



Python Foundations

Foodhub Data Analysis Project
PGP - AIML - University of Texas at Austin

October, 2024.



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Executive Summary Insights

American cuisine is the most popular.

The average cost of an order is around \$16.

The average food preparation time is around 29 minutes.

The average delivery time is around 24 minutes.

The most frequent customers could be potential candidates for loyalty programs.

Weekends tend to have slightly longer delivery times compared to weekdays.

Orders with higher costs tend to have longer food preparation times.

There is a moderate positive correlation between cost of the order, food preparation time, and delivery time.

Restaurants with higher ratings tend to have shorter delivery times and food preparation times.

Weekends are busier.



Recommendation

- Optimize Delivery on Weekends:

Consider allocating more delivery drivers to Hot zones on the weekend rush hours.

Consider paying extra per orders for drivers on Busy hours.

- Focus on Italian and American Cuisines:

Consider introducing new dishes in Italian and American cuisine.

Promote these cuisine types through special offers and discounts.

Ensure quality and consistency in these cuisines to maintain customer satisfaction.

- Reduce Delivery Time Outliers:

Investigate the reasons behind long delivery times, such as working with restaurants to manage high demand.

Incentive drivers who finish delivery on time.

Provide customer's good experience communication.



Business Problem Overview and Solution approach

Project definition:

The idea of this Data Analysis is, look the dataset of food orders from a food delivery company to understand customer behavior, restaurant performance, and operational efficiency.



Business Problem Overview and Solution approach

Methodology:

-Descriptive Statistics:

Calculate basic statistics on order cost, food preparation time, and delivery time. This helps understand the typical range and central tendencies of these key metrics.

-Data Exploration:

Explore order frequency by cuisine type, restaurant, and day of the week. Analyze the distribution of order and ratings. This provides insights into customer preferences and popular order characteristics.

-Performance Evaluation:

Identify the top-rated restaurants and most popular cuisine types. Calculate the revenue generated by the company. This helps assess the overall performance of the food delivery service.

-Delivery Time Analysis:

Determine the percentage of orders exceeding a certain delivery time threshold. Compare delivery times on weekdays versus weekends. This is crucial for optimizing delivery operations and meeting customer expectations.

-Customer Segmentation:

Identify frequent customers to offer promotions. This helps improve customer loyalty and retention.



Executive Summary

Conclusion:

Weekend Rush: Weekends are the busiest days with significantly more orders, and this leads to an increase in the mean delivery time.

Italian and American Cuisine: Italian and American cuisines are the most popular, which means focusing on these could help maximize sales and revenue.

Delivery Time: A major percentage of orders are delivered within 30-40 minutes. But, there are some outliers beyond 60 minutes that may increase customer dissatisfaction.

Cost: Most of the orders have a cost between 10 to 30 dollars. The percentage of orders above 20 dollars is almost 43%.

Customer Loyalty: Very few customers order frequently. There's a big opportunity to increase customer retention and loyalty.



Data Overview

There are 1898 rows and 9 Columns on the Dataset.

Mostly of the variables are numerical and categorical. Only 'Cost of the order' Column has a float number.

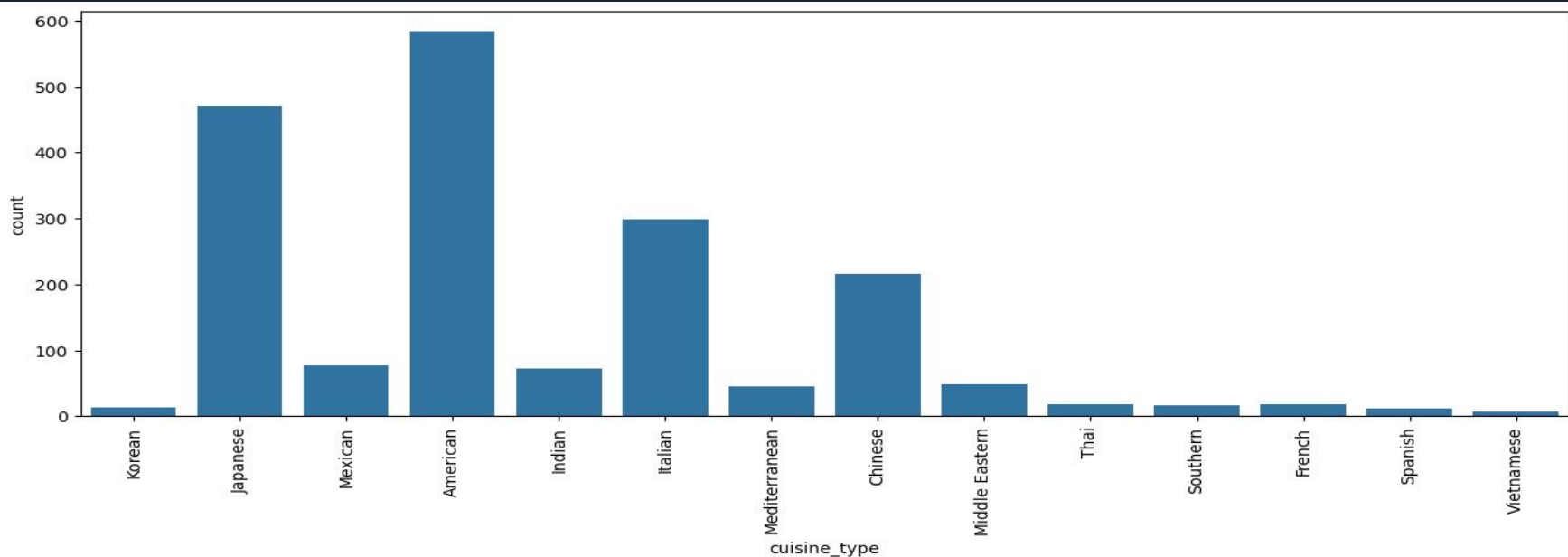
The Dataset does not have any missing value.

There's a 20 minutes minimum time and 35 min. maximum time for the good get ready for pick-up. Average time for food preparations is 27 minutes and 37 seconds.

Total of 736 orders were not given ratings, meaning 38.77% of the placed orders.

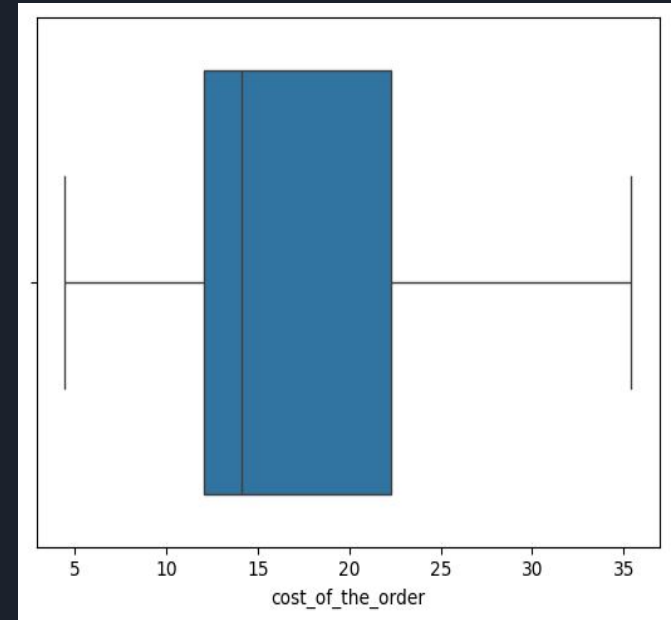
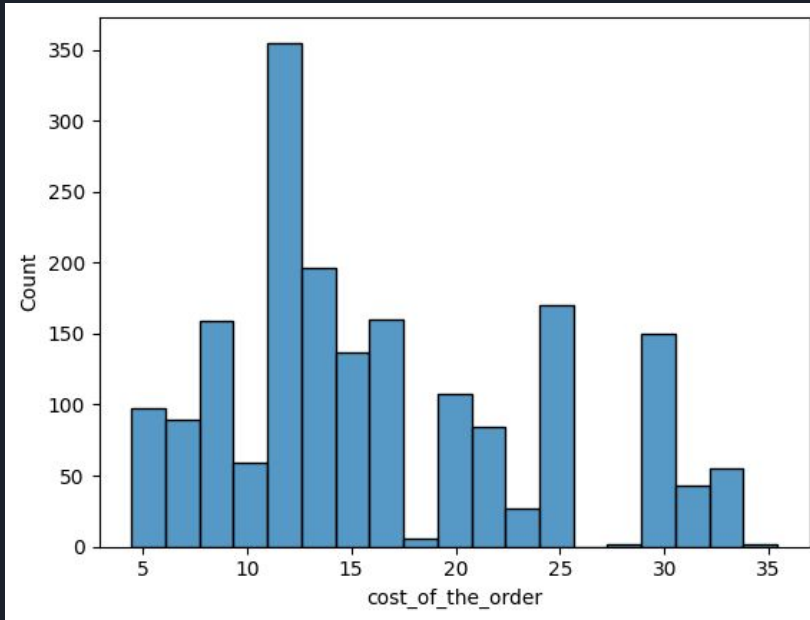
Univariate Analysis

The total of 1898 food delivery orders were made from 14 types of Cuisine, from 178 different Restaurants.



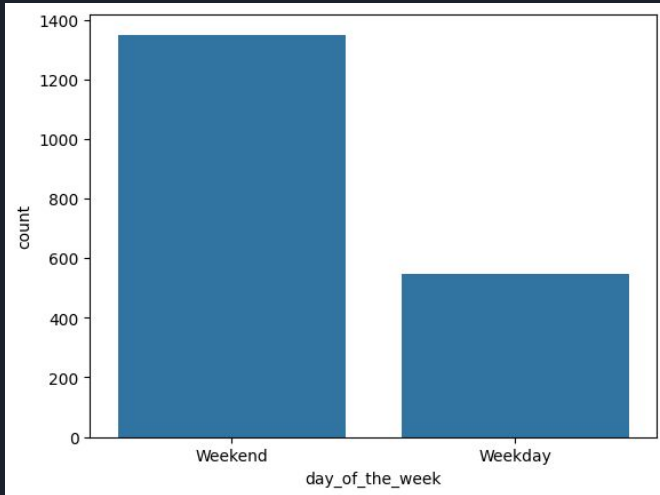
Univariate Analysis

- Cost of the orders: Majority of orders are between 10 and 20 dollars. The average is \$16 per order.

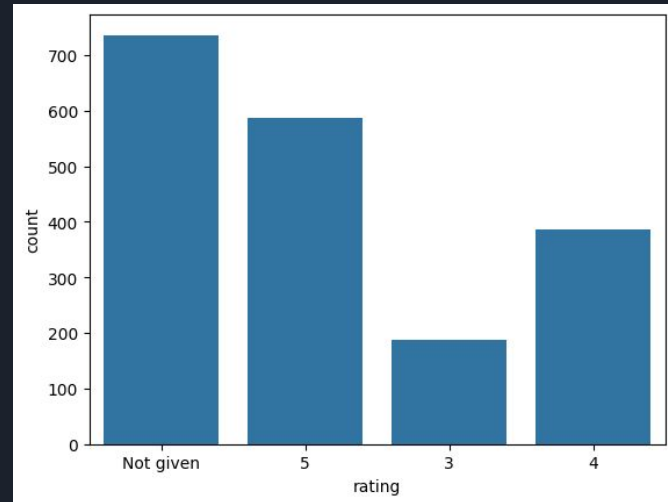


Univariate Analysis

- Day of the Week:
Weekday have 547
Weekend with way more, 1351 total of orders.

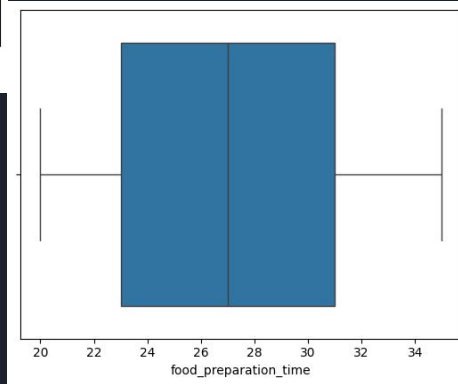
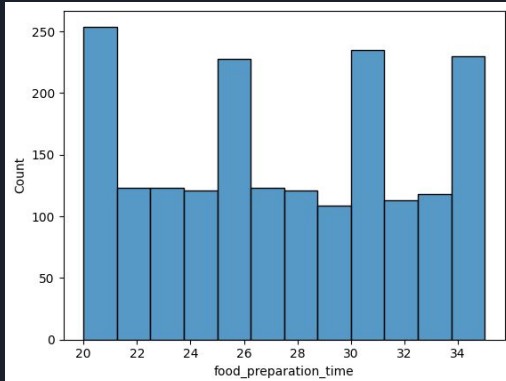


- Rating:
Not given: 736
5 stars: 588
4 Stars: 386
3 Stars: 188

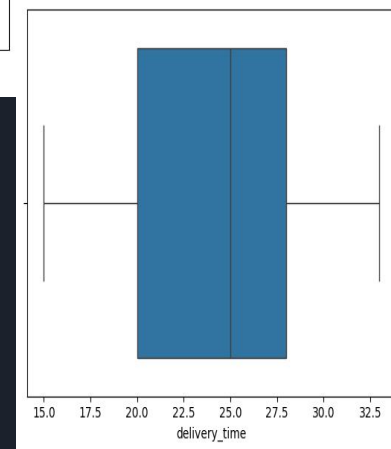
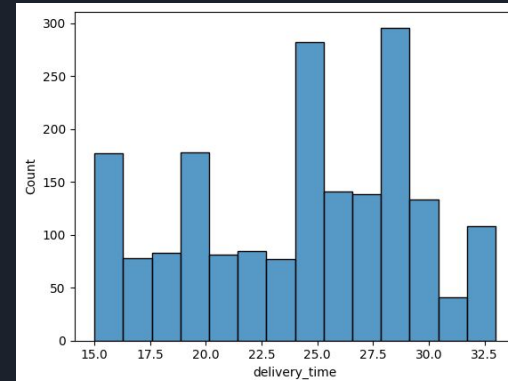


Univariate Analysis

- Food Preparation Time:
The average food preparation time is around 29 minutes. Min. time is 10 minutes and Max time 50 minutes.



Food Delivery Time: The average delivery time is around 24 minutes, mostly orders are delivered around the Mean time.





Univariate Analysis

- The top 5 Restaurants with more orders:

Shake Shack 219

The Meatball Shop 132

Blue Ribbon Sushi 119

Blue Ribbon Fried Chicken 96

Parm 68

- Most Popular Cuisine on the Weekend:

American 415

Japanese 335

Italian 207

Chinese 163

Mexican 53



Univariate Analysis

The total of 555 orders cost more than 20 dollars, which represents 29.24% of the total orders placed.

- More frequent customers and the amount orders they have:

User Id 52832: 13

User Id 47440: 10

User Id 83287: 9

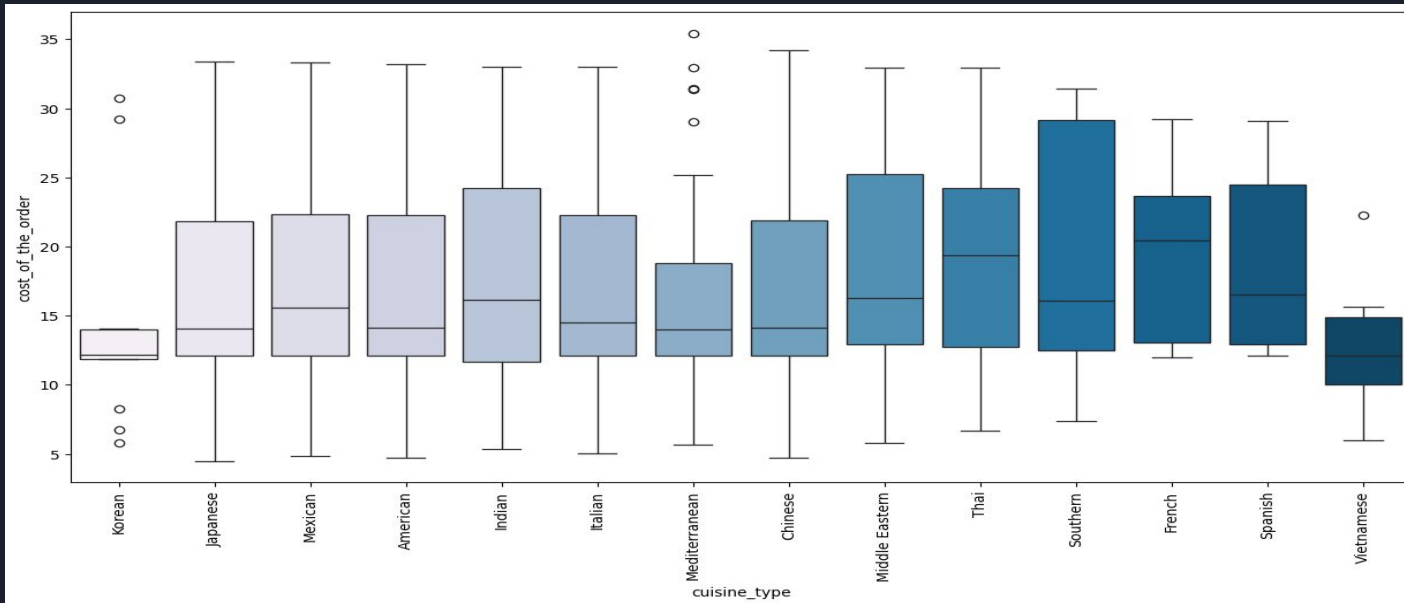
User Id 250494: 8

User Id 259341: 7

Multivariate Analysis

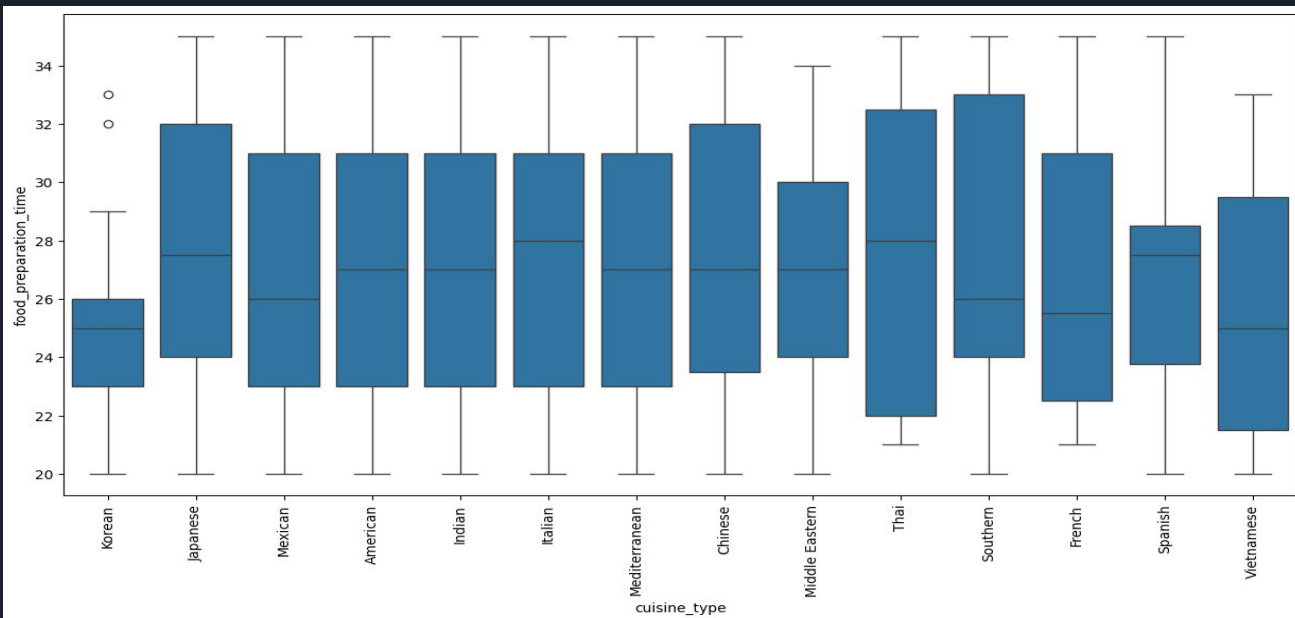
(Exploring relationships between the important variables in the dataset)

- Cuisine vs Cost of the order: Southern and French food are among the more expensive orders.



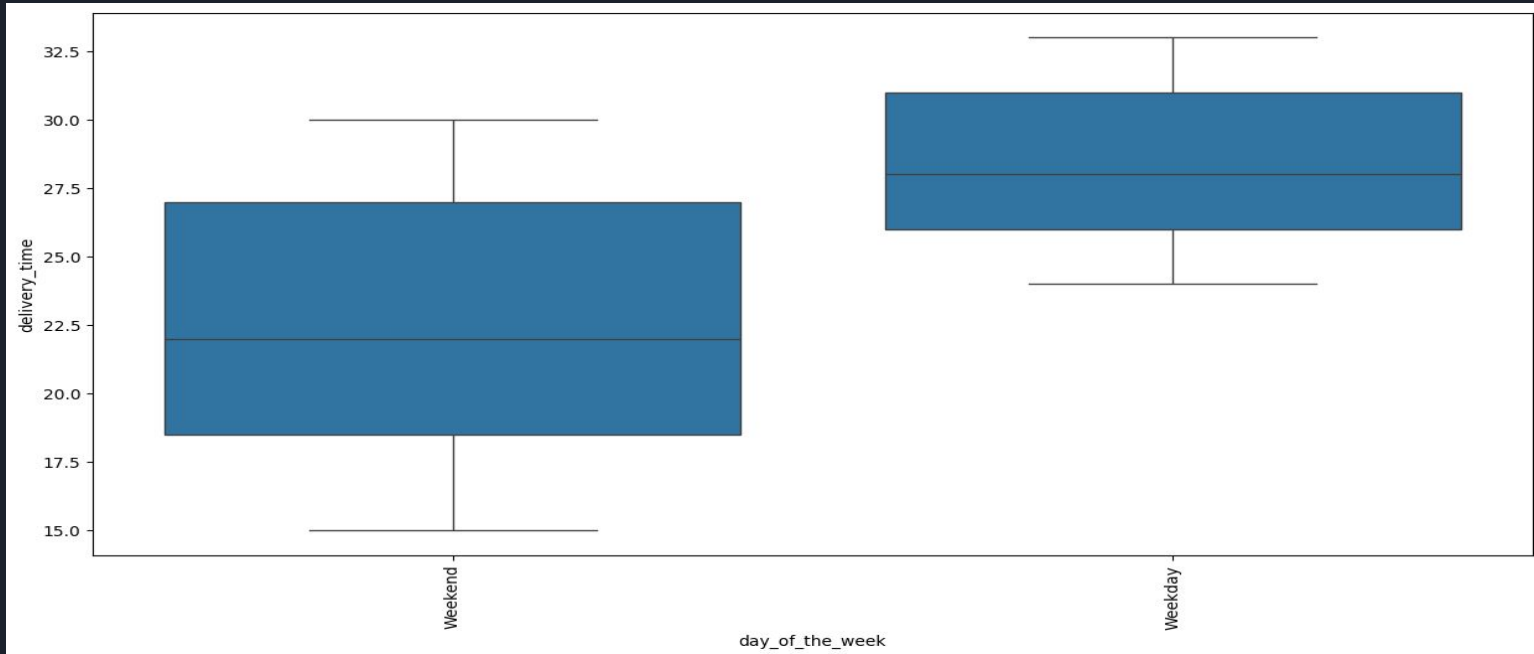
Multivariate Analysis

- Cuisine vs Food Preparation Time:
Italian food has a long time for preparation, when Japanese and Thai food present the shortest average food prep. time.



Multivariate Analysis

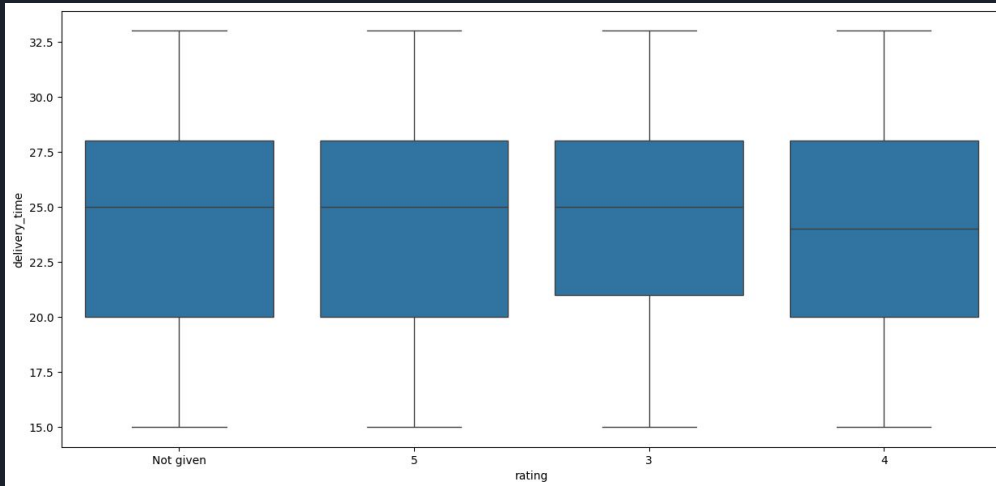
- Day of the Week vs Preparation Time:
Orders on the Weekend takes more time to be ready, due to order demand and drivers working on these days.



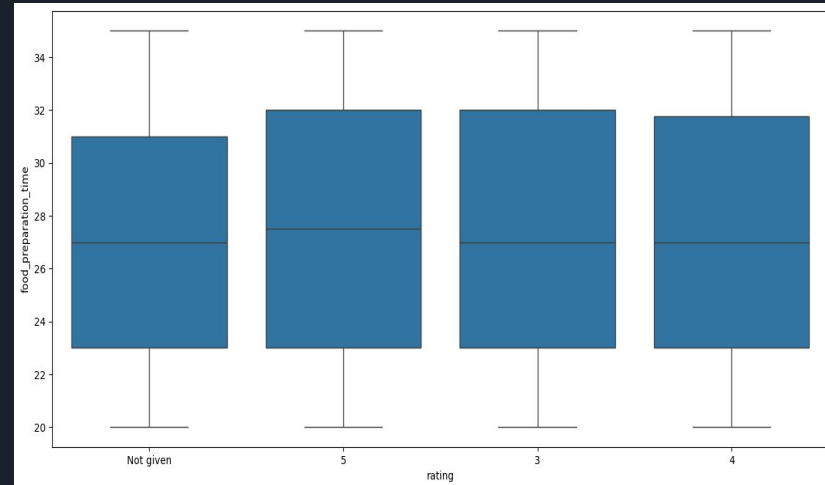
Multivariate Analysis

The top 5 Restaurants with more orders mentioned before, are the same that bring more revenue for the company.

- Rating vs Delivery Time:
Restaurants with better rating are the ones that delivery faster.



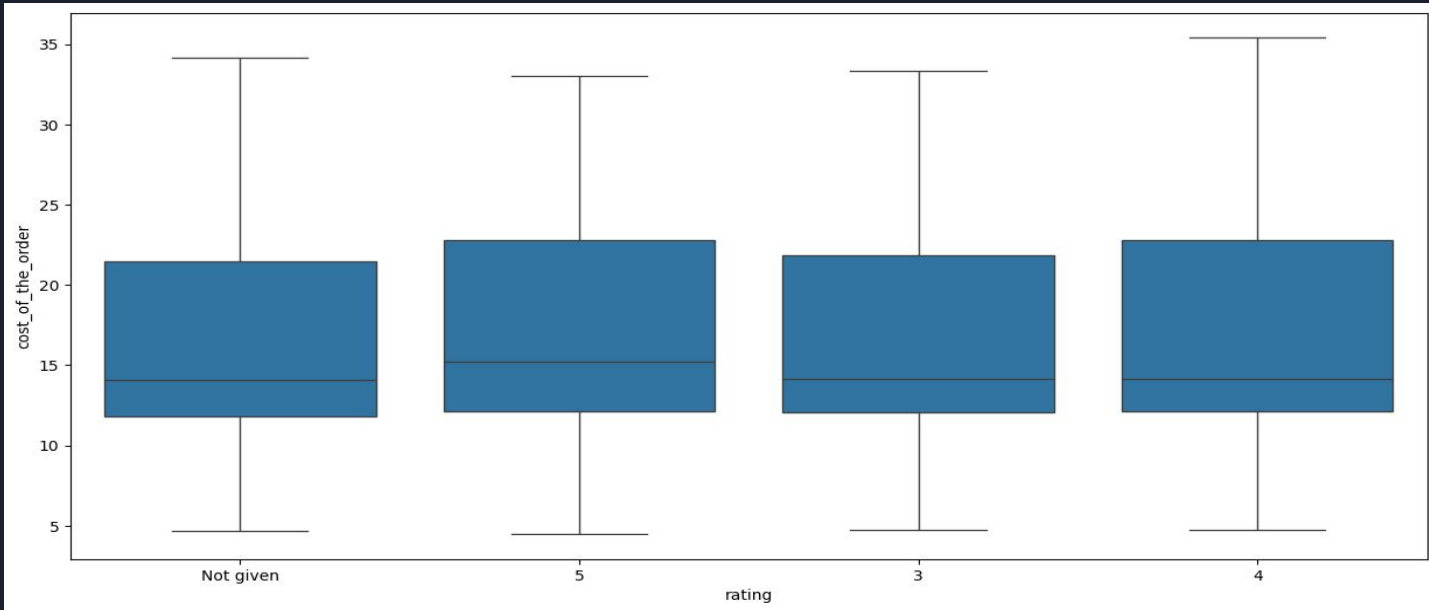
- Rating vs Food Preparation:



Multivariate Analysis

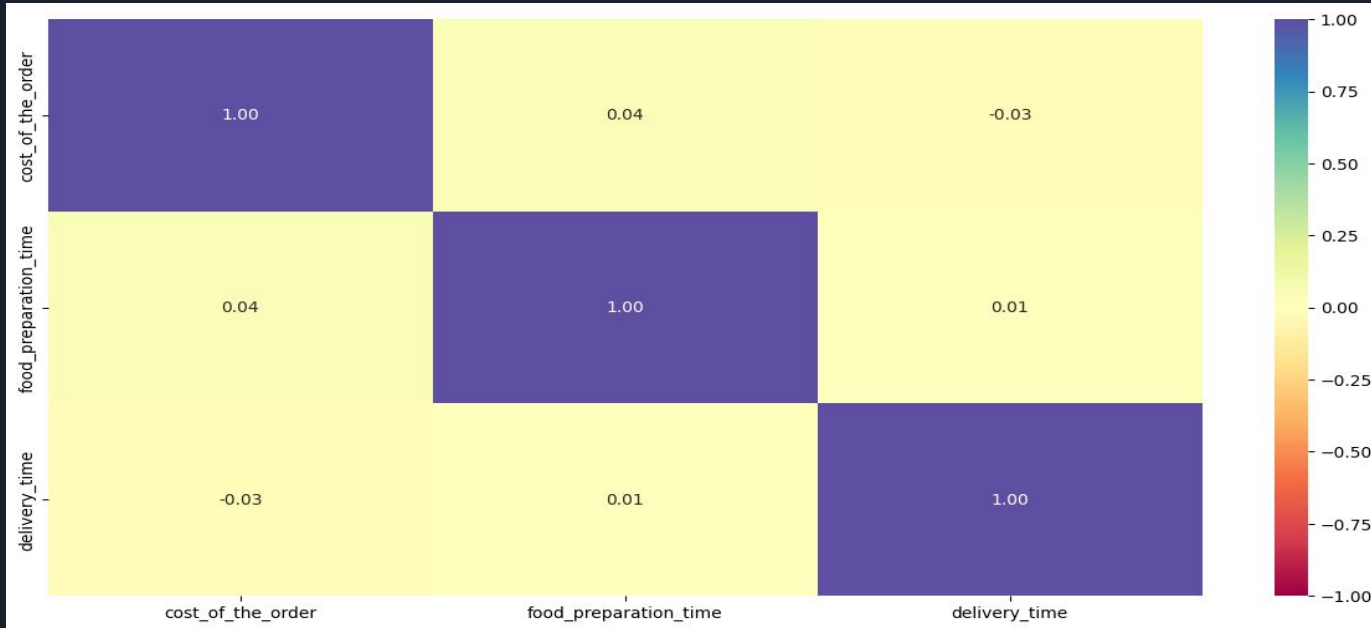
- Rating vs Cost of the Order:

This analysis suggests a positive correlation between the rating and cost of the order, indicating that customers are generally more satisfied with their orders as the cost increases.



Multivariate Analysis

There is a moderate positive correlation between the Cost of the order and Food Preparation time, indicating that as the cost of the order increases, the food preparation time also tends to increase. This suggests that more expensive or complex orders may require longer preparation times.





Multivariate Analysis

Reviews/Rating

- Companies with over 50 Rating and average rating greater than 4:

Shake Shack 133 ratings

The Meatball Shop 84 ratings

Blue Ribbon Sushi 73 ratings

Blue Ribbon Fried Chicken 64 ratings

RedFarm Broadway 41 ratings



Multivariate Analysis

Company charge from restaurants 25% if the order is more than \$20 and 15% if the order is between \$5 and \$19.99.

The net revenue is around: 6209.04 dollars.

The percentage of orders that take more than 60 minutes to get delivered from the time the order is placed is: 10.54 %

The mean delivery time on weekdays is 22:47 minutes, while on the weekend is 24:16 minutes.