FoodHub Case Study

Jesus Torres

A food aggregator company FoodHub offers access to multiple restaurants through a single smartphone app.

Background

The food aggregator earns money by collecting a fixed margin of the delivery order from the restaurants.

Objective

The food aggregator company has stored the data of the different orders made by the registered customers in their online portal. Identify areas of growth and improvement for a better customer experience.

- Analyze the data to get a fair idea about the demand of different restaurants
- Perform further exploratory data analysis to find insights

Data Overview

Observations	Features
1898	9

The data contains the different data related to a food order. The detailed data dictionary is given below.

- **order_id:** Unique ID of the order
- **customer_id:** ID of the customer who ordered the food
- **restaurant_name:** Name of the restaurant
- **cuisine_type:** Cuisine ordered by the customer
- **cost:** Cost of the order
- **day_of_the_week:** Indicates whether the order is placed on a weekday or weekend (The weekday is from Monday to Friday and the weekend is Saturday and Sunday)
- **rating:** Rating given by the customer out of 5
- **food_preparation_time:** Time (in minutes) taken by the restaurant to prepare the food. This is calculated by taking the difference between the timestamps of the restaurant's order confirmation and the delivery person's pick-up confirmation.
- **delivery_time:** Time (in minutes) taken by the delivery person to deliver the food package. This is calculated by taking the difference between the timestamps of the delivery person's pick-up confirmation and drop-off information

Univariate Analysis

Exploratory Data Analysis – Customer's Order Frequency

Observations:

- There are a total of 1200 unique customers
- Order count frequency range of 1 – 13
- Most of all customers only placed ONE or TWO FoodHub orders

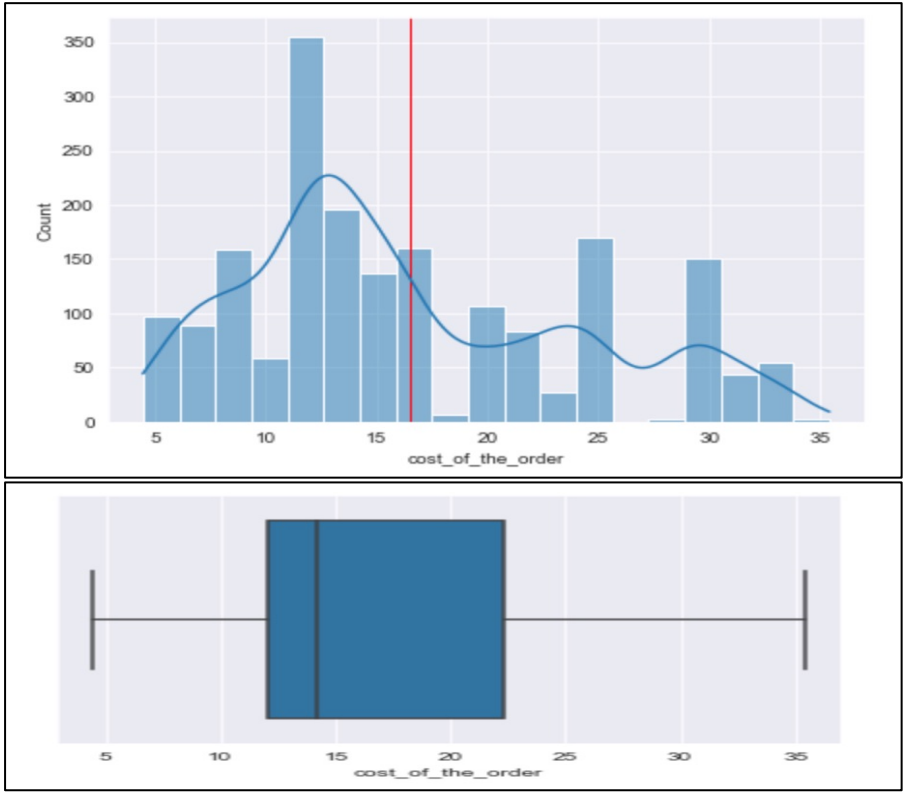
Order Count	Num of Customers
1	784
2	267
3	83
4	33
5	19
6	6
7	4
8	1
9	1
10	1
13	1

Exploratory Data Analysis – Order costs

Observations:

The average FoodHub order cost is about **16 USD**

- Order costs are right-skewed
    - The histogram shows a long right tail, and the mean is also to the right of the peak
    - The box plot shows a longer right whisker
- the majority of the FoodHub order cost ranges from **11 – 13 USD**

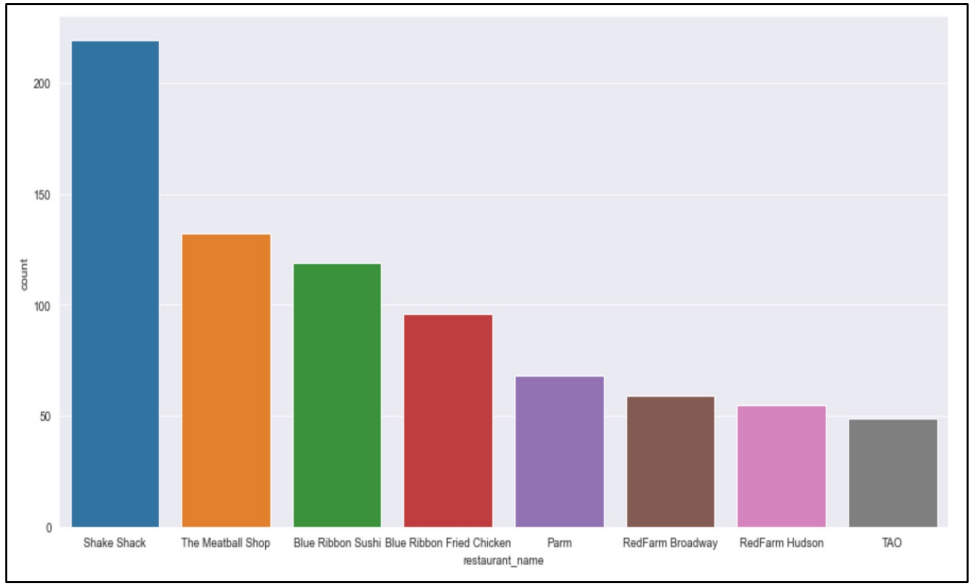


Exploratory Data Analysis – Restaurants

Observations:

The top restaurant is **Shake Shack** with 219 orders placed. Followed by:

The Meatball Shop – 132
Blue Ribbon Sushi – 119
Blue Ribbon Fried Chicken – 96
Parm – 68

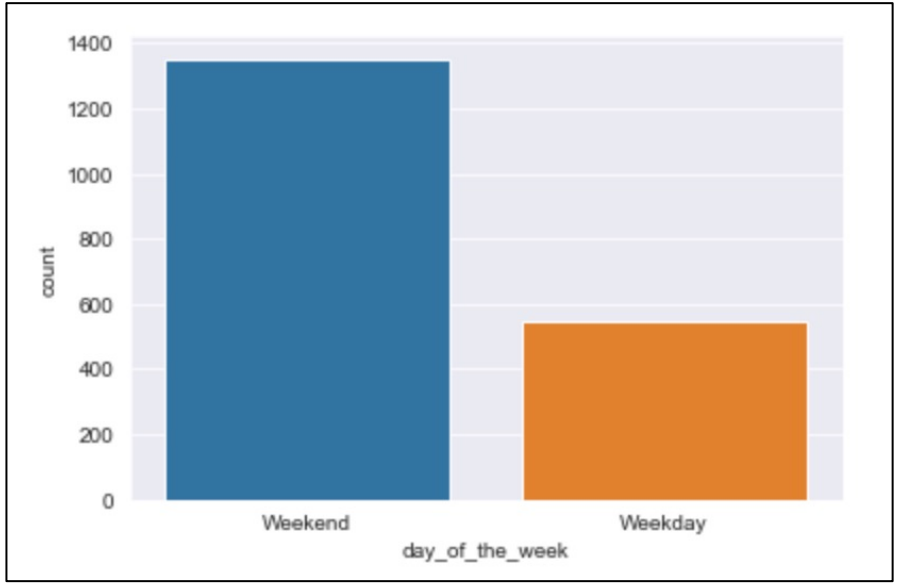


Exploratory Data Analysis – Day of the week

Observations:

The majority of FoodHub orders are placed on the weekend.

- Weekday – 547
    - 29% of all orders
- Weekend – 1351
    - 71% of all orders



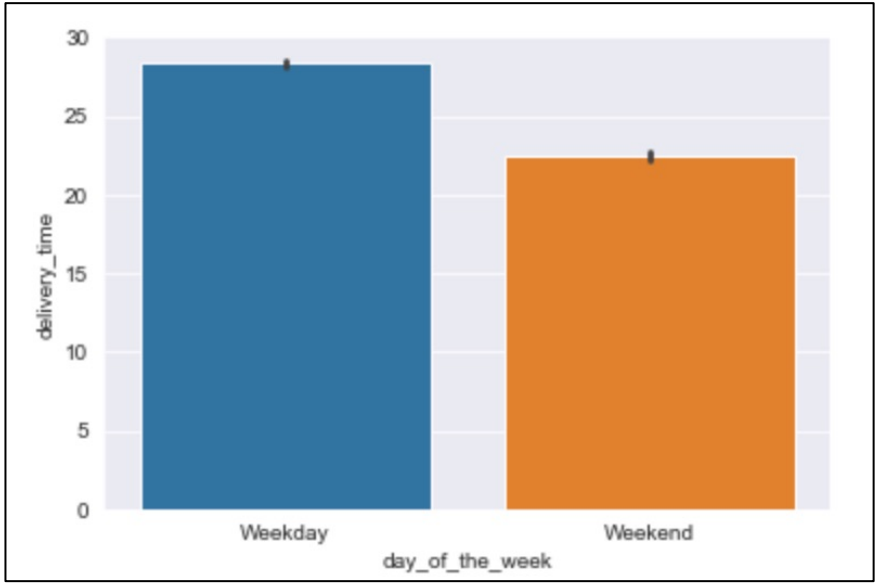
Multivariate Analysis

Exploratory Data Analysis – Day of the week / Delivery time

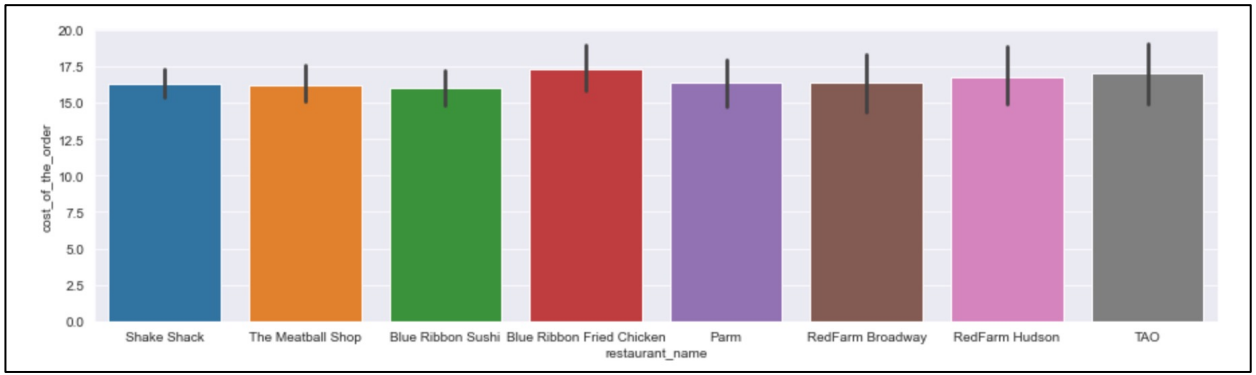
Observations:

On average delivery times are higher during the weekday than on the weekend.

- Weekday
    - 28 minutes
- Weekend
    - 22 minutes



Exploratory Data Analysis – Restaurant / Orders costs

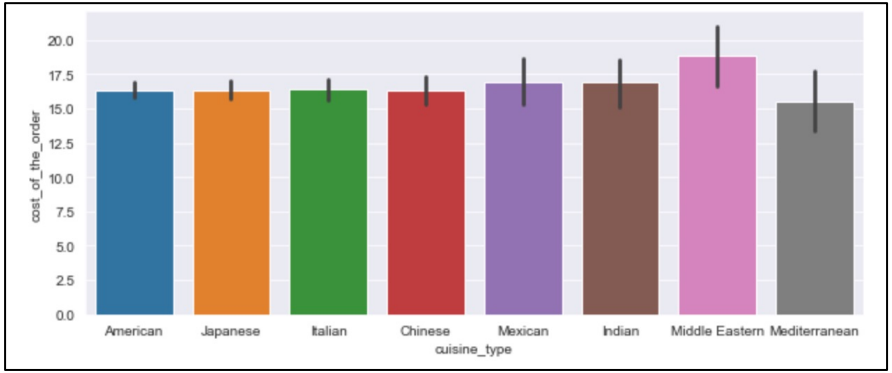


Observations:

- Blue Ribbon Fried Chicken on average has the highest order costs

- The remaining top 7 restaurants average about the same order costs.

Exploratory Data Analysis – Cuisine type / Orders costs



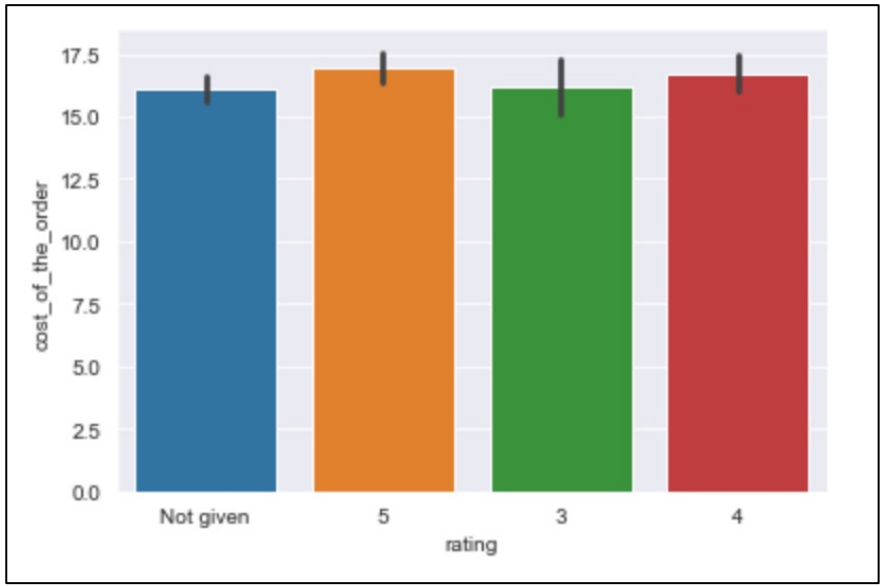
Observations:

- Cuisine type middle eastern averages the highest order cost

Exploratory Data Analysis – Ratings / Order costs

Observations:

- Higher ratings indicate on average a higher order costs.



Conclusion

- Observation A - The majority of FoodHub customers approximately 65% (784 customers) have only placed ONE single order. Followed by the second highest population approximately 22% (267 customers) which has only placed TWO orders.

- Observation B - Only three restaurants cross the 100 orders mark, while other restaurants barely cross the 50 orders mark.

- Observation C - The majority of FoodHub orders were placed during the weekend

Recommendations

Suggestion A - For customers who ordered less than 3 times in undisclosed time-period, efforts have to be made to understand their customer experience to identify what stopped them from ordering more often. Identifying root causes will help focus efforts more effectively.

1. Offer incentives for feedback
2. Include post-order feedback

For customers who place orders more frequently, the primary goal would be to increase their monetary. In others words, have these customers spend more money. One approach could be to add on a Recommended Extras List towards the end of the ordering process. Maybe even provide some customer testimonials as to why the recommend you should buy a certain sauce or appetizer among other things.

Suggestion B - Certain restaurants and cuisine types experienced a high number of FoodHub order requests while others did not. Some of the reasons behind this observation may include:

1. Food quality
2. Niche cuisine type
3. Packaging quality
4. Newly introduced restaurant/cuisine type on the FoodHub ordering app

Customer feedback and/or more information would be needed to identify significant root causes.Any root cause related to poor food or packaging quality, restaurants are to be notified and advised to improve their practices. A niche cuisine type related root cause may be improved by conducting a cost-benefit analysis on the underperforming restaurants and proceeding from there. For newly introduced restaurants/cuisine types FoodHub might want to pitch ads or push notifications.

Recommendations

Suggestion C - Since the majority of FoodHub orders are placed during the weekend, FoodHub needs to analyze the demand/supply of delivery workers. This will help improve customer experience by facilitating delivery times.

Also, given that weekend customers are the biggest population size focus on increasing their order cost when placing a FoodHub order. For weekday customers FoodHub should consider analyzing their delivery locations to identify if this customer is ordering in from work or home, this way marketing strategies can be developed for both customers.

Preferably, more data would have facilitated this EDA however with the data given some strategies were developed. If more data had been provided a customer segmentation model would have provided more detailed customer types which could help focus marketing strategies more effectively.