MIBE - LSU Challenge

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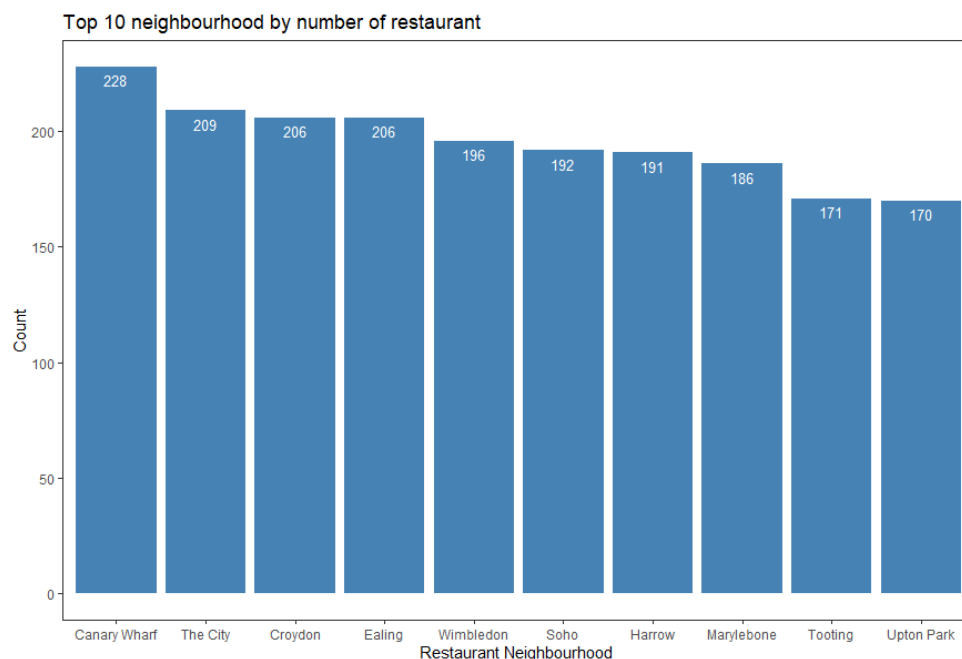Matriculation Number: 493339

Contents

Introduction

MIBE – LSU Challenge is a competition put forth to University of Pavia students enrolled in Master's in international business & Entrepreneurship to get selected in Louisiana State University for their double degree master's program. The challenge given is based on the restaurant data and restaurant data delivery time and various interesting and though provoking analysis were asked to be performed

This report consists of detailed analyses of food delivery scene in London evaluated based on both the datasheets, one with the restaurant data and another with restaurant delivery time details. Using R, I have tried to analyse various relationships and extract the required details. I am presenting the detailed analysis below.

Restaurants information

This section contains the answers for various set of analyses on the restaurants information dataset. The questions and their respective results are listed below.
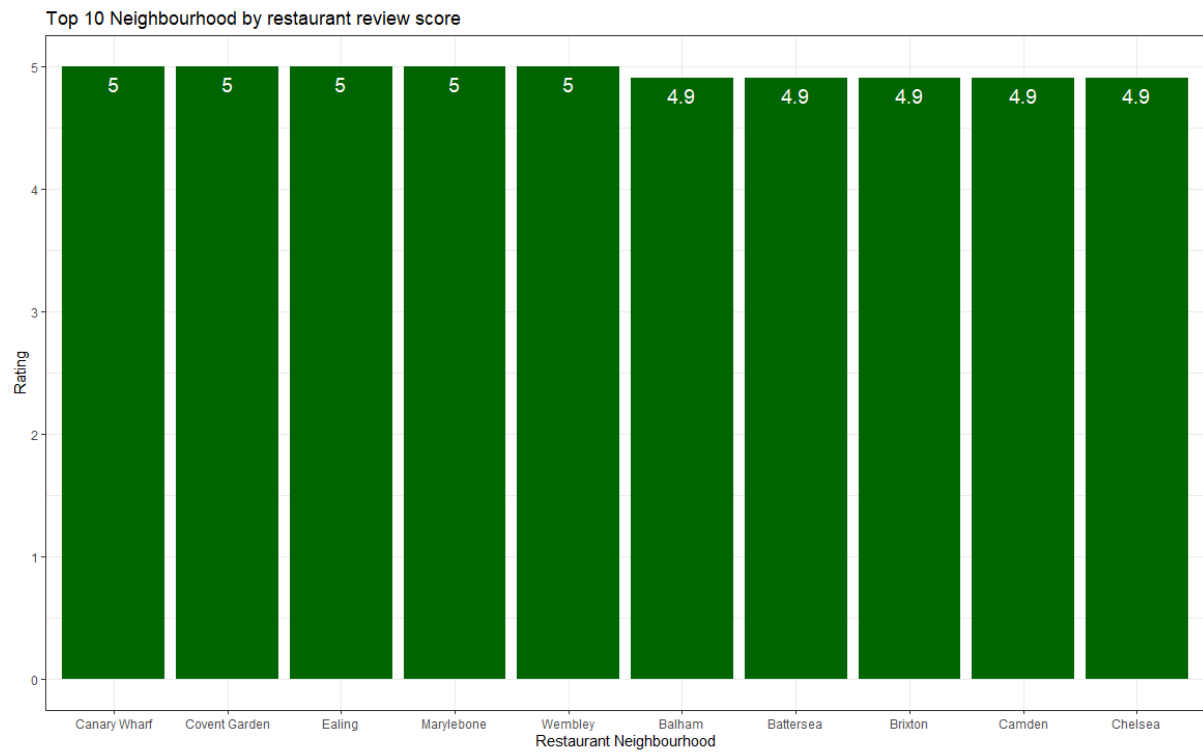
1) Present a column chart with the top 10 neighborhoods by the number of restaurants.

The above column chart contains the top 10 Neighborhood listed in the descending order of the number of restaurants count. The X axis of the chart represents the restaurant neighborhood names and the Y axis contains the represents the restaurant counts. According to the analysis, the top Neighborhood with highest restaurant count is Cannary Wharf with 228 restaurants, followed by The City, Croydon, Ealing, Wimbledon, Soho,

Harrow, Marylebone, Tooting, and Upton Park with 209, 206, 206, 196, 192, 191, 186, 171 and 170 restaurants respectively.

2) Present a column chart with the top 10 neighborhoods by restaurant review score.

Top 10 Neighbourhood by restaurant review score

The above column chart contains the top 10 Neighborhood with highest review scores. The X axis represents the restaurant neighborhood names and the Y axis contains the represents the ratings. According to the analysis, the top Neighborhood with highest review score are Cannary Wharf, Covent Garden, Ealing, Marylebone, Wembley with rating 5 and, Balham, Battersea, Brixton, Camdem, and Chelsea with rating 4.

3) Compute the top 10 biggest chains. Present the results in a tabular format. (Use the column rest_brand to determine restaurants of the same brand)

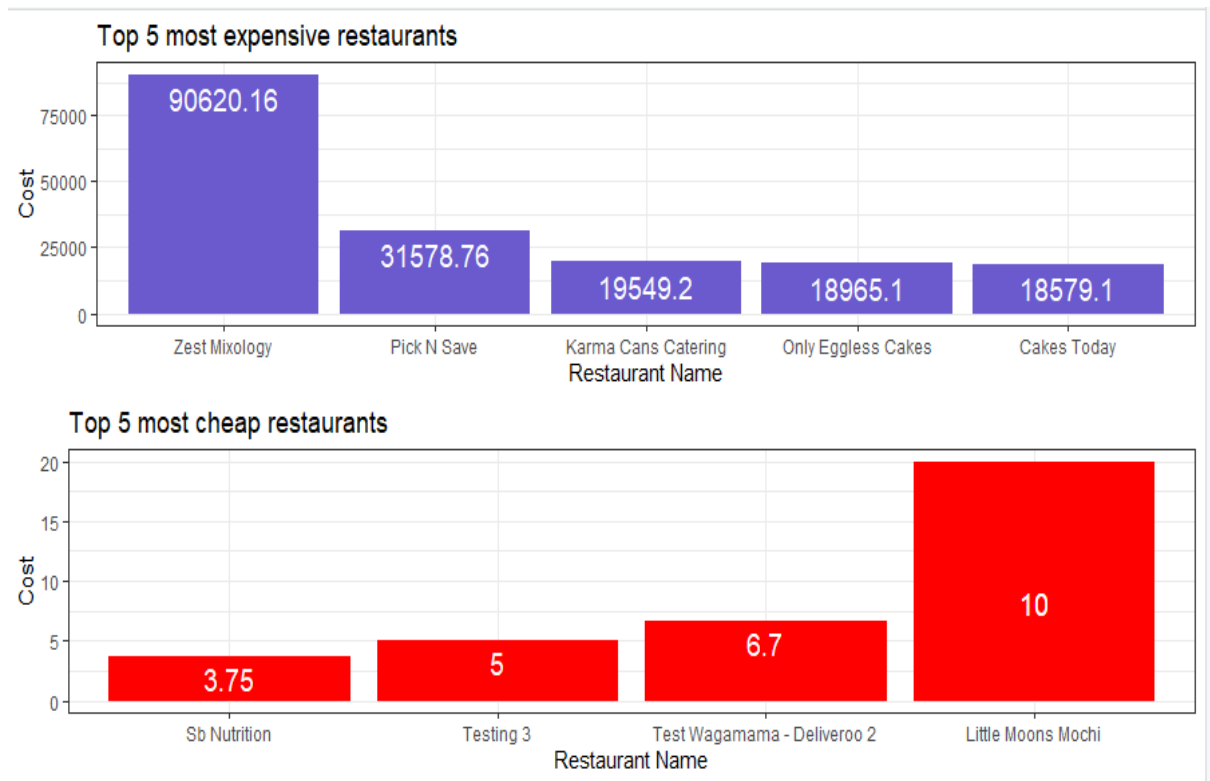|	Restaurant_Brand	Count
1	Get drinks delivered	42
2	KFC	42
3	PizzaExpress	42
4	Pret A Manger	33
5	Burger King	22
6	itsu	22
7	Pure	21
8	Wasabi	20
9	LEON	19
10	Papa John's	18

The above table consists of the top 10 biggest restaurant chains and their respective counts. I have used "rest_brand" to denote the restaurants brands in the code but to represent in the tabular format I have changed and used the name "Restaurant_Brand" so that it is understandable to the readers. The biggest resturant chain in Get drinks delivered and KFC, PizzaExpress, with 42 restaurants, followed by Pret A Manger, Burger King, itsu, Pure, Wasbi, Leon, and Papa John's with 33, 22, 22, 21, 20, 19 and 18 respectively.

4) Compute the average menu price and the number of menu items for each restaurant. (The rest_menu_item_price column is a list of characters. You might want to use the by_row and map functions)

	rest_name	rest_brand	rest_menu_item_price	Average_price	Count_of_menu_items
1	Baba Wali Hendon Broadway	NA	c(2.8, 4.2, 5.6, 4.2, 5.6, 14, 16.8, 4.2, 14, 14, 14, 200, 168, 84, 1...	17.0541379310345	58
2	Burger & Lobster	Burger & Lobster	c(0, 1, 1.5, 1.5, 5, 3, 25, 0, 38, 0, 0, 12.5, 9.5, 0, 1.5, 1.5, 1.5, 5, ...	6.42622950819672	61
3	Afta Eats	NA	c(7.49, 5.19, 0, 7.49, 5.19, 0.65, 7.49, 5.19, 1.3, 1.49, 5.19, 5.19...	4.34897959183674	49
4	Europa 2 Go Pizza	Europa 2 Go Pizza	c(9.99, 13.95, 17.95, 17.95, 17.95, 24.95, 14.99, 17.99, 4.49, 4...	3.42838046272494	389
5	Julia Domna Cafe	NA	c(5.53, 11.48, 13.79, 7.7, 8.33, 6.93, 9.03, 7.35, 8.33, 6.3, 4.9, 5...	7.67578125	64
6	Kin + Deum	NA	c(0, 3, 7, 2, 1, 2.5, 2.5, 2.5, 10.5, 11.9, 10, 9.5, 12, 9, 10.5, 12.5, ...	7.344	25
7	Costa	Costa	c(2.15, 2.45, 2.85, 3.5, 3.2, 3.2, 1.5, 2.1, 2.85, 3.3, 3.6, 3.2, 2, 2...	2.75061728395062	81
8	Bingo Wings	NA	c(10, 2.5, 4, 0, 6.5, 12, 2.5, 4, 0, 6.5, 17, 2.5, 4, 0, 6.5, 6.5, 30, 1...	4.71621621621622	37
9	Crussh	Crussh	c(12.1, 4, 0, 10.2, 1, 3.05, 4.24, 0, 14.35, 3.1, 3.6, 0, 13.99, 0.55...	3.03589108910891	202
10	Simple Health Kitchen	Simple Health Kitchen	c(3.9, 3.9, 3.5, 4, 4, 3.9, 4.9, 3.5, 3.5, 3.5, 5, 3, 5.9, 5.9, 4, 0, 5...	1.70857142857143	105
11	Tsunami	NA	c(7.5, 12.5, 0, 5.5, 4.5, 3.3, 7.5, 6.9, 0, 5, 5.5, 4.4, 6.9, 6.9, 0, 4.5...	7.225	132
12	Yifang Fruit Tea - Mayfair	Yifang Fruit Tea	c(0, 5.25, 3.45, 3.45, 5.25, 5.15, 0, 5.5, 3.45, 5.25, 3.45, 3.45, 5...	2.80422535211268	71
13	Stretch Pizza	Editions - UK 2019	c(0, 0, 7.99, 7.99, 0, 0, 0, 2.99, 10.99, 0, 7.99, 0, 2.99, 11.5, 0, 7...	2.42477477477477	111
14	Sanjunana	NA	c(2.5, 2.1, 3.2, 2.4, 5.2, 4, 5, 8, 6.2, 3.2, 4.9, 4.9, 4.5, 5, 5, 5, 6.2,...	8.13137931034483	116
15	Jumbo Express	NA	c(0.6, 3.5, 3, 3.5, 3.25, 5, 6, 7, 6, 8.5, 11, 0, 7.5, 5, 4.5, 0.6, 3.5, ...	4.4743119266055	109
16	Pret A Manger	Pret A Manger	c(3.25, 1.4, 1.7, 3.59, 1.7, 3.49, 1.7, 3.49, 1.7, 1.79, 1.7, 2.49, 1...	5.15843137254902	102
17	Reggae Reggae Pot EJC	NA	c(3.5, 2, 5.5, 2.5, 3.5, 6, 6, 4, 0, 8, 5, 3.5, 1.3, 5.5, 2.5, 2.5, 5, 5.5...	4.46545454545455	55
18	La Parmigiana	NA	c(0, 25.95, 16.95, 17.95, 4, 1.2, 5, 9.5, 6.2, 4.5, 13.5, 11.95, 12...	9.74304347826087	115
19	Selekt Pizza Inn	NA	c(18.99, 15.5, 11.99, 11.99, 12.99, 19.99, 13.99, 11.99, 19.99, 1...	4.02238372093023	344
20	🌺 Honi Poke - Mayfair🌺	Honi Poke	c(8.85, 8.85, 8.85, 8.85, 8.85, 9.85, 7.95, 8.85, 7.95, 8.85, 9.25, ...	2.13079207920792	101
21	Sushi Salsa	Sushi Salsa	c(42, 28, 18, 14.5, 13, 11, 9.5, 8.8, 8.8, 8.8, 6.8, 6.8, 6.8, 12,...	8.14540816326531	196
22	Barsito	NA	c(1.5, 19.5, 19.5, 28, 19.5, 4.5, 7, 6, 2, 1.5, 21, 24, 21, 5.5, 7, 6...	12.7384615384615	52
23	AJ Chicken and Pizza	AJ Chicken and Pizza	c(3, 0, 4, 1, 3, 1.5, 2, 0, 1, 1, 1, 2, 0, 1.5, 2.5, 0, 0.5, 0, 0, 1.5...	2.30709677419355	93

Showing 1 to 23 of 5,786 entries, 5 total columns

This above table is the portion of the entire table computed for 5786 entries of restaurants. The table above shows 23 entries with 5 columns, which are restaurant name, restaurant brand, restaurant menu price, average price, and cost of each menu items. For each restaurant using the column rest_menu_item_price and taking its average, the average price of the menu item is calculated into the "Average price" column and the total number of menu items into the Count_of_menu_items column. For Example, the first restaurant in the list has an average price of 17.054 Pounds, and its total number of menu items is 58.

5) Present in a bar chart the number of items on the menu for the five most expensive and cheapest restaurants. (The number of items can be determined by counting the elements in the rest_menu_item_price column)

Top 5 most expensive restaurants

Top 5 most cheap restaurants

The above two bar charts contain the top 5 most expensive and most cheap restaurants in the given data. Both the charts have Restaurant name in the X axis and Cost in the Y axis. In the first chart the top 5 most expensive restaurants are listed, which has Zest Mixology on the top with the cost 90620.16 Pounds, followed by PickNSave, Karma Cans Catering, Only Eggless Cakes, and Cakes today with 31578.76, 19549.2, 18965.1 and 18579.1 Pounds respectively.

In the second chart the top most cheap restaurants are listed, starting from SB Nutrition with 3.75 pounds followed by Testing 3, TestWagamama-Deliveroo 2, Little Moons Mochi with 5, 6.7 and 10 Pounds respectively.

Restaurants Delivery Times

This section contains the answers for various set of analyses on the "restaurants delivery time" dataset. Their questions and their respective results are listed below.

To perform this analysis, joined the Restaurants information and Restaurants delivery time datasets using their restaurant_id and rest_key primary keys. Answer the following questions. The questions and their respective results are listed below.
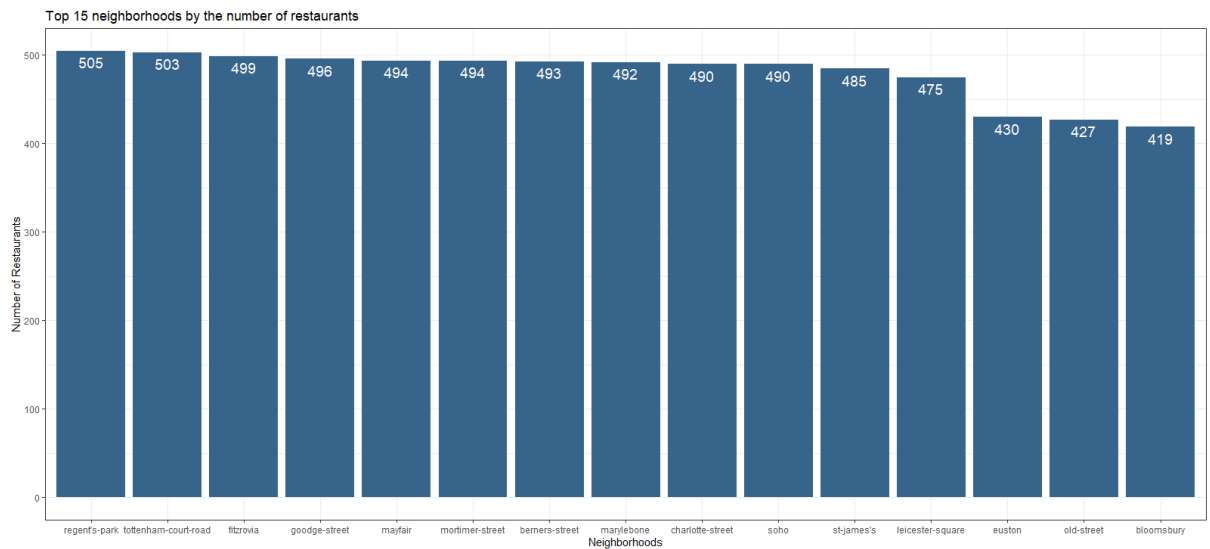
1) Count the number of neighborhoods where each restaurant delivers. (Each restaurant can deliver to multiple neighborhoods, independently from here the restaurants is physically located)

	Restaurant Name	No of Neighbourhood Delivery by Resturant
1	&Cake – Wembley	6
2	JPBR YOOBI 🍣	16
3	🥖 BOMBAY BICYCLE CHEF 🥖	16
4	🍜 Honi Poke - Mayfair🍜	31
5	🍜 Honi Poke - Soho🍜	10
6	🎬 Benito's Hat 🎬	18
7	大华小吃 Da Hua Street Food	5
8	大华快餐（Dahua Fast Food)	5
9	婆婆 Popo Chinese, Oriental, Thai & Dim Sum Cuisine	5
10	東園小館 - East Garden	2
11	米Kome Japanese & Korean Sushi	21
12	食全小厨 FODAL Oriental Kitchen	1
13	11 Coffee and Co	3
14	14228 - Burger King	2
15	2 Girls' Cafe	8
16	201 Asian Kitchen	3
17	24/7 Supermarket	6
18	36 Streets Food	9
19	4021 Firezza	1
20	491094Adam's Cafe	4
21	5 Star Pizza	5

Showing 1 to 22 of 3,336 entries, 2 total columns

This above table is the portion of the entire table computed for 3336 entries of restaurants. The table above shows 22 entries with the restaurant name and the number of neighborhoods delivered by that particular restaurant.

For Eg: The restaurant &Cake-Wembley delivers to 6 neighborhoods, Honi Poke – Mayfair to 31 neighborhoods, Benito's Hat to 18 neighborhoods and so on.

2) Present in a bar chart the top 15 neighborhoods by the number of restaurants where restaurants make deliveries. (You will need to count the number of restaurants that deliver to each neighborhood)

Top 15 neighborhoods by the number of restaurants

The above column chart represents the top 15 neighborhoods by the number of restaurants that make delivery. In the X axis of the column chart is the name of the neighborhoods and the Y axis contains the Number of restaurants. The neighborhood Regent's park ranks first with 505 restaurants that make delivery, followed by Tottenham court road with 503 restaurants, Fitzrovia with 499 restaurants and so on. The top 15th neighborhood is Bloomsbuy with 419 restaurants that deliver.

3) Compute the average delivery time for each restaurant. (Compute the average of all neighborhoods the restaurant delivers)

	rest_name	average_delivery_time
1	&Cake – Wembley	22.77778
2	JPBR YOOBI 🍣	20.62500
3	🍴 BOMBAY BICYCLE CHEF 🍴	36.91176
4	🍲 Honi Poke - Mayfair🍲	21.07143
5	🍲 Honi Poke - Soho🍲	11.62500
6	🌮 Benito's Hat 🌮	24.22535
7	大华小吃 Da Hua Street Food	25.00000
8	大华快餐（Dahua Fast Food)	25.00000
9	婆婆 Popo Chinese, Oriental, Thai & Dim Sum Cuisine	22.66667
10	东园小馆 - East Garden	21.66667
11	米Kome Japanese & Korean Sushi	18.51562
12	安全小厨 FODAL Oriental Kitchen	17.50000
13	11 Coffee and Co	27.14286
14	14228 - Burger King	21.87500
15	2 Girls' Cafe	21.58537
16	201 Asian Kitchen	27.50000
17	24/7 Supermarket	16.00000
18	36 Streets Food	27.36111
19	4021 Firezza	15.00000
20	491094Adam's Cafe	28.23529
21	5 Star Pizza	23.25000
22	500 Degrees Pizzeria	17.33333
23	696 mangal	16.83333

Showing 1 to 23 of 3,206 entries, 2 total columns

The above table shows a portion of a total table with 3206 entries. The table above has 23 entries with two columns, restaurant name and the restaurant average delivery time.

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For example: The restaurant &Cake-Wembley has an average restaurant delivery time as 22.77778 minutes, the restaurant JPBR Yoobi has 20.625 minutes, Bombay Bicycle chef as 36.91176 minutes as average delivery time and so on.

4) Present in tabular format the top 20 restaurants by fasted average delivery time. In the same table, present the rating score, and postcode.

	rest_name	rest_postcode	neighborhood_name	rest_rating	average_delivery_time
1	Vagabond Wines - Fulham	SW61AX	fulham	4.8	8.000000
2	Vagabond Wines - Fulham	SW61AX	parsons-green	4.8	8.000000
3	Vagabond Wines - Fulham	SW61AX	earl's-court	4.8	8.000000
4	Vagabond Wines - Fulham	SW61AX	west-kensington	4.8	8.000000
5	Vagabond Wines - Fulham	SW61AX	south-kensington	4.8	8.000000
6	OREE	SW109PZ	knightsbridge	4.8	8.333333
7	OREE	SW109PZ	south-kensington	4.8	8.333333
8	OREE	SW109PZ	chelsea	4.8	8.333333
9	OREE	SW109PZ	parsons-green	4.8	8.333333
10	OREE	SW109PZ	belgravia	4.8	8.333333
11	OREE	SW109PZ	fulham	4.8	8.333333
12	Amorino - Old Compton St	W1D6HF	st-james's	4.8	10.000000
13	Amorino - Old Compton St	W1D6HF	leicester-square	4.8	10.000000
14	Amorino - Old Compton St	W1D6HF	soho	4.8	10.000000
15	Amorino - Old Compton St	W1D6HF	westminster	4.8	10.000000
16	Amorino - Old Compton St	W1D6HF	mayfair	4.8	10.000000
17	Andys Quality Fish & Chips	W139RJ	ealing	4.6	10.000000
18	Bill's Breakfast	W52XA	ealing	4.6	10.000000
19	Brew Café	SW195DX	wimbledon	4.5	10.000000
20	Chic-o-land Kebab	KT12AA	molesey	NA	10.000000

The table above has the top 20 restaurants that has the fastest average delivery time. There are 5 columns in the table, which are restaurant name, restaurant postcode, neighborhood name, restaurant rating, and average delivery time. The top one in the list is Vagabond Wines – Fulham in multiple localities that has average delivery time 8 minutes.

Open Analysis (Exploratory Data Analysis)

- In this section, you are invited to showcase your creativity as an analyst by developing an interesting analysis. You should open this section by stating a clear "business question," followed by a series of analysis (e.g., charts, tables) that investigate this question. You are also required to narrate your findings.

Based on the data available, I could think of multiple questions but the main one was to focus on *"Widening the delivery market and improving the customer experience"*.

	rest_name	rest_postcode	neighborhood_name	rest_rating	average_delivery_time
1	Peppercorn Food	W127GF	marylebone	NA	120
2	Peppercorn Food	W127GF	holland-park	NA	120
3	Peppercorn Food	W127GF	kilburn	NA	120
4	Peppercorn Food	W127GF	queen's-park	NA	120
5	Peppercorn Food	W127GF	paddington	NA	120
6	Peppercorn Food	W127GF	west-kensington	NA	120
7	Peppercorn Food	W127GF	south-kensington	NA	120
8	Peppercorn Food	W127GF	shepherd's-bush	NA	120
9	Peppercorn Food	W127GF	south-hampstead	NA	120
10	Peppercorn Food	W127GF	chelsea	NA	120
11	Peppercorn Food	W127GF	hammersmith	NA	120
12	Peppercorn Food	W127GF	barnes	NA	120
13	Peppercorn Food	W127GF	brondesbury	NA	120
14	Peppercorn Food	W127GF	knightsbridge	NA	120
15	Peppercorn Food	W127GF	acton	NA	120
16	Peppercorn Food	W127GF	parsons-green	NA	120
17	Peppercorn Food	W127GF	st-john's-wood	NA	120
18	Peppercorn Food	W127GF	earl's-court	NA	120
19	Peppercorn Food	W127GF	south-acton	NA	120
20	Peppercorn Food	W127GF	westbourne	NA	120

Based on the table above, which shows the average delivery time of 20 restaurants that have highest average delivery time, and the top 20 is from the restaurant chain too that take more than 120 minutes to deliver. While conducting the analysis we realize that there are 957 restaurants that have average delivery time more than 60 minutes. So, to improve the customer experience, focus should be on getting these food chains and restaurants to deliver within an hour so that they can retain customers and also attract new customers.

Also, another analysis on total price versus average rating (considering the total menu items) shows that there are restaurants that are too expensive and also have low rating. Improving the price structure and improving the quality of food and better promotion to the restaurants that are cheap can fetch better business by improving customer experience.

Conclusion

Few insights from the internet based on research conducted:

- More than half of Americans (53%) consider themselves to be foodies, according to new research.
- On the other hand, 80% say they're more likely to go back to an event/restaurant that served good food.
- 69% of people say that reading food menu labels influences their purchasing decisions.

Thank you for your attention and giving the opportunity to participate in the challenge. It was really interesting and was indeed a great learning experience.

- Om Ajay Karthik