTown	Coverage	LocalAuthorityArea
0	M1	MANCHESTER	Piccadilly, City Centre, Market Street	Manchester
1	M2	MANCHESTER	Deansgate, City Centre	Manchester
2	M3(Sectors 1, 2, 3, 4 and 9)	MANCHESTER	City Centre, Deansgate, Castlefield	Manchester
3	M3(Sectors 5, 6 and 7)	SALFORD	Blackfriars, Greengate, Trinity	Salford
4	M4	MANCHESTER	Ancoats, Northern Quarter, Strangeways	Manchester
5	M5	SALFORD	Ordsall, Seedley, Weaste, University	Salford

It is required to clean-up the data by removing extra the information from the post code. To achieve this, it is required to split the string with first occurrence of '('character. (We are not bothered about local authority area). After removing this the data set will be

	PostCode	PostTown	Coverage	LocalAuthorityArea
0	M1	MANCHESTER	Piccadilly, City Centre, Market Street	Manchester
1	M2	MANCHESTER	Deansgate, City Centre	Manchester
2	M3	MANCHESTER	City Centre, Deansgate, Castlefield	Manchester
3	M3	SALFORD	Blackfriars, Greengate, Trinity	Salford
4	M4	MANCHESTER	Ancoats, Northern Quarter, Strangeways	Manchester
5	M5	SALFORD	Ordsall, Seedley, Weaste, University	Salford
6	M6	SALFORD	Pendleton, Irlams o' th' Height, Langworthy, S...	Salford
7	M7	SALFORD	Higher Broughton, Cheetwood, Lower Broughton, ...	Salford
8	M8	MANCHESTER	Crumpsall, Cheetham Hill	Manchester
9	M9	MANCHESTER	Harpurhey, Blackley	Manchester

Second, we need to import the Manchester co-ordinates file and the merge to the above dataset.

:

	PostCode	latitude	longitude
0	M1	53.487361	-2.250508
1	M11	53.489143	-2.212621
2	M12	53.482216	-2.228657
3	M13	53.472336	-2.236986
4	M14	53.460135	-2.245448

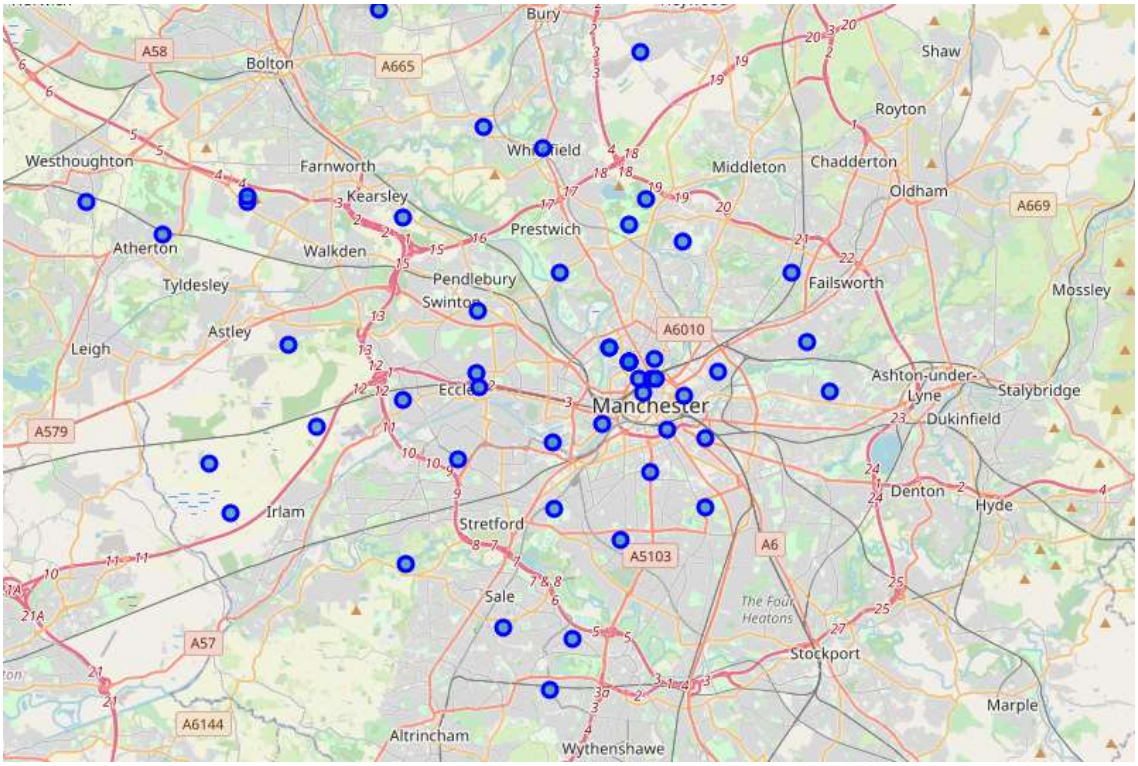
After merging the dataset will be as follows

	PostCode	PostTown	Coverage	LocalAuthorityArea	latitude	longitude
0	M1	MANCHESTER	Piccadilly, City Centre, Market Street	Manchester	53.487361	-2.250508
1	M2	MANCHESTER	Deansgate, City Centre	Manchester	53.483040	-2.248876
2	M3	MANCHESTER	City Centre, Deansgate, Castlefield	Manchester	53.496040	-2.265529
3	M3	SALFORD	Blackfriars, Greengate, Trinity	Salford	53.496040	-2.265529
4	M4	MANCHESTER	Ancoats, Northern Quarter, Strangeways	Manchester	53.492792	-2.243386

3. Exploratory Data Analysis

3.1. Calculation of target variable

Out target value is to identify the area where most of the Indian restaurants are present. To identify it we must explore the Manchester city map and identify the venues. Before that it is too required to get the details of latitude and longitude. This will help on clustering the records. Create map of Manchester using latitude and longitude values.



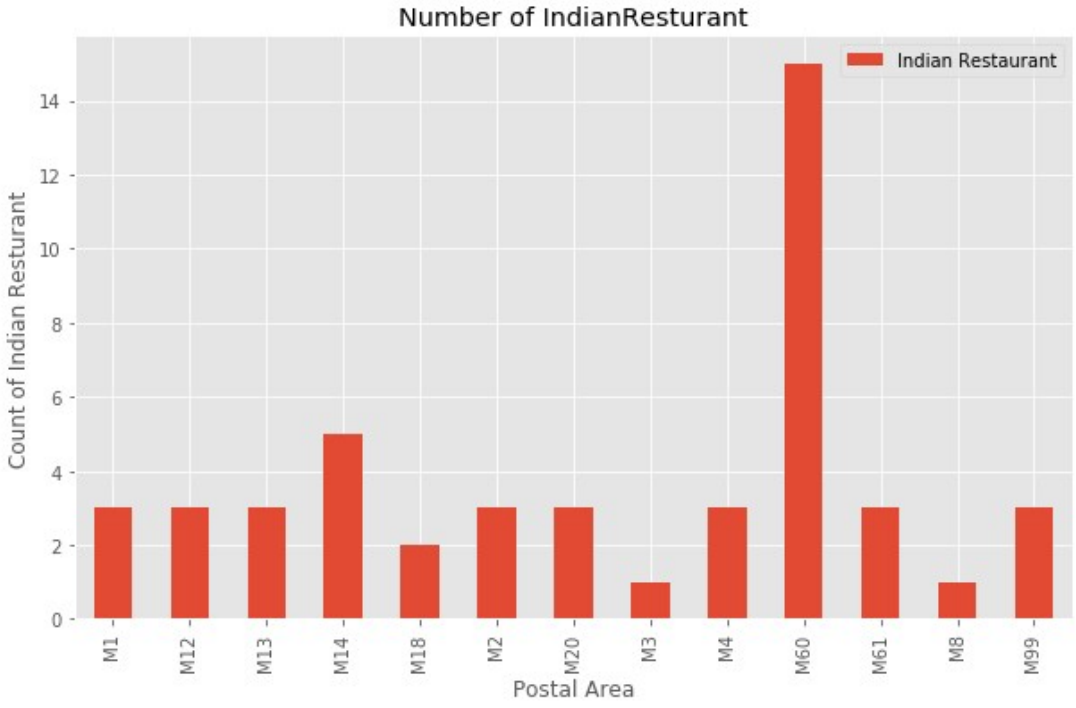
This show the area of Manchester of different post codes around the city. Each city has different venues and different interesting points. We will use foursquare to get the details of the venues across of Manchester. This list will tell in which post code or neighbourhood what type of venue is present and how many. The summary of data will be,

:

	name	categories	lat	lng
0	Eagle Inn	Pub	53.487089	-2.248448
1	Grindsmith Coffee	Coffee Shop	53.485324	-2.246198
2	Blueprint Studios	Music Venue	53.486850	-2.251588
3	Sacred Trinity Church	Church	53.484901	-2.250090
4	Hanging Ditch Wine Merchants	Wine Bar	53.484602	-2.245252

	Neighborhood	Neighborhood Latitude	Neighborhood Longitude	Venue	Venue Latitude	Venue Longitude	Venue Category
0	M1	53.487361	-2.250508	Grindsmith Coffee	53.485324	-2.246198	Coffee Shop
1	M1	53.487361	-2.250508	Royal Exchange Theatre	53.482555	-2.244770	Theater
2	M1	53.487361	-2.250508	Hanging Ditch Wine Merchants	53.484602	-2.245252	Wine Bar
3	M1	53.487361	-2.250508	Selfridges & Co	53.484290	-2.243432	Department Store
4	M1	53.487361	-2.250508	Proper Tea at Manchester Cathedral	53.484816	-2.244641	Tea Room

However, we only interested on getting Indian restaurants, for that using pandas method we can filter out the venues only for Indian restaurants. Once we filtered find the number of restaurants in each post code area, ignore the post codes where there is no Indian restaurants present. For better understanding we will convert this to bar chart.



The above graph shows that M60 have the highest number of the restaurant and it represents that M60 is suitable for competitive Indian restaurants.

4. Conclusion

Based on the analysis of the analysis of Manchester data it has concluded that it is good place to open the restaurants for the competitive as it can shows the market sharing high in this place.

5. Future directions

The second highest area is M14 where Indian restaurants are growing than other areas. It is also advisable to open an branch of the restaurant in this area in future.