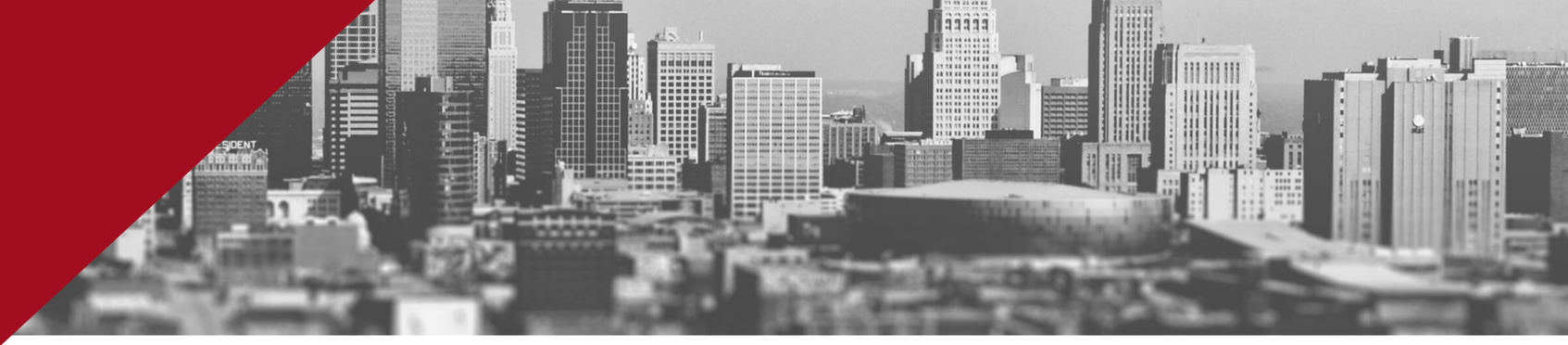
FoodHub Data Analysis

Problem Statement - FoodHub

Course: Foundations for Data Science

29 May 2023

Agenda



Executive Summary

I think the delivery time should be lower than 24 minutes to result in a better rating. To do so, we should place drivers in strategic location like the top 5 restaurants or the famous cuisines like American. Foodhub should also make sure to not be short staffed on weekend there is a steep increase from the weekdays. The food that are pricier result in better rating, so maybe Foodhub can give discounts to attract more customers.

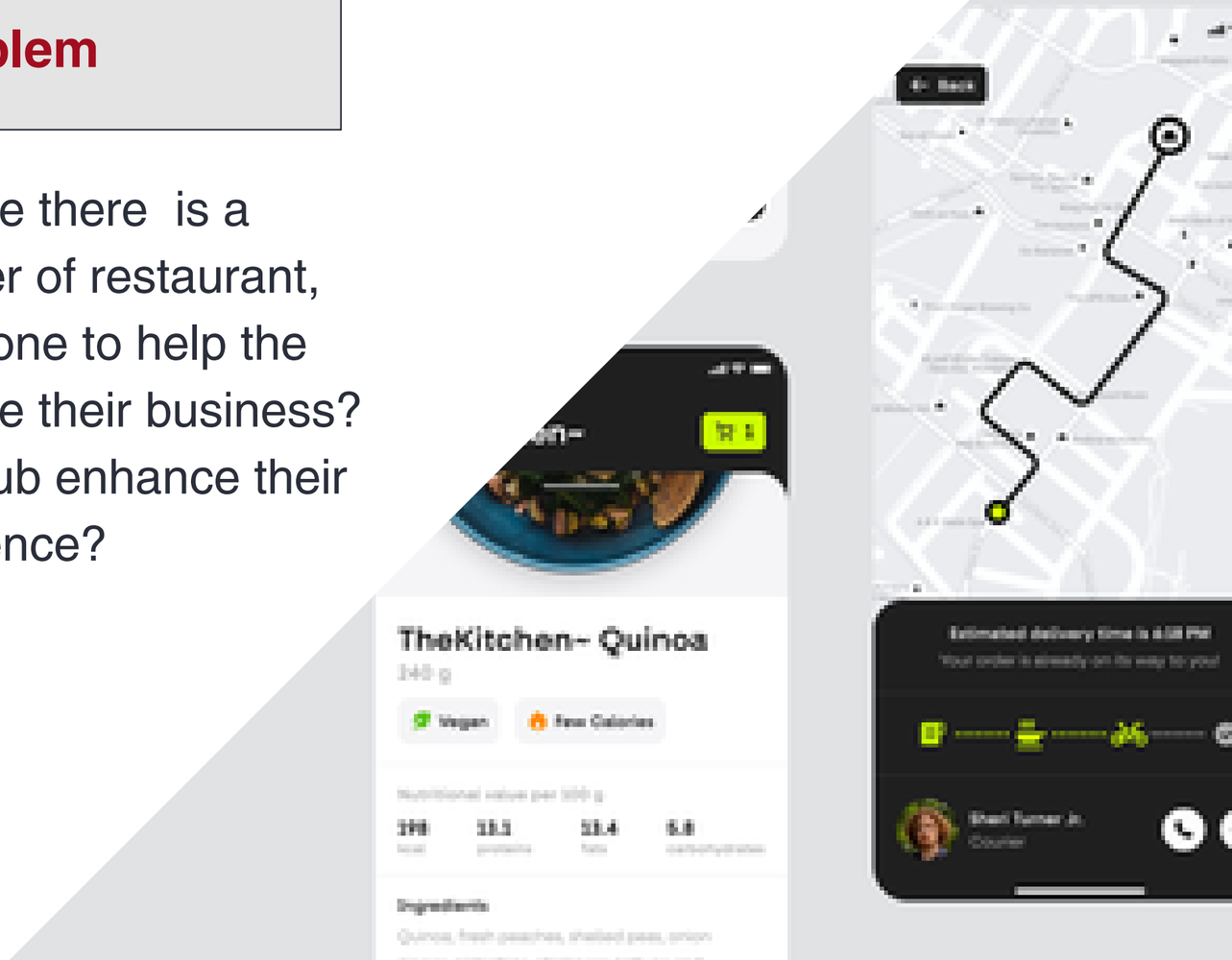
Business Problem Overview

Overview

Students and professionals rely on restaurants due to their busy lifestyle. Foodhub makes it possible for these people to access multiple restaurant through the phone. The food aggregator earns money by collecting a fixed margin of the delivery order from the restaurants.

Problem

In this time where there is a growth in number of restaurant, what could be done to help the Foodhub improve their business? How can Foodhub enhance their customer expirience?



Solution Approach

analyze the data that Foodhub has stored from different orders made by the registered customers in their online portal.

Solution # 1

analyze the data to get a fair idea about the demand of different restaurants

Solution # 2

Answer the question given by the data science team in to improve customers expirience

Data Overview

Q1. How many rows and columns are present in the data?

There are 1898 rows and 9 collumns

Q2. What are the datatypes of the different columns in the dataset?

Three datatype is used in the dataset. There are 4 integer: order_id, customer_id, food_preparation_time, and delivery_time. There are also 4 object: restaurant_name, cuisine_type, day_of_the_week, and rating. Lastly, cost_of_the_order is a float.

Q3. Are there any missing values in the data?

There are no missing values in the data

Q4. Check the statistical summary of the data. What is the minimum, average, and maximum time it takes for food to be prepared once an order is placed?

the minimum time it takes for the food to be prepared once the order is placed is 15 minutes,
the average time it takes for the food to be prepared once the order is placed is 27.372 minutes
the maximum time it takes for the food to be prepared once the order is placed is 35 minutes

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Q5. How many orders are not rated?

There are 736 orders that are not rated.

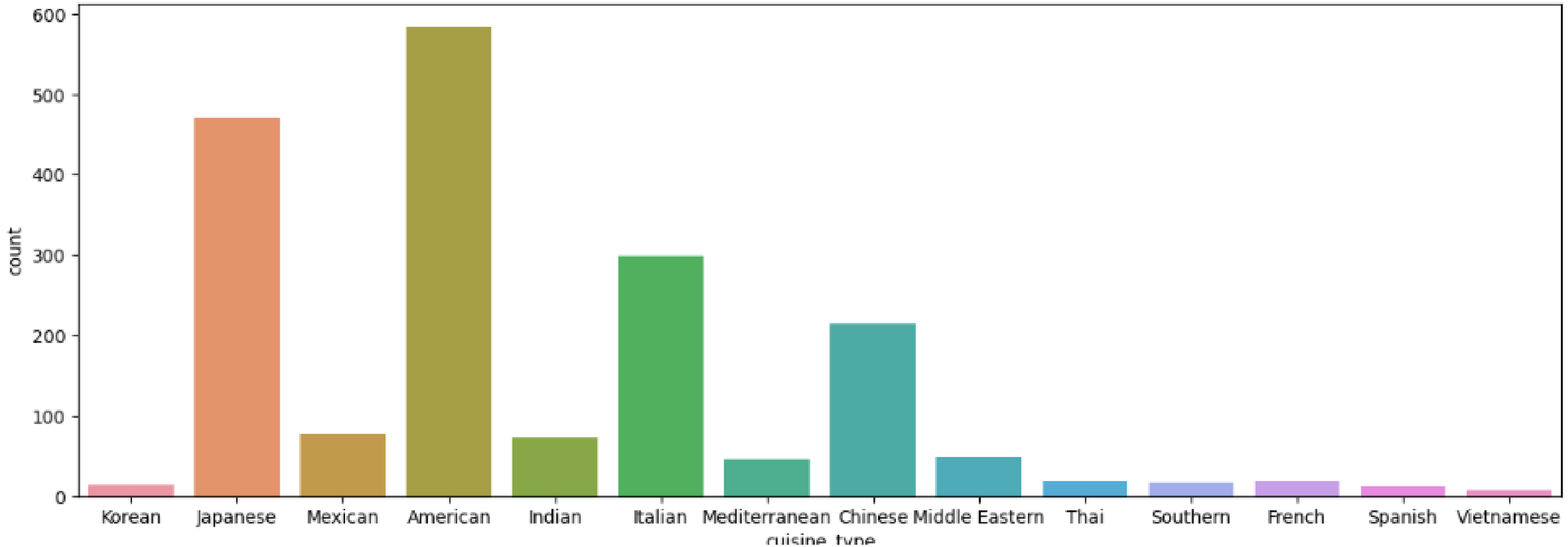
EDA-Univariate Analysis

Q6. Explore all the variables and provide observations on their distributions. (Generally, histograms, boxplots, countplots, etc. are used for univariate exploration.)

- There are 1898 numbers of unique order_id
- There are 1200 numbers of unique customer_id
- There are 178 numbers of unique restaurant_name
- There are 14 numbers of unique cuisine_type

EDA-Univariate Analysis

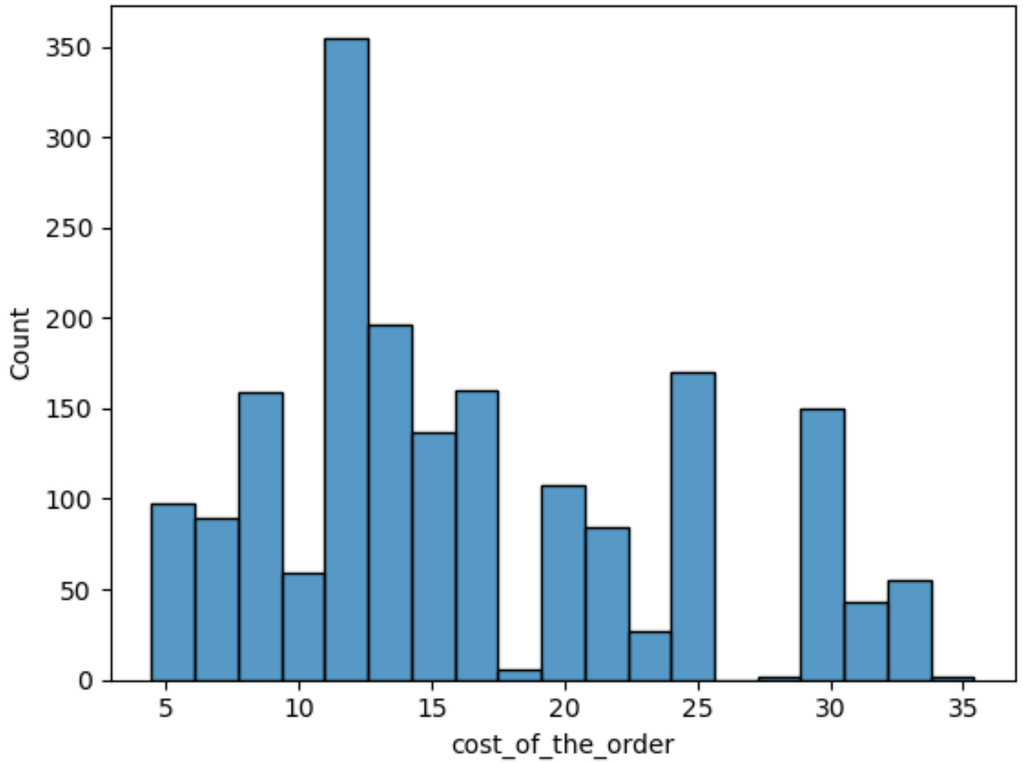
There are 14 numbers of unique cuisine_type
American being the most famous, followed by Japan, Italy and Chinese

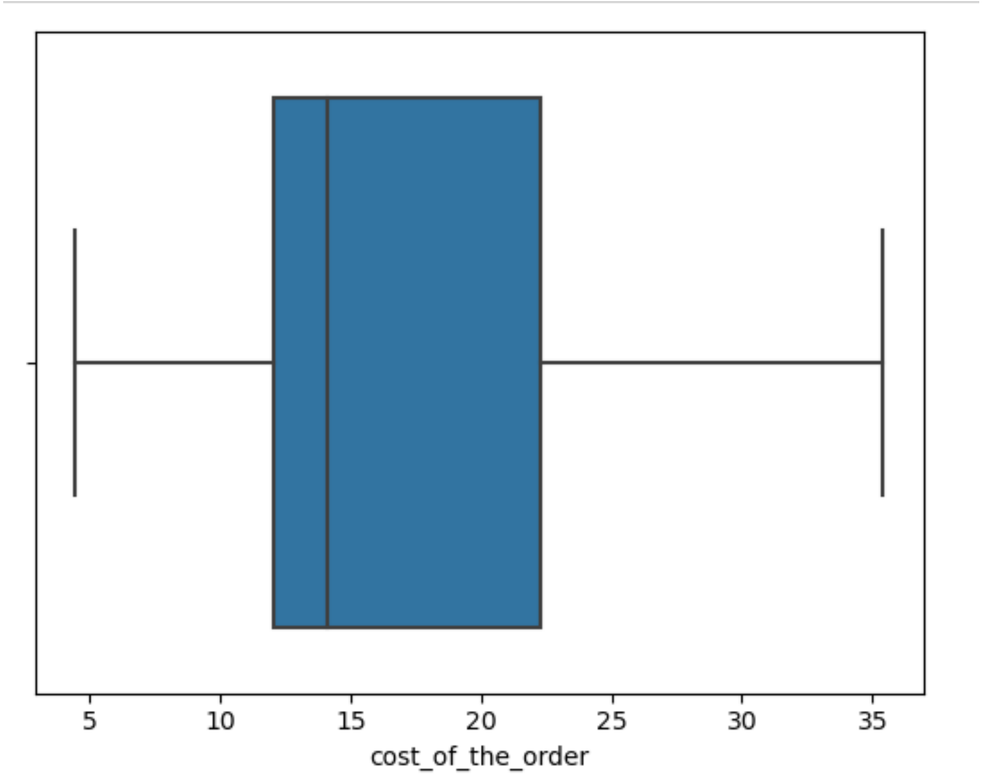


EDA-Univariate Analysis

Cost of the order

The data is right skewed. People mostly buy food with the price close to 15 dollars.

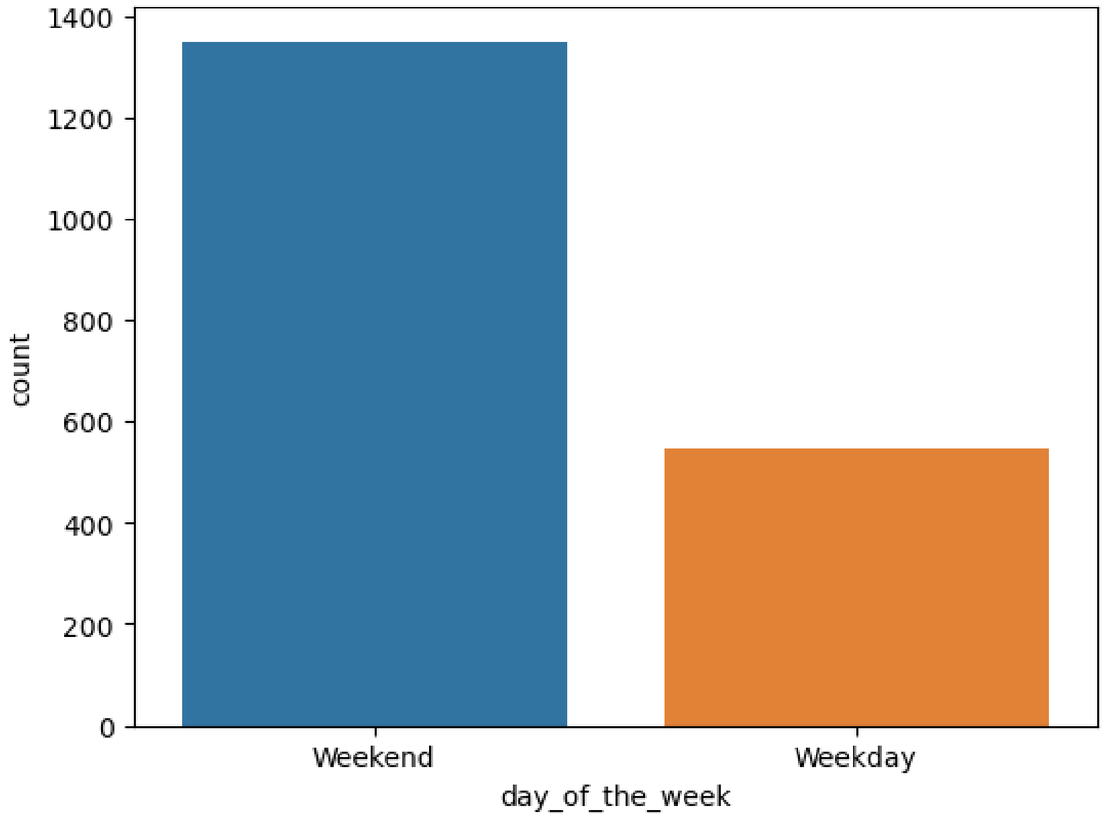




EDA-Univariate Analysis

Day of the week (weekdays and weekends)

Most people order food through the app on weekends.

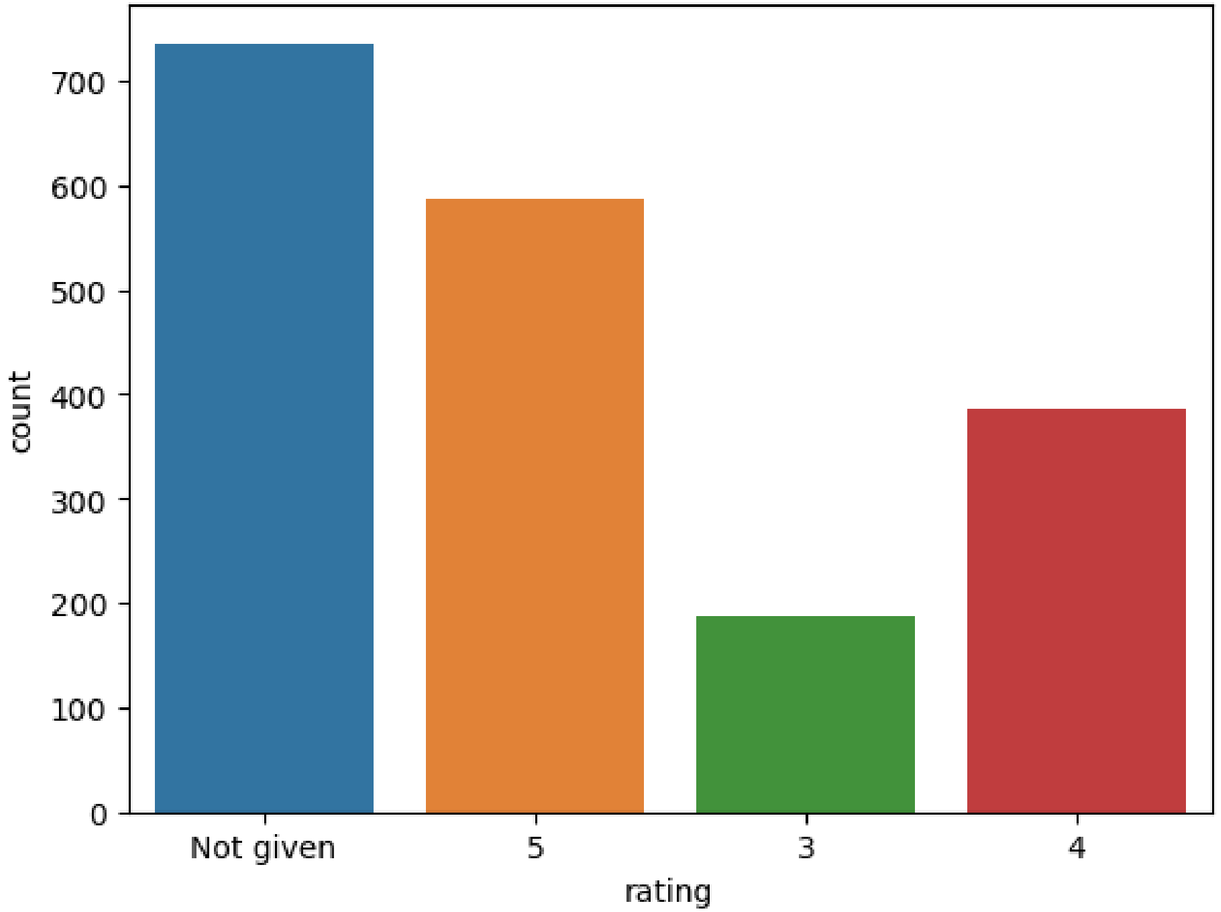


EDA-Univariate Analysis

Rating

The rating we get is either 3, 4, 5 or Not given.

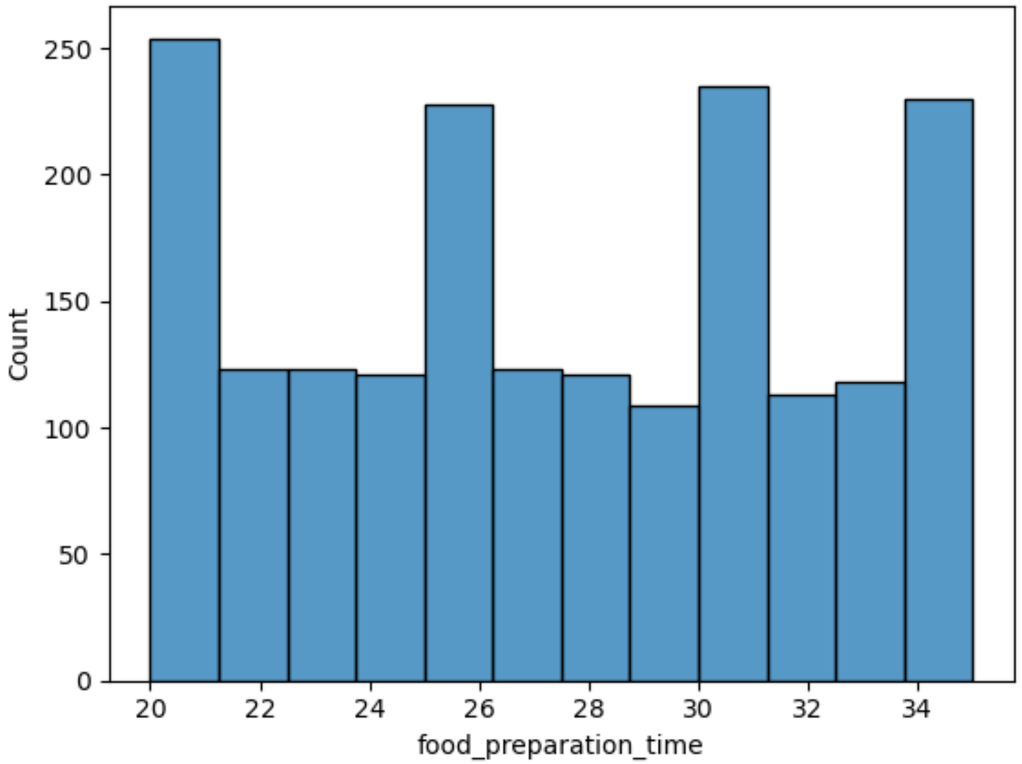
We mostly get not given but that aside, 5 is the dominant rating. We should however increase the customer's reviews in order to get a better understanding on what needed to be prioritised.

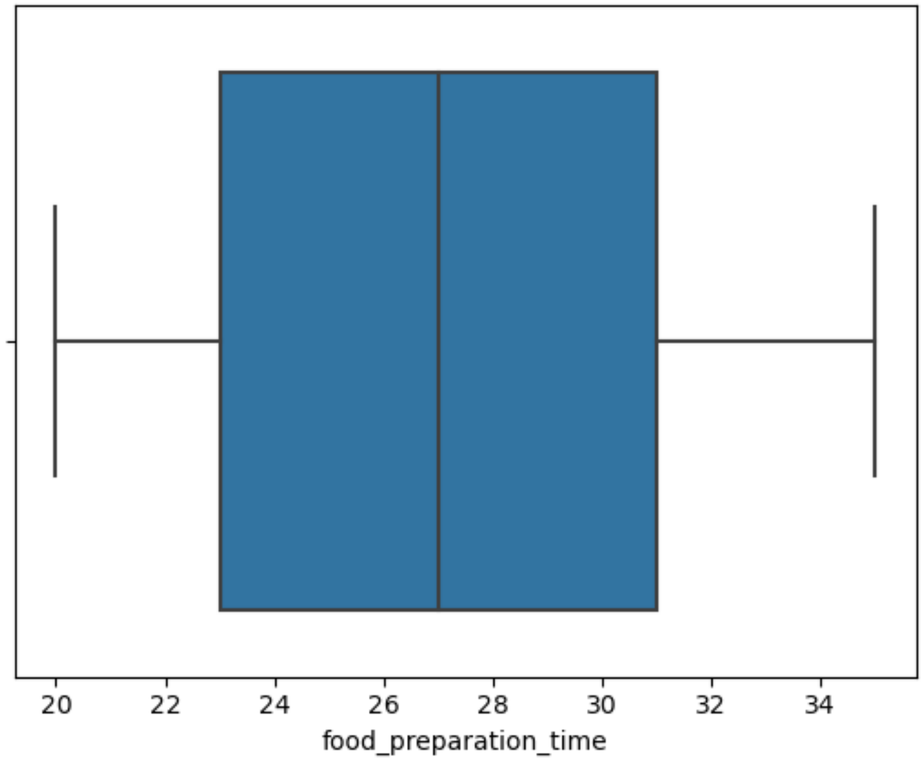


EDA-Univariate Analysis

Food preparation time

Ranges between 20-34 minutes

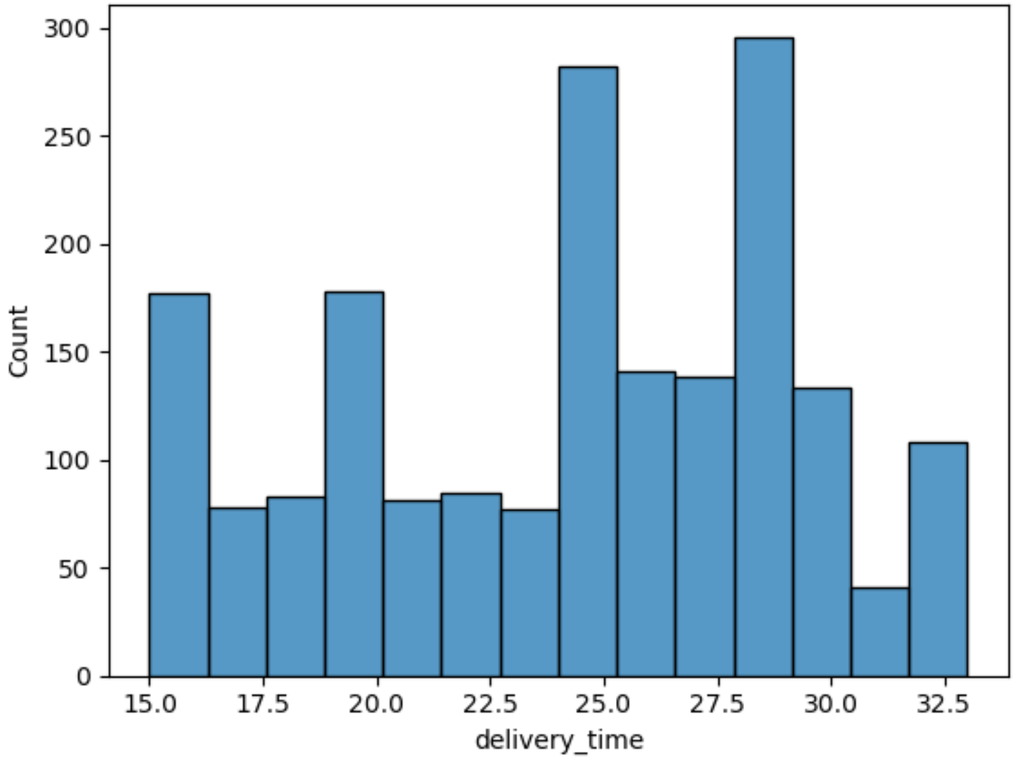


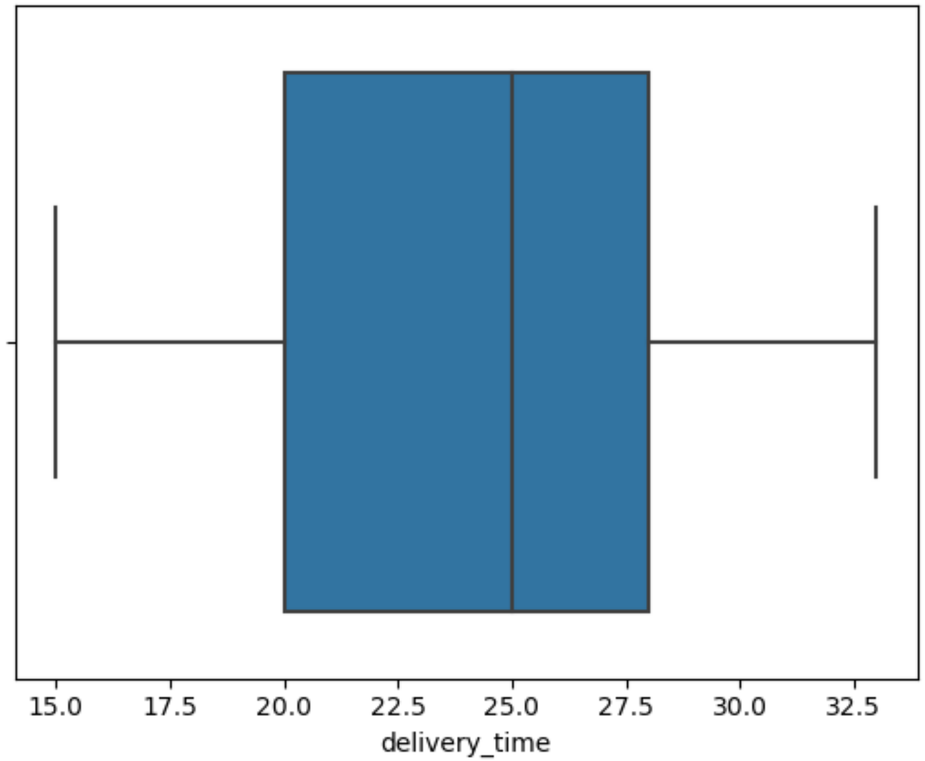


EDA-Univariate Analysis

Food delivery time

Ranges between 20-34 minutes





EDA-Univariate Analysis

Q7. Which are the top 5 restaurants in terms of the number of orders received?

1. Shake Shack with 219
2. The Meatball Shop with132
3. Blue Ribbon Sushi with 119
4. Blue Ribbon Fried Chicken with 96
5. Parm with 68

Q8. Which is the most popular cuisine on weekends?

The most popular cuisine on the weekend is American.

Q9. What percentage of the orders cost more than 20 dollars?

There are 29.24% of total orders where the cost is above 20 dollars

Q10. What is the mean order delivery time?

The mean delivery time for this dataset is 24.16 minutes

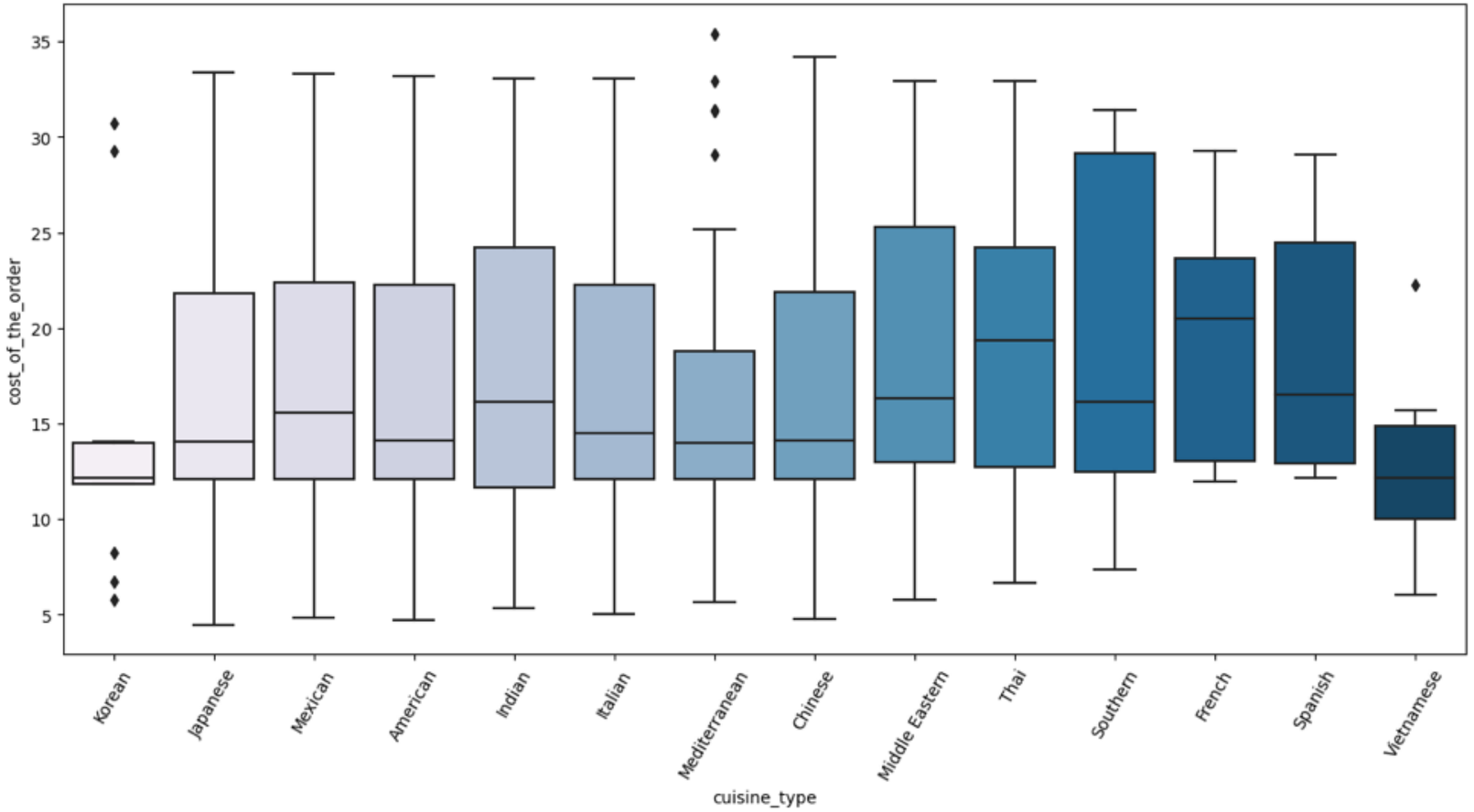
Q11.The company has decided to give 20% discount vouchers to the top 3 most frequent customers. Find the IDs of these customers and the number of orders they placed.

- 52832
- 47440
- 83287

EDA-Multivariate Analysis

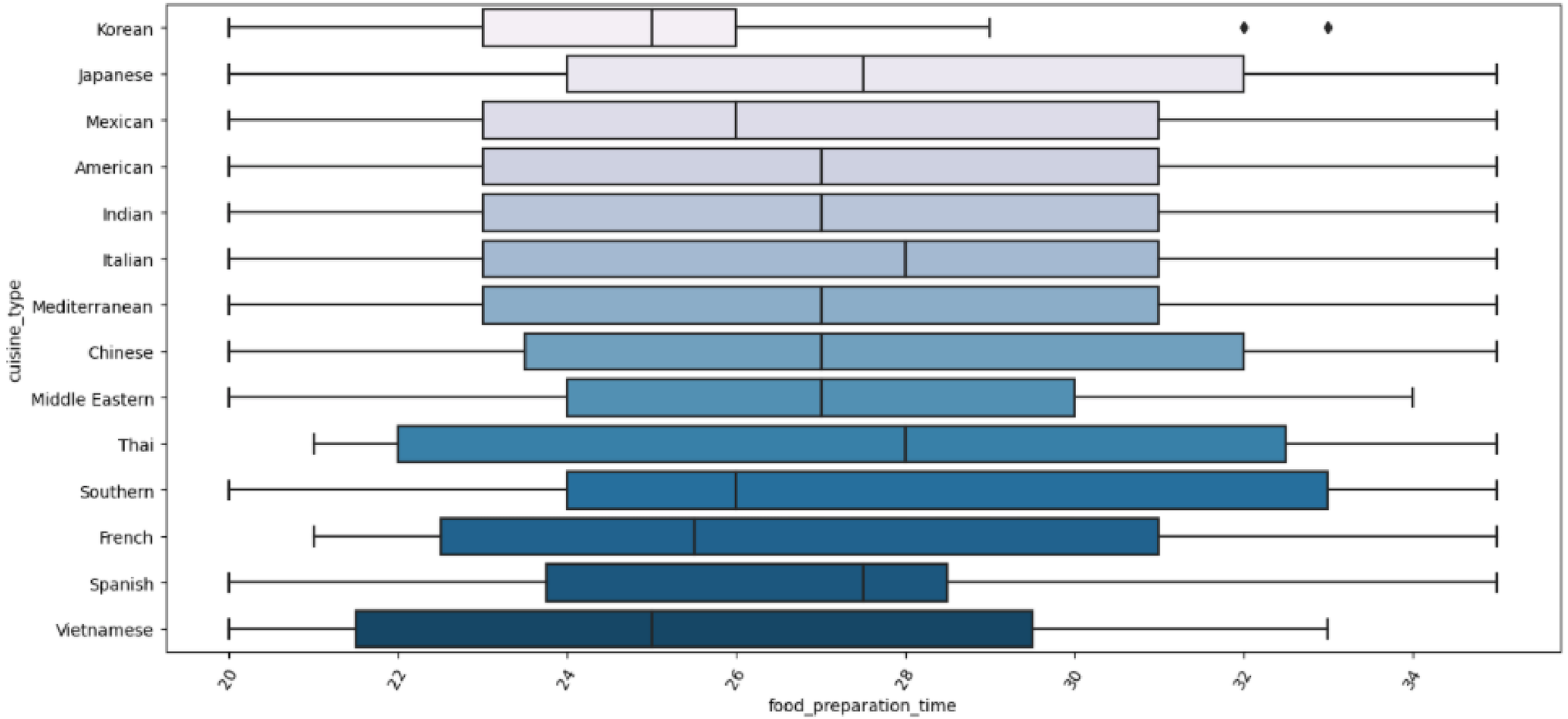
Q12. Perform a multivariate analysis to explore relationships between the important variables in the dataset. (It is a good idea to explore relations between numerical variables as well as relations between numerical and categorical variables)

Relationship between cost of the order and cuisine type



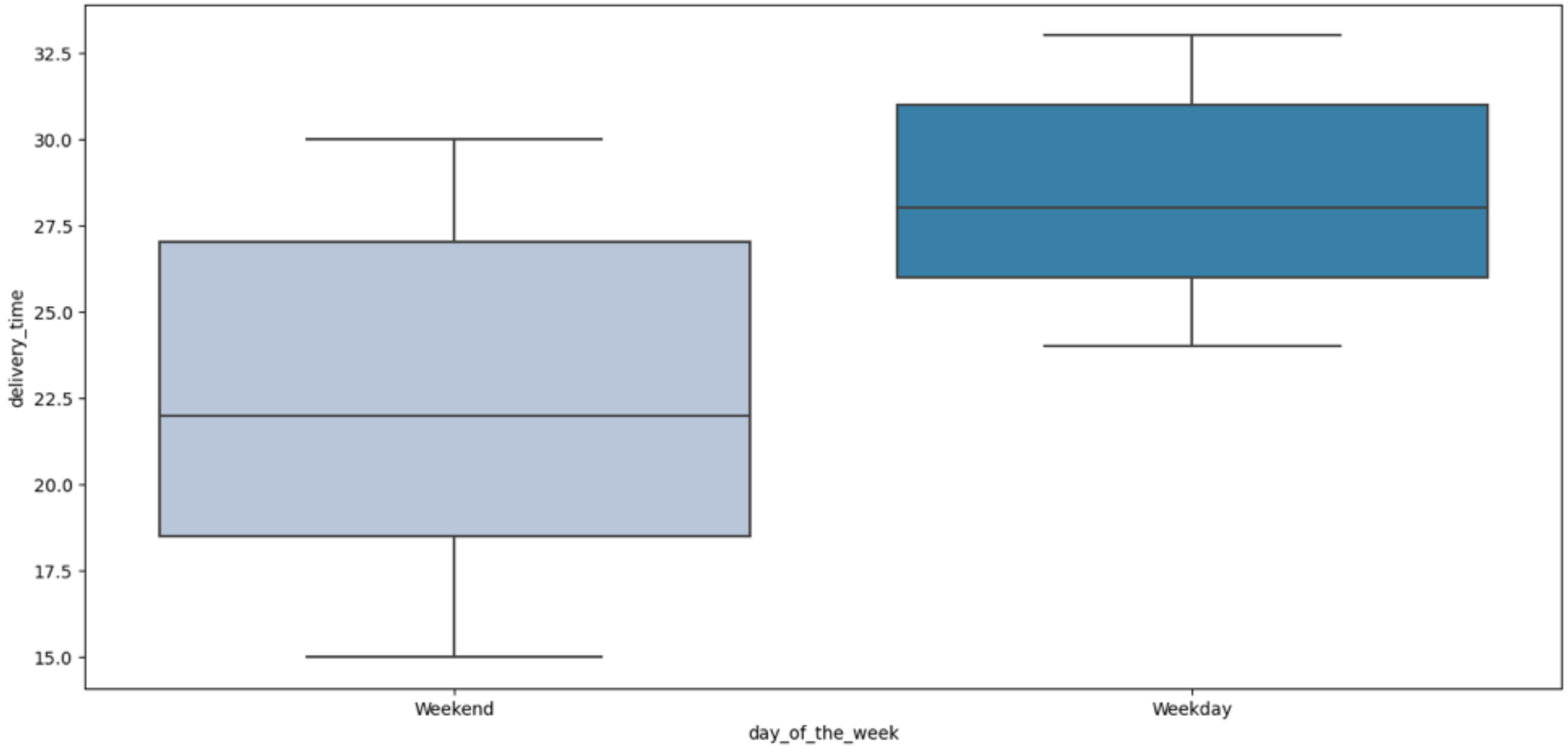
EDA-Multivariate Analysis

Relationship between food preparation time and cuisine type



EDA-Multivariate Analysis

Relationship between day of the week and delivery time



EDA-Multivariate Analysis

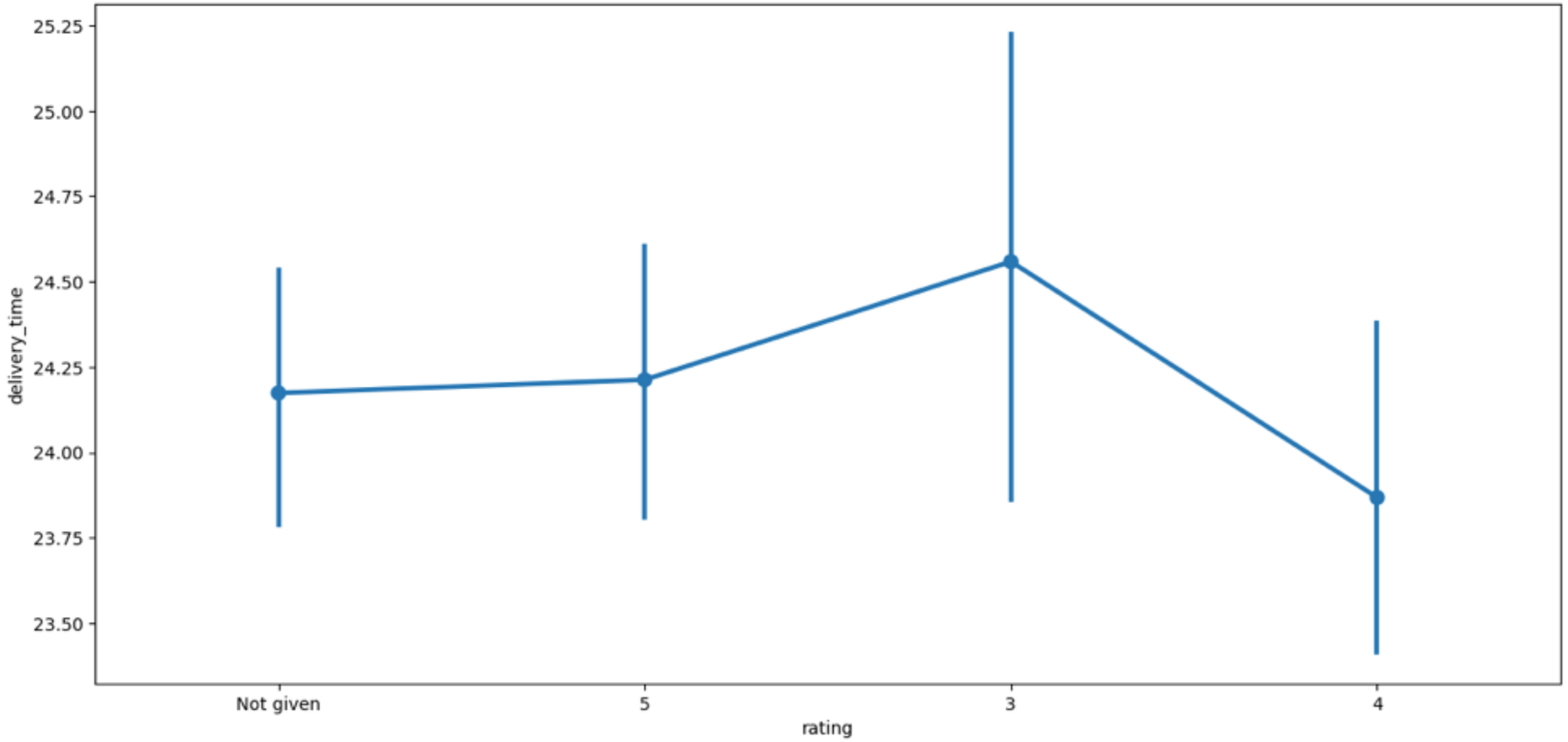
Restaurant and Revenues

restaurant_name	
Shake Shack	3579.53
The Meatball Shop	2145.21
Blue Ribbon Sushi	1903.95
Blue Ribbon Fried Chicken	1662.29
Parm	1112.76
RedFarm Broadway	965.13
RedFarm Hudson	921.21
TAO	834.50
Han Dynasty	755.29
Blue Ribbon Sushi Bar & Grill	666.62
Rubirosa	660.45
Sushi of Gari 46	640.87
Nobu Next Door	623.67
Five Guys Burgers and Fries	506.47

#the top 5 revenue are from the top 5 restaurants in terms of ordered received.

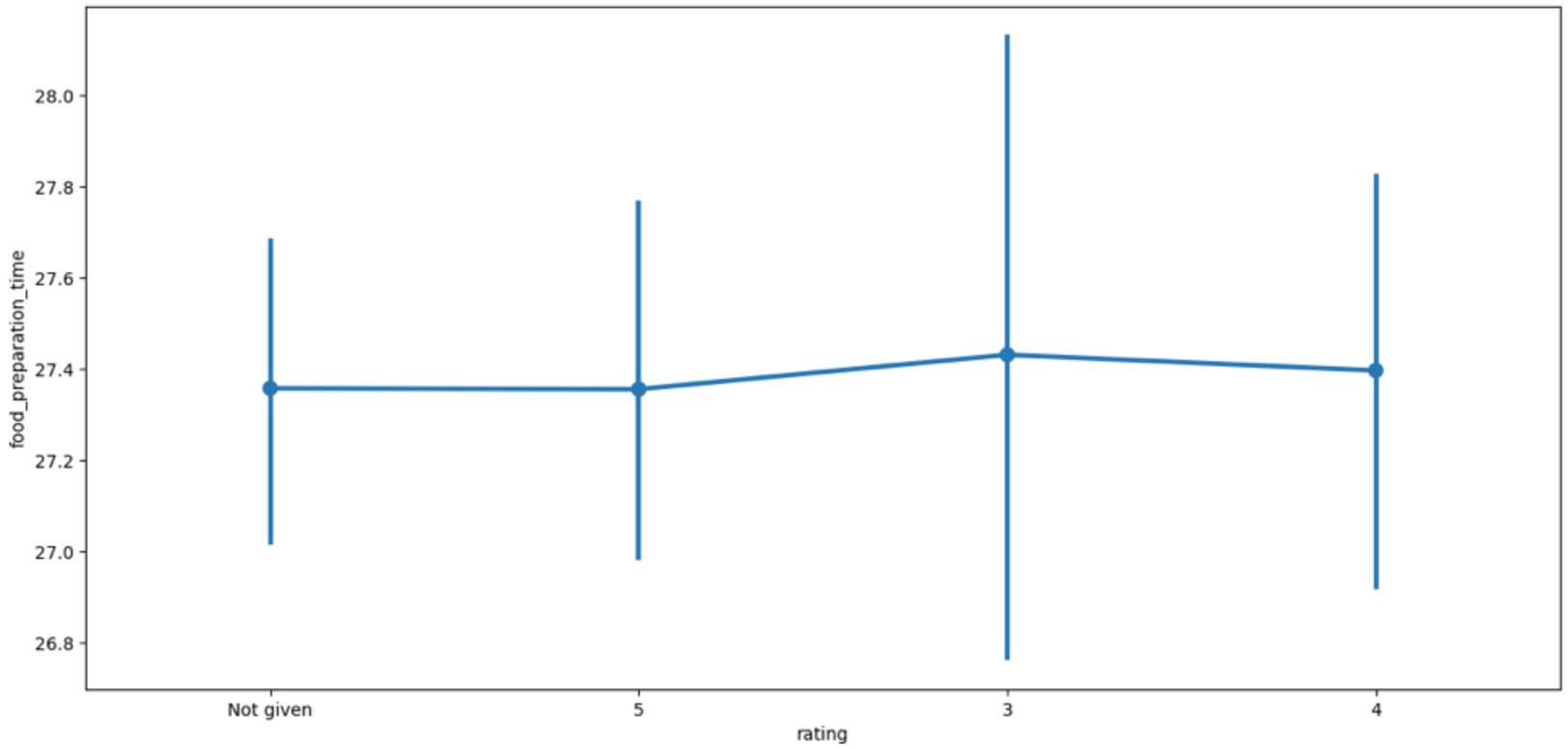
EDA-Multivariate Analysis

Relationship between rating and delivery time



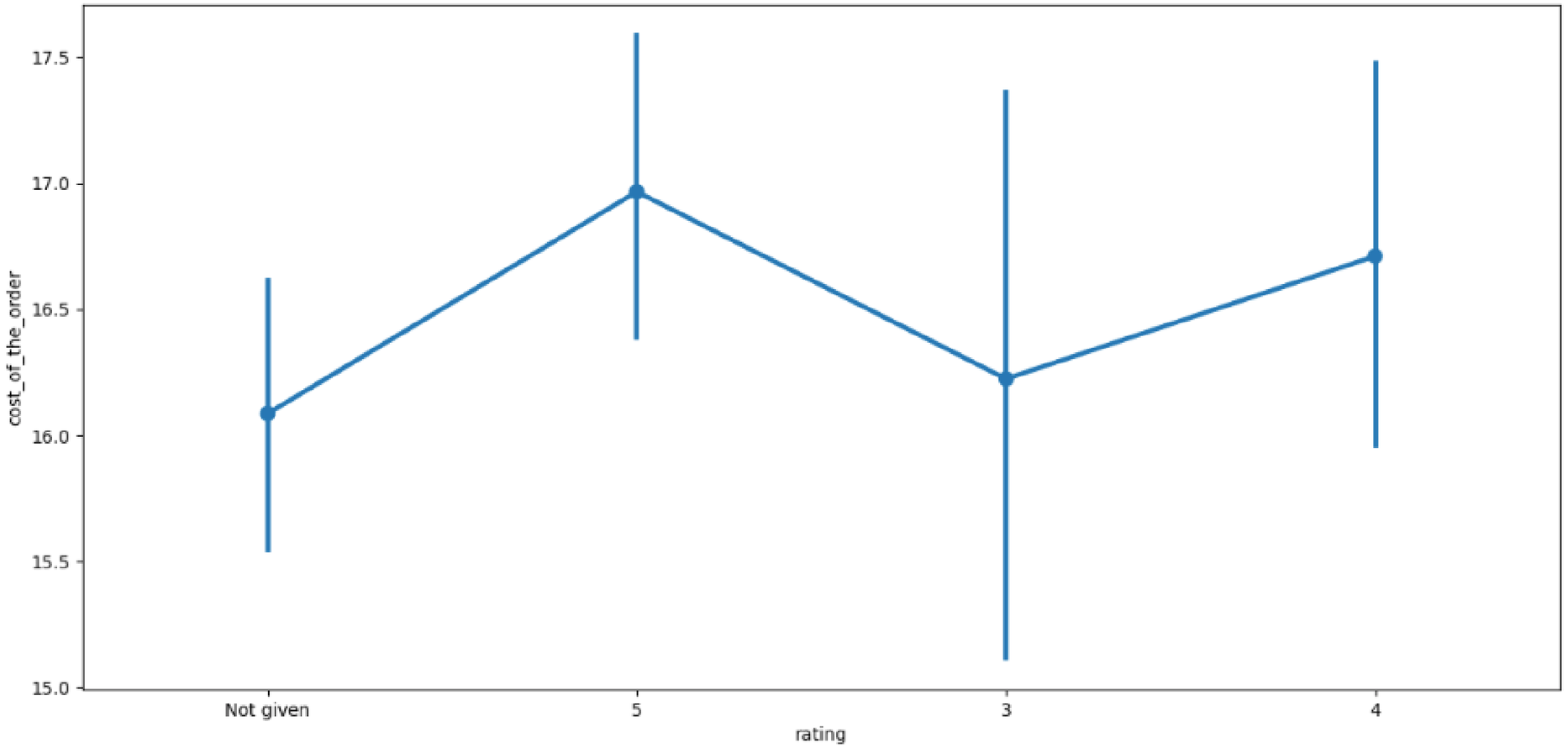
EDA-Multivariate Analysis

Relationship between rating and food preparation time



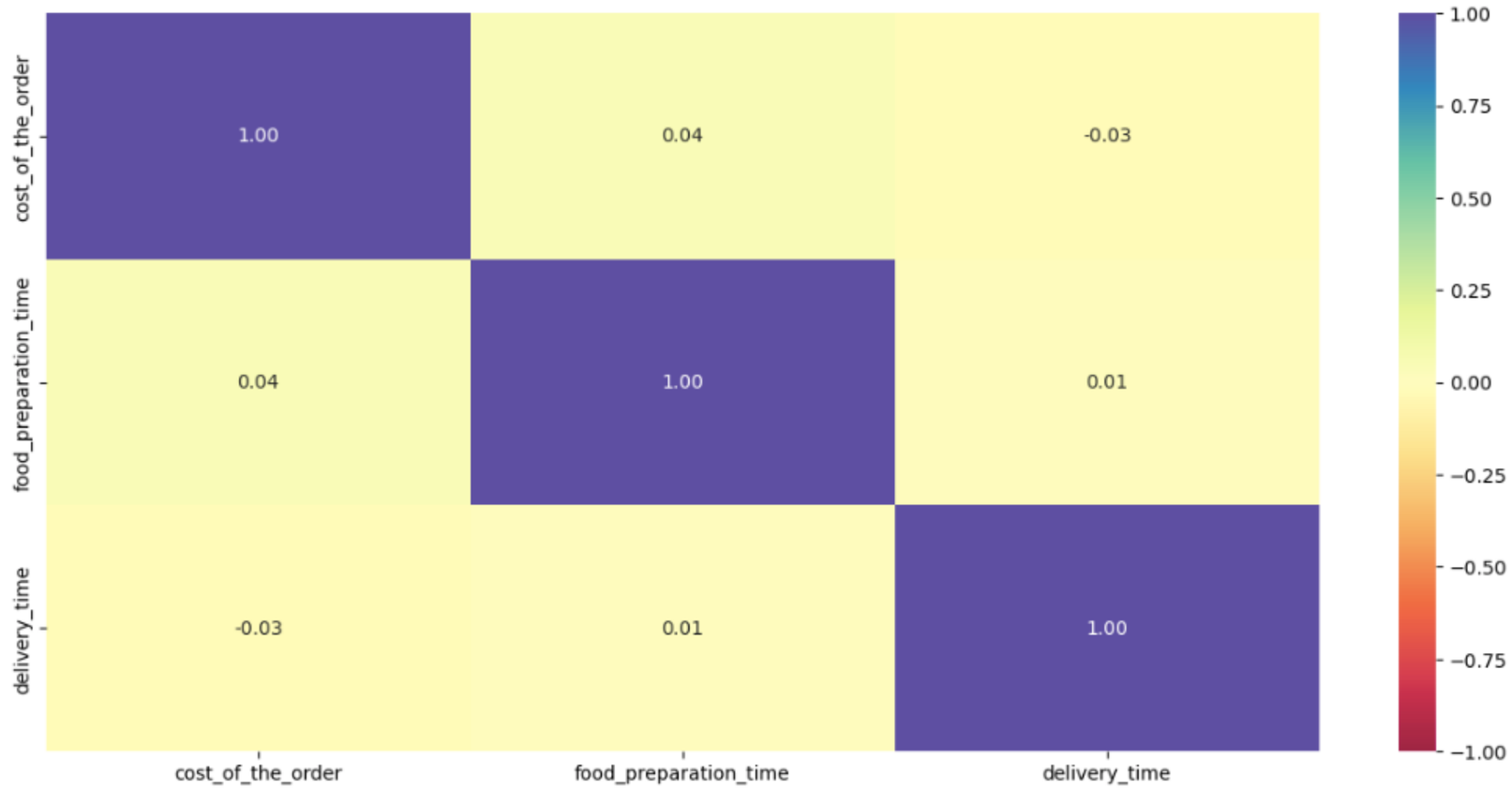
EDA-Multivariate Analysis

Relationship between rating and cost of the order



EDA-Multivariate Analysis

Correlation among variables



EDA-Multivariate Analysis

Q.13 The company wants to provide a promotional offer in the advertisement of the restaurants. The condition to get the offer is that the restaurants must have a rating count of more than 50 and the average rating should be greater than 4. Find the restaurants fulfilling the criteria to get the promotional offer.

	restaurant_name	rating
0	The Meatball Shop	4.511905
1	Blue Ribbon Fried Chicken	4.328125
2	Shake Shack	4.278195
3	Blue Ribbon Sushi	4.219178

EDA-Multivariate Analysis

Q.14 The company charges the restaurant 25% on the orders having cost greater than 20 dollars and 15% on the orders having cost greater than 5 dollars. Find the net revenue generated by the company across all orders.

The net revenue is around 6166.3 dollars

Q.15 The company wants to analyze the total time required to deliver the food. What percentage of orders take more than 60 minutes to get delivered from the time the order is placed? (The food has to be prepared and then delivered.)

The number of total time longer than 60 minutes is: 200
Percentage of total time longer than 60 minutes: 10.54 %

Q.16 The company wants to analyze the delivery time of the orders on weekdays and weekends. How does the mean delivery time vary during weekdays and weekends?

The mean delivery time on weekdays is around 28 minutes