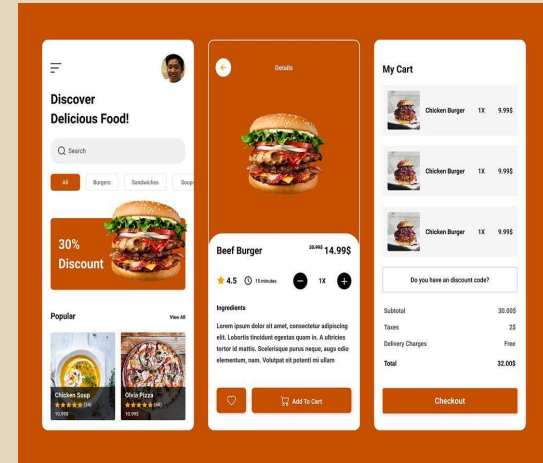# Food Hub Business Report

FoodHub Project and Python Foundations Course

03.30.2025

Contents & Agenda

Executive Summary

Conclusions:
- The most popular food cuisine in New York is American based off of order count
- More orders come in on the weekend than weekday. The mean delivery time for a weekday is 28 minutes as for a mean delivery time is 22 minutes on the weekend.
- Over 700 users did not respond with a rating for their satisfaction regarding their order through the app. Those who do not rate, most likely did not rate due to the process it could take to leave the rating.
- Shake shack was the most ordered food item, which coincides with American being the number one ordered cuisine
- Building customer loyalty within the app is key so the ability to reward those who purchase through the app 5 times with a 20% discount

Executive Summary cont.

Conclusions:
- Southern food is the third lowest ordered food item, which is understandable as the variance between minimum order and maximum order is large
- The average delivery time for a rating 3 was 24.55 minutes which is larger than the maximum delivery time from the other ratings which correlates to lower reviews as your delivery time increases
- As the cost of the order rises the more likely a customer will provide a 4 or 5 rating compared to a customer who has a cheaper order
- There are 10% of the total orders that take 60 minutes in delivery time, which accounts to 200 orders, the main thing is why are the orders taking an hour and what restaurants have the longest delivery time.
- Food Hub aggregator has made $6,616 in net revenue from consumers using the app which the restaurants pay a fee based off how much they make per order

Executive Summary cont.

Recommendations:
- Continue to add American and fast food style restaurants to the app as it is widely popular in New York with the fast paced environment
- Add another Japanese restaurant to the app as two of the top 5 restaurants were sushi in terms of total orders
- Continue to add incentives to order through the app such as if you make an order of over $20 you can get a 15% delivery discount
- An incentive to get more users to respond to the rating so that we can continue to grow an understanding of people's wants is by adding a 15% order coupon once you complete the survey and provide a rating for how you felt about delivery time and overall usage of the app
- Look into why certain orders take 60 minutes for total delivery

Business Problem Overview and Solution Approach

Overview:
- The use of the current data to analyze the demand for different restaurants and cuisines in order to enhance customer experience with the app

Approach:
- Ensured data had no missing values
- Understood each column and its purpose
- Started with surface level questions before researching more indepthly on the problem
- Created visualizations and insights
- Generated recommendations and conclusions in order to find a solution to the problem
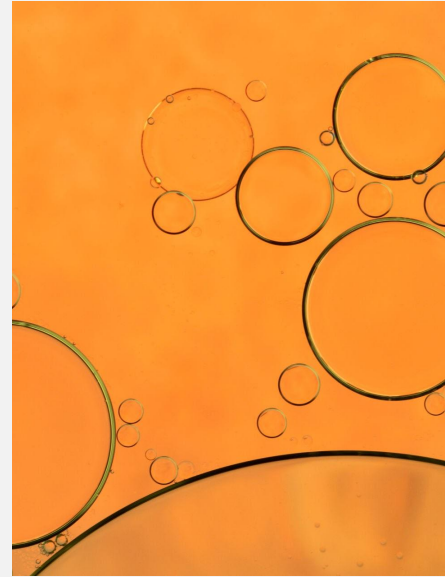
Data Overview

Data:

#1

The shape of the data set consists of 1,898 rows and 9 columns.

#2

The data types of the dataset include float(64), int(64) and object.

#3

The dataset has no missing values for any of the rows or columns

#4

The statistical summary of the data includes the max, min, and average for food preparation time (in minutes) which is 35.41, 20, and 27 respectively
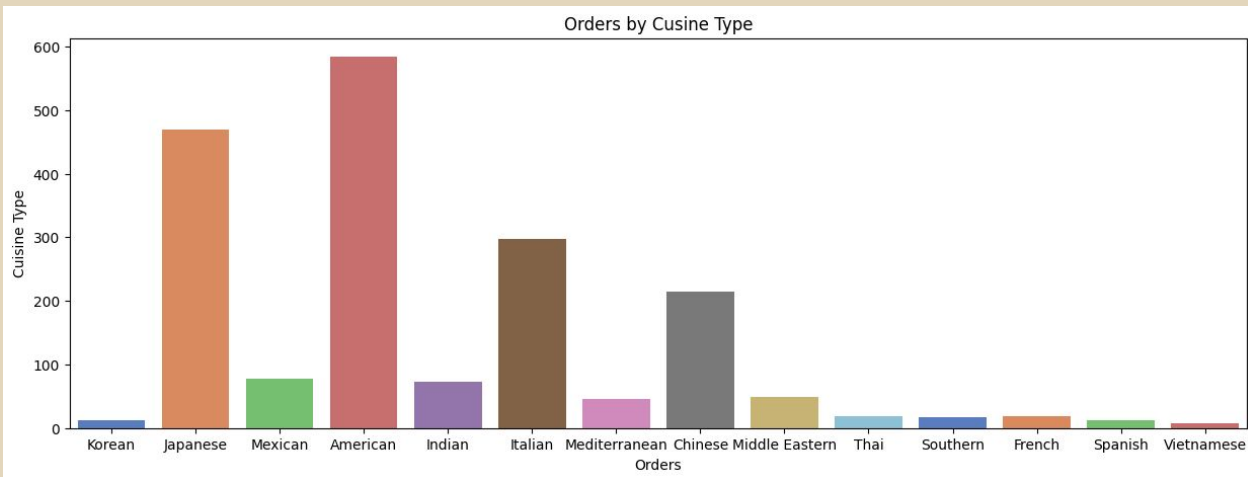
#5

Out of the 1,898 values in the ratings column, there are 736 non rated orders

Univariate Analysis

Analysis:

#6

Unique values
Order ID: 1,898
Customer ID: 1,200
Restaurant Name: 178
Cuisine Type: 14

Orders by Cusine Type

- The top four cuisines that have been ordered the most are American, Japanese, Italian and Chinese, respectfully in this order.
- American being number 1 is justifiable because of the fast paced environment of New York and ease of access where there is a burger or hot dog stand on every corner.
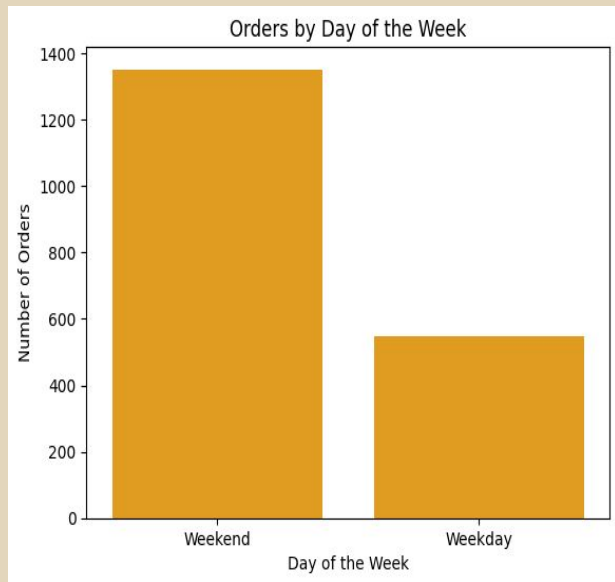
Univariate Analysis cont.

Refer to Figure 1. in appendix for Box Plot
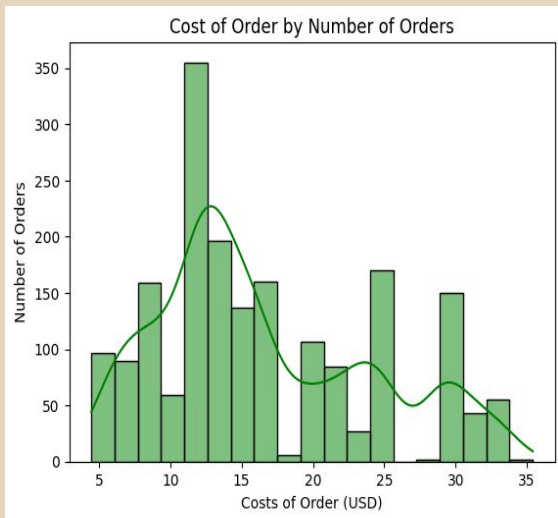
- The most often paid for order costs approximately between 11 to 12 USD.
- The histogram is slightly skewed left which justifies that the purchases of higher priced orders is lower due to the fact that most New Yorkers dine on a tight budget
- The boxplot backs up the histogram analysis with the median cost of order being approximately 14 USD and the max cost of order being 35. No outliers are present. The box plot is positively skewed.

Univariate Analysis cont.

Orders by Day of the Week

Orders by Rating
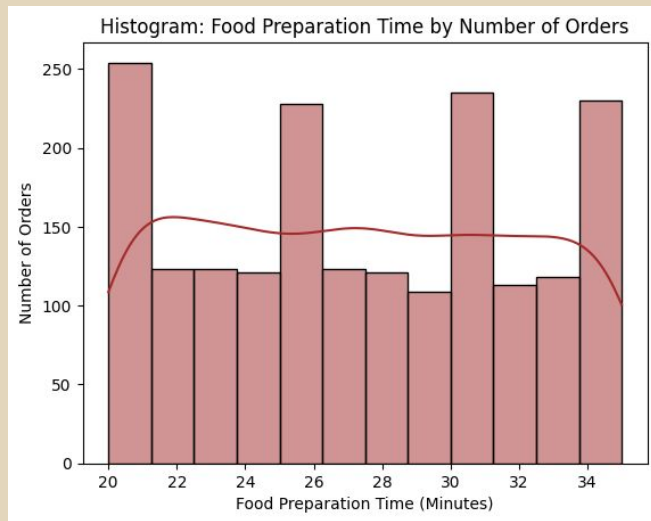
Unique value: 2 (Weekend/Weekday)

- The weekend more than doubles the number of orders compared to a weekday

Unique value: 4

- Although 40% of all ratings are Not given, out of provided ratings, a rating of 5 is the predominant rating

Univariate Analysis cont.

Refer to figure 2 in Appendix for Box Plot

- The histogram is very balanced with four segments of time accosting for the majority orders such as 20 minutes, 31 minutes, 25 minutes, and 34 minutes, respectfully.
- The box plot displayed the average food preparation time is 27 minutes, the minimum is 20 minutes and maximum is approximately 35 minutes.
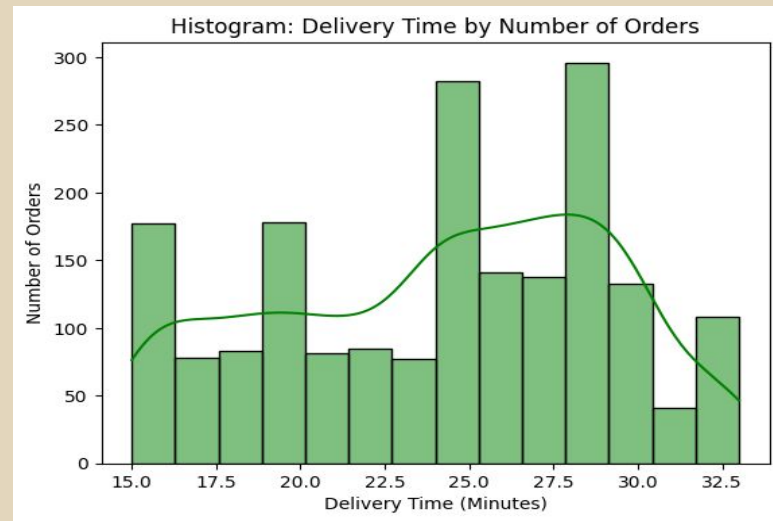
Refer to figure 3 in Appendix for Box Plot

- The histogram has the peak delivery time of orders between 24 minutes and 29 minutes.
- The box plot displays the minimum delivery time of 15 minutes, the Q1 at 20 minutes, the average time of delivery is 25 minutes, the Q3 at 27.5 minutes with the maximum delivery item at 32.5 minutes.

Univariate Analysis cont.

Analysis:

#7

The top 5 restaurants by orders received:
1. Shake Shack (219)
2. The Meatball Shop (132)
3. Blue Ribbon Sushi (119)
4. Blue Ribbon Fried Chicken (96)
5. Parm (68)

#8

The most popular cuisine on the weekend:
1. American
2. Japanese
3. Italian
4. Chinese

#9

The number of total orders that cost above 20 dollars:
- 555 orders

Percentage of orders above 20 dollars:
- 29.24%

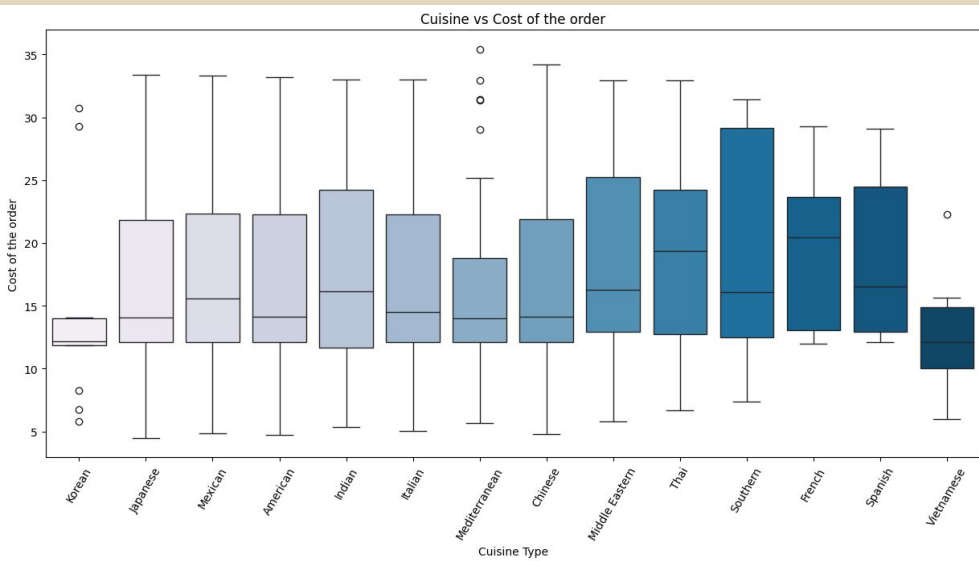**#10**

The mean order delivery time for the 1,898 orders:
- 24.16 minutes

#11

The 5 most frequent customers that will get the 20% discount vouchers are (times ordered):
1. Customer ID 52832 (13)
2. Customer ID 47440 (10)
3. Customer ID 83287 (9)
4. Customer ID 250494 (8)
5. Customer ID 259341 (7)

Multivariate Analysis

Cuisine vs Cost of the order


Cuisine vs Food Preparation Time

- The most expensive max price for a meal excluding outliers was Chinese food at 34 dollars, Japanese food at 33 dollars, and Mexican food at 32 dollars.
- The cuisines with the lowest variance was Korean with a minimum cost of 12 dollars and maximum cost of 14 dollars with the average cost of 12.50 dollars.
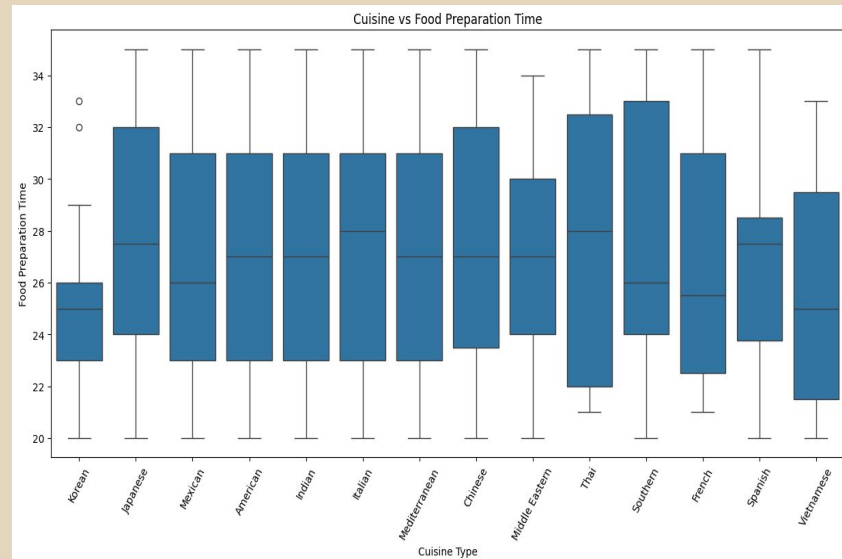
- 90% of the cuisine types have a max food preparation time at 36 minutes with 80% of those having a minimum food preparation time of 20 minutes
- The median for food preparation time for the two most ordered cuisines is American at 27 minutes and Japanese at 27.50 minutes.

Multivariate Analysis cont.
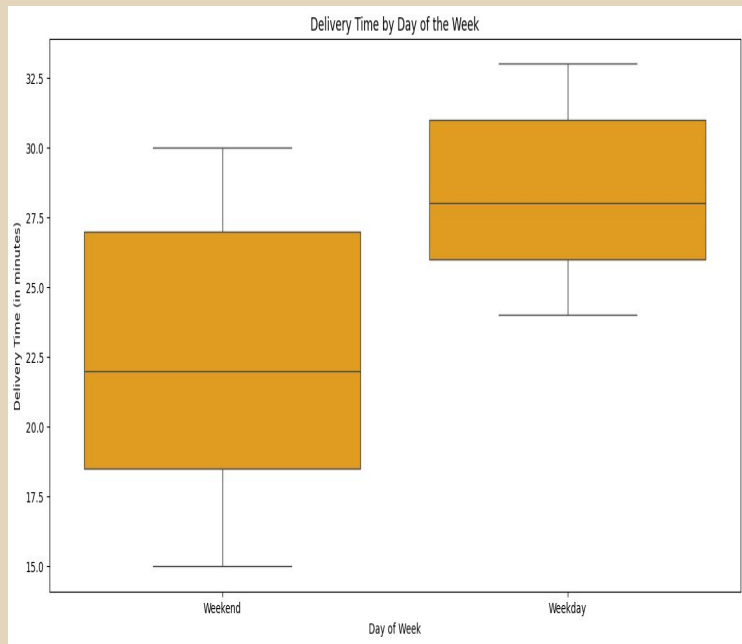


The revenue generated by the different restaurants:
1.   Shake Shack: $3579.53
2.   The Meatball Shop: $2145.21
3.   Blue Ribbon Sushi: $1903.95
4.   Blue Ribbon Fried Chicken: $1662.29
5.   Parm: $1112.76

Analysis:
- Shake shack is highest revenue generating of the American restaurants which lines up with previous box plot and histograms.
- Meatball shop is second highest which lines up with the box plot for italian having a number 4 in order quantities

- The weekend has a minimum delivery time of 15 minutes, a median of 22 minutes and a maximum of 30 minutes
- The weekday has a minimum delivery time of 24.30 minutes, a median of 28 minutes, and a maximum of 33 minutes
- We can assume that weekday traffic plays a key role in delivery time

Multivariate Analysis cont.
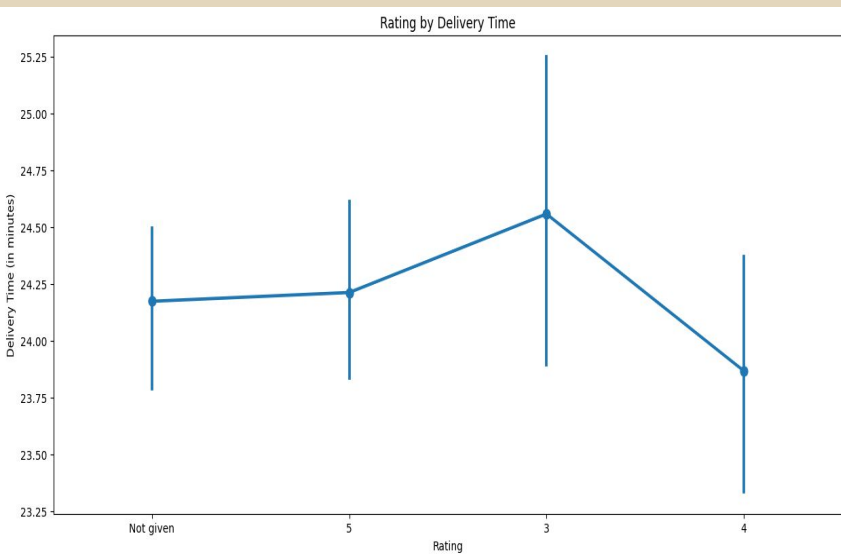
- The orders that rate 3 has an average delivery time of 24.60 minutes compared to rating 5 which has a median of 24.20
- The orders that rate 4 provide a different focal point with it having the lowest delivery time with the median being 23.80
- The longer the delivery time the lower the rating
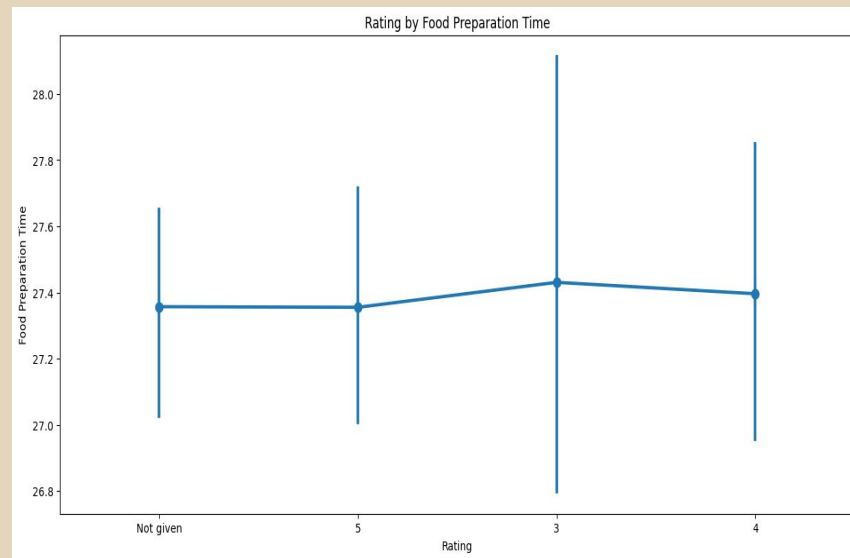
- The orders that were rated 3 has a range of 26.8 minutes to 30 minutes, which doesn't provide a correlation between Rating and Food Preparation Time

Multivariate Analysis cont.

Rating vs Cost of the Order
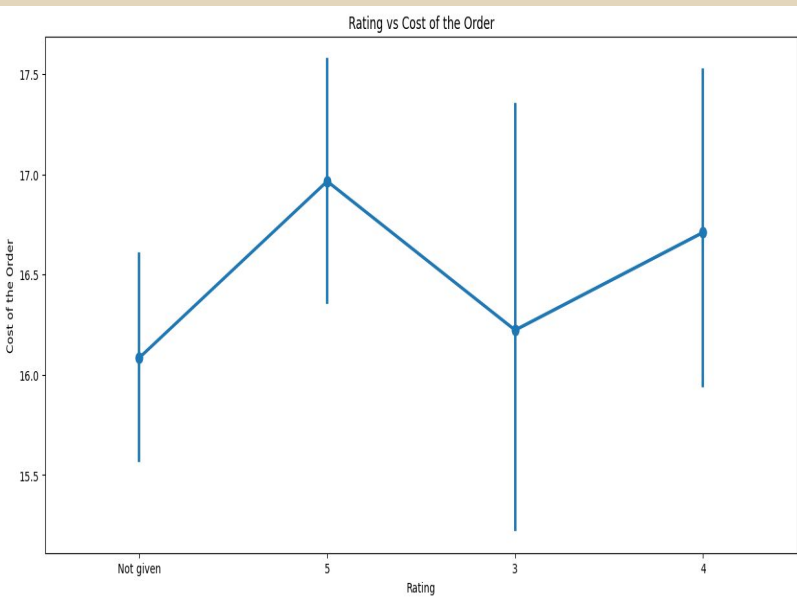
- The orders rated 5 have the highest maximum cost of order at 18 compared to the other ratings such as Not given having a maximum cost of order at 16.65
- There is a correlation between Rating and Cost of Order with the higher ratings having a medium greater than rating 3
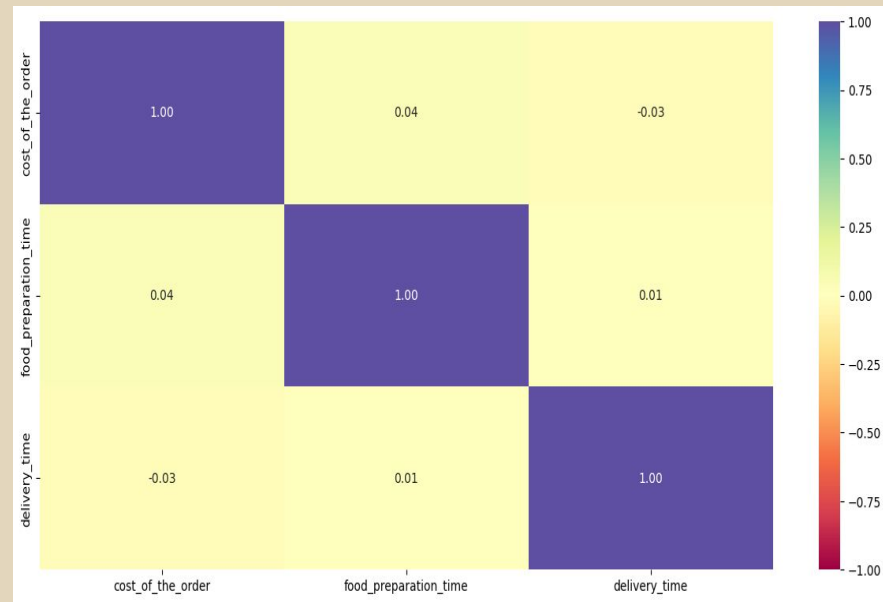
- The correlation is very weak amongst the variables cost of the order, food preparation, and delivery time as the highest correlation is 0.04

Multivariate Analysis cont.

Analysis:

#13
Restaurants that averaged a 4 rating (minimum 50 ratings) receive a promo offer:
1. The Meatball Shop (4.51)
2. Blue Ribbon Fried Chicken (4.32)
3. Shake Shack (4.27)
4. Blue Ribbon Sushi (4.21)

#14

The net revenue generated by Food Hub across all orders: $6,166.63

#15

The number of total orders that delivery time is over 60 minutes:
- 200 orders

Percentage of orders more than 60 minutes:
- 10.54%

#16

The mean order delivery time on by day:
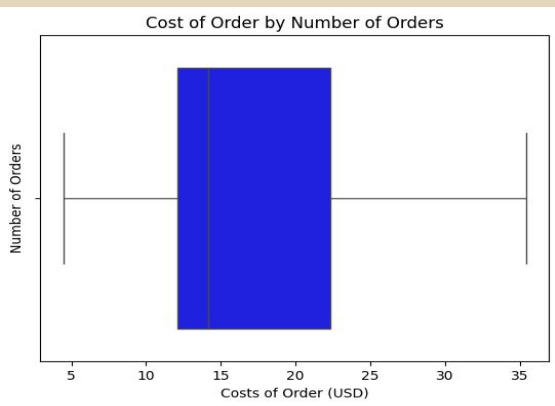- Weekends: 22 minutes
- Weekdays: 28 minutes
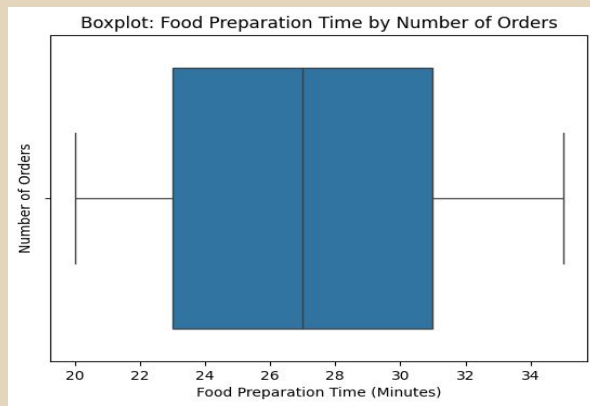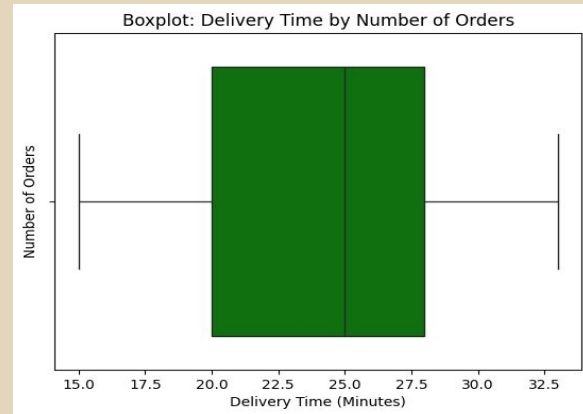
Appendix

Figure 1

Figure 2

Figure 3

Thank you!