Food Hub Case Study

Food Hub Data Analysis Project in the Python Foundations Course

Febuary 2023

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What and How

Executive Summary

- The goal is to find the demand of different restaurants to enhance their customer experience
- Utilized data to find the recommendations
- Focused on data from
  - A variety of most popular details gathered from restaurants/cuisines
  - Cost of orders
  - Ratings
  - Times in the process
  - Correlation between these factors

Conclusions

Executive Summary

- Average order cost is $16.50
- 30% of orders were above $20
- More expensive orders received higher ratings
- Average Delivery time was 24 minutes
- 10.5% of orders took longer than 60 minutes
- There is not a big correlation between delivery time and rating

- Weekends are the most popular time
- American was the most popular cuisine throughout the week
- American, Japanese, Italian and Chinese were by far the most popular cuisines
- The biggest revenue, order volume and highest overall ratings were almost all the same restaurants
- These restaurants were also American, Italian and Japanese restaurants

Recommendations

Executive Summary

- Ensure there is enough drivers during the weekend
- Need to improve the way we gather rankings. There are too many users who opt not to leave a ranking.
- Gather data to be able to optimize our pricing during peak hours
- Recruit more American, Japanese, Italian and Chinese restaurants to the platform
- Recruit more restaurants that are similar to the restaurants that have the most volume and revenue
- Incentivize users to have higher order costs

How can we improve the customers experience?

Business Problem Overview and Solution Approach

- Find the demand of different restaurants to enhance their customer experience
- What does the data tell us?
- The Approach
  - Developed the questions to explore data with
  - Ensured the data was clean
  - Performed univarante analysis
  - Performed multivarante analysis
  - Developed recomendations

Data Overview

- 1898 Rows
- 9 Columns
  - Order ID (int64)
  - Customer ID (int64)
  - Restaurant Name (object)
  - Cuisine Type (object)
  - Cost of the Order (float64)
  - Day of the Week (object)
  - Rating (object)
  - Food Preperation Time (int64)
  - Delivery Time (int64)

- No Missing values
- Each column had 1898 non-nulls
- Float (4), Int64 (4), Object (4)

Data Overview

- 1,898 uniqu order id’s
- 1,200 unique customer id’s
- 178 unique restaurants
- 14 unique cusine types
- 4 types of ratings
- Total Revenue: 6166.3

Cost and Times – Average, Max, Min

Exploritory Data Analysis

Cost of the Order

- *Average*: 16.50,
- *Max*: 35.41 & *Min*: 4.47

Food Prep Time

- *Average*: 27.37,
- *Max*: 35 & *Min*: 20

Delivery Time

- *Average*: 24.16,
- *Max*: 33 & *Min: 15*

Index	Count	Mean	STD	min	25%	50%	75%	max
Order ID	1898							
Customer ID	1898							
Cost of the Order	1898	16.50	7.48	4.47	12.08	14.14	22.29	35.41
Food Prep Time	1898	27.37	4.63	20.0	23.0	27.0	31.0	35.0
Delivery Time	1898	24.16	4.97	15.0	20.0	25.0	28.0	33.0

Top resturants

Exploritory Data Analysis

- Top five resturants in order volume
  - Shake Shake (219), The Meatball Shop (132), Blue Ribbon Sushi (119), Blue Ribbon Fried Chicken (96), and Parm (68)
- Biggest revenue generating restaurants
  - Shake Shake (3579.53)
  - The Meatball Shop (214.21)
  - Blue Ribbon Sushi (1903.95)
  - Blue Ribbon Fried Chicken (1662.29)
  - Parm (1112.76)
- Highest Rated restaurants
  - Shake Shack, The Meatball Shop, Blue Ribbon sushie, Blue Ribbon Chicken, and Red Farm Broadway (6th highest revenue generator)

Top customers and restaurant visits

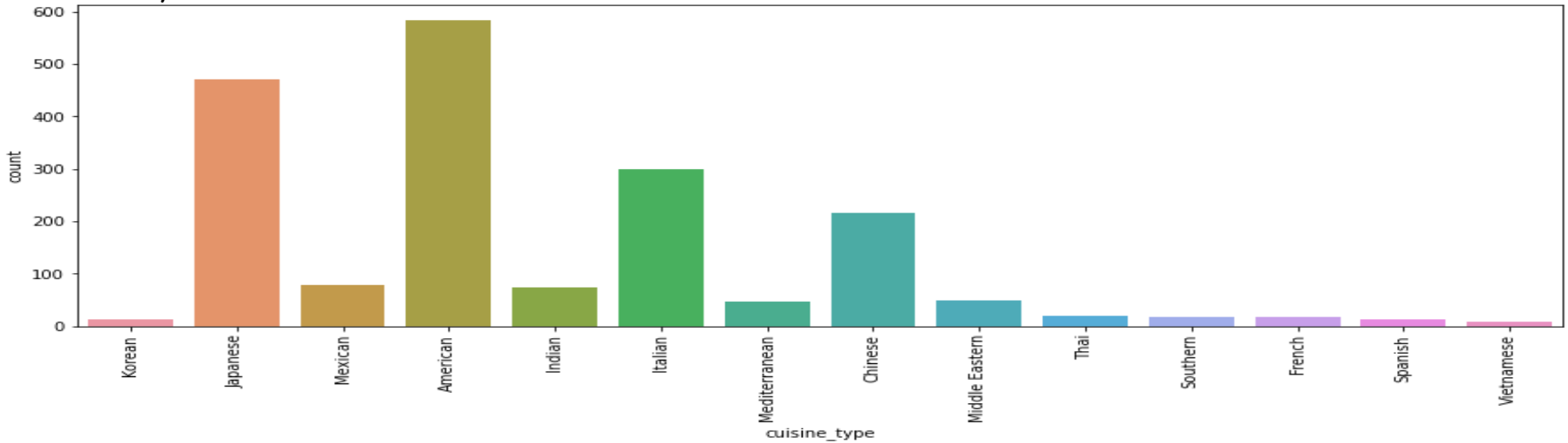
Exploritory Data Analysis

Restaurants who have an average rating better than 4 and more than 50 rating counts
Shake Shack
The Meatball Shop
Blue Ribbon Sushi
Blue Ribbon Fried Chicken

- Top five customers ordered 47 times
    - 52832 (13 times), 47440 (10), 83287 (9), 250494 (8) and 259341 (7)

What's the most popular cuisine in the week

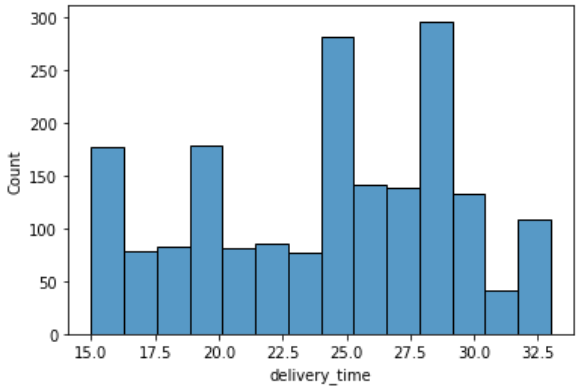
Univariate Analysis

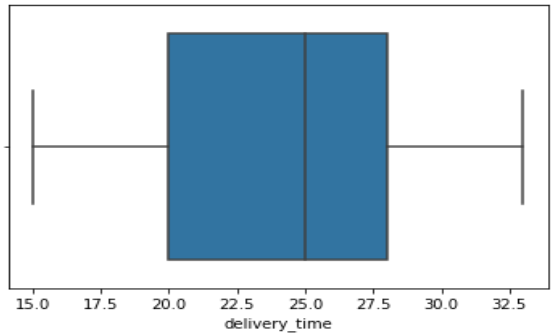


- American was the most popular throughout the whole week
- American was also the most popular on the weekends
- American, Japanese, Italian and Chinese make up 82% of the orders throughout the whole week
- American, Japanese, Italian and Chinese make up 83% of the orders on the weekend

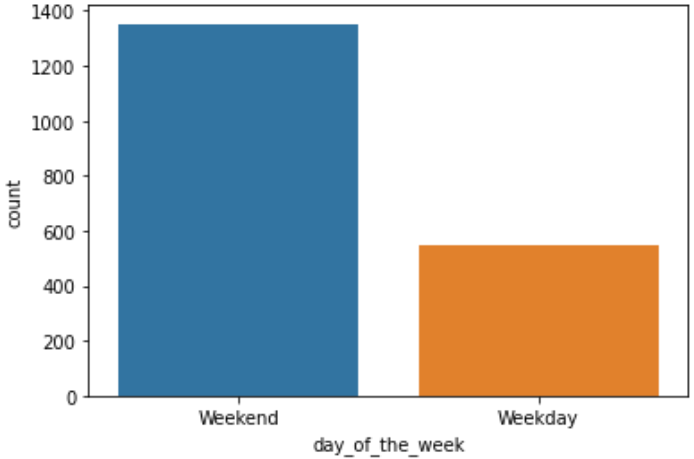
Delivery Time Data

Univariate Analysis





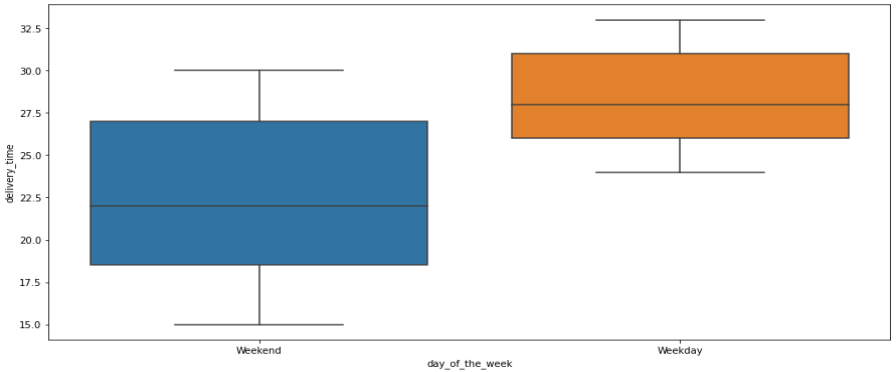
- 24 Minutes for the Average delivery
- Median delivery time was 25 minutes
- Almost three times busier on the weekend

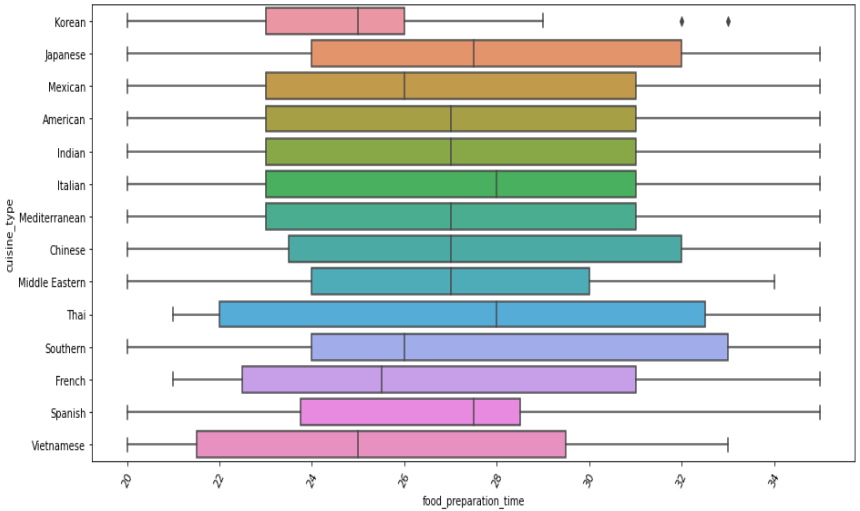


Delivery Time Data

Multivariate Analysis

- Mean delivery time on weekdays is around 28 minutes
- Mean delivery time on weekends is around 22 minutes

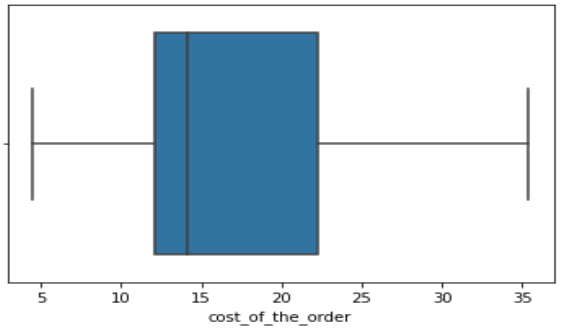


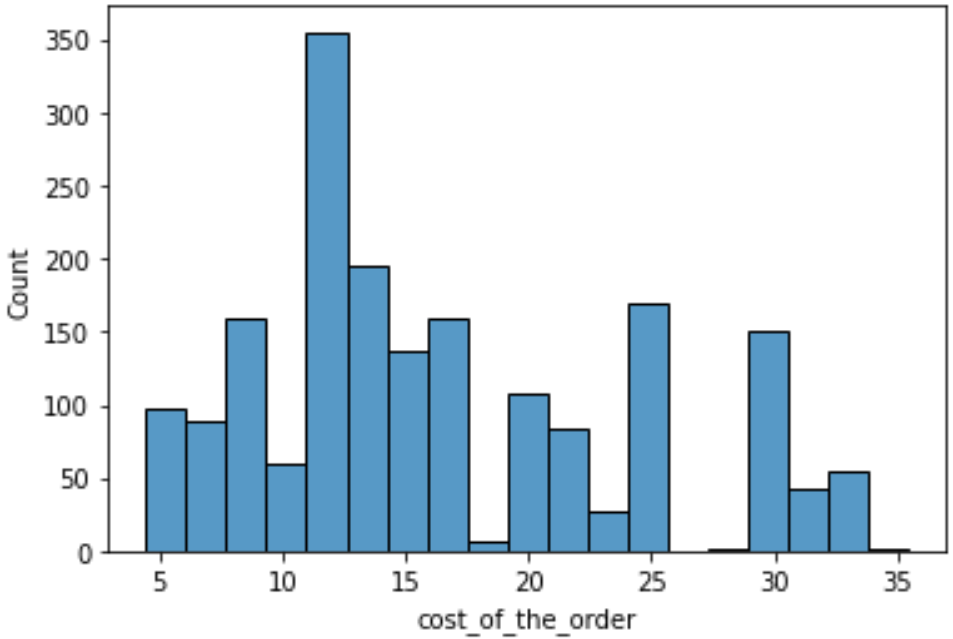


- Korean and Vietnamese had the *fastest* median times
- Thai and Italian had the *slowest* median times
- 10.5% of orders took longer than 60 minutes

Order Cost Data

Univariate Analysis



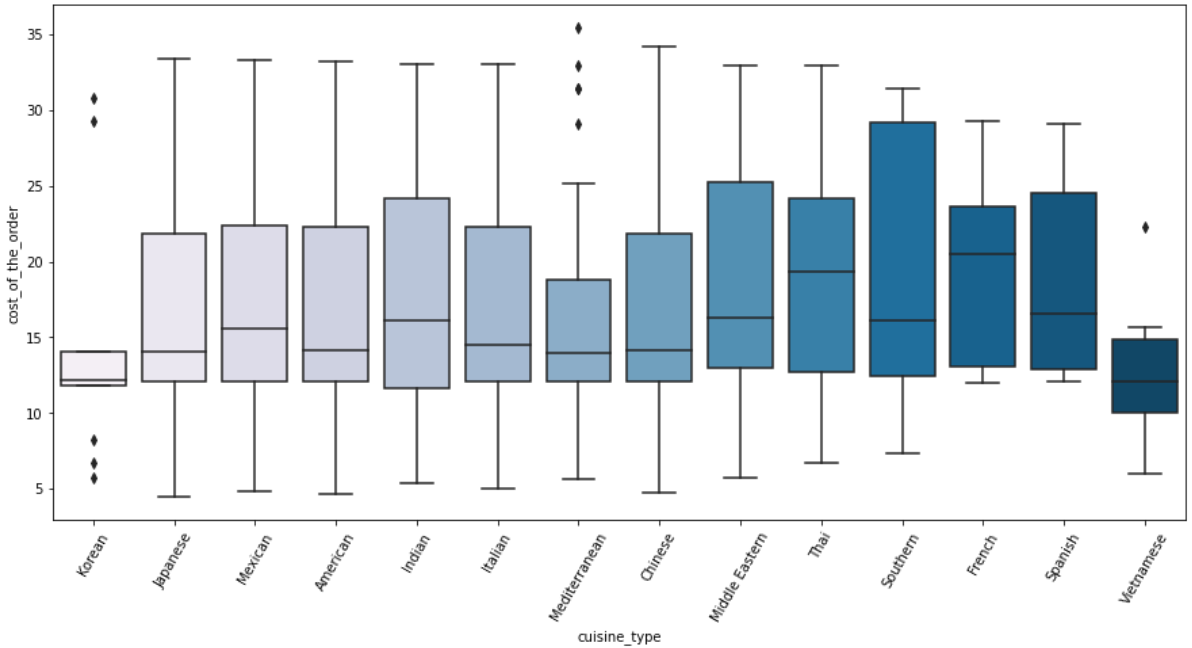


- Average order cost is $16.50
- 30% of orders were above $20

Order Cost and Cusine Type Data

Multivariate Analysis

- French and Thai had the *most expensive* median orders
- Vietnamese and Korean had the *least expensive* median orders

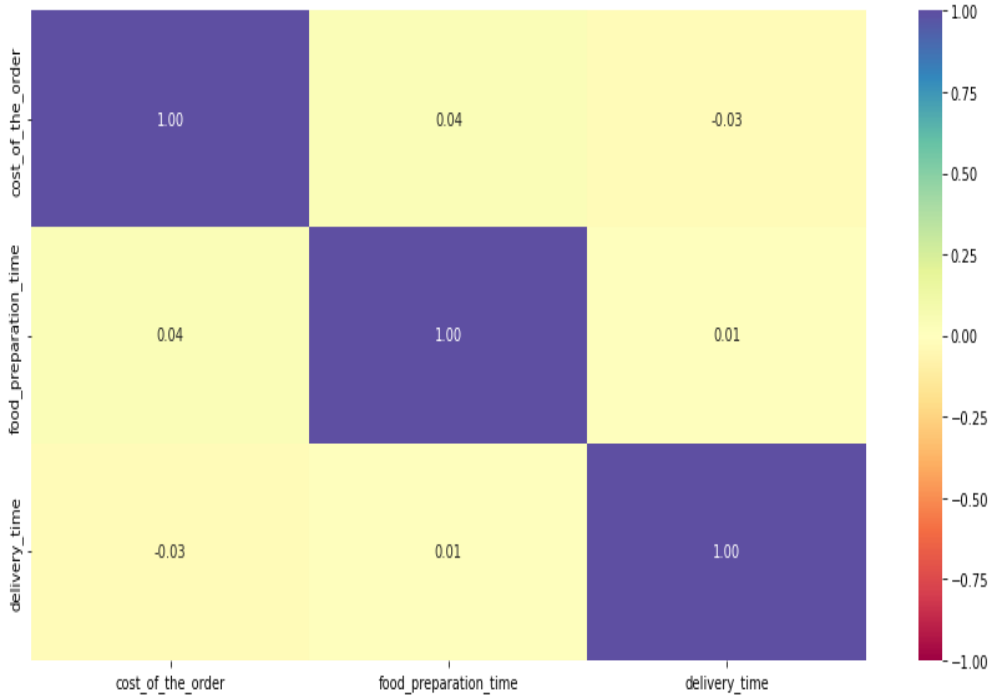


- Korean and Mediterranean had the most outliers

Cost, Food Prep and Delivery Time Correlation

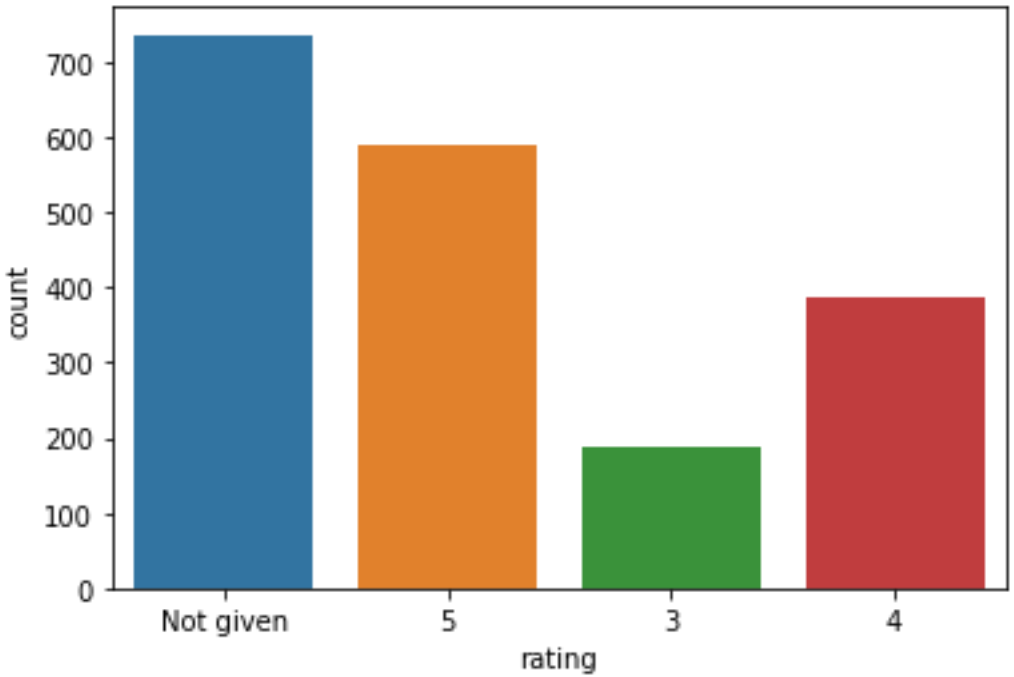
Multivariate Analysis

- Strongest Correlation
    - Food Prep Time and Cost of Order
- Weakest Correlation
    - Delivery Time and Cost of Order
- There is no a strong correlation between any of the three variables



Rating Count

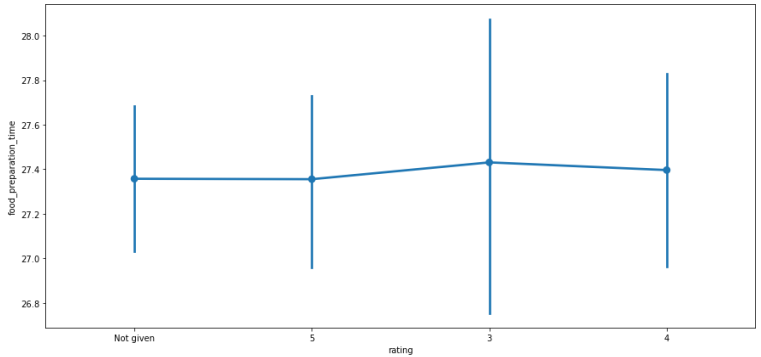
Univariate Analysis

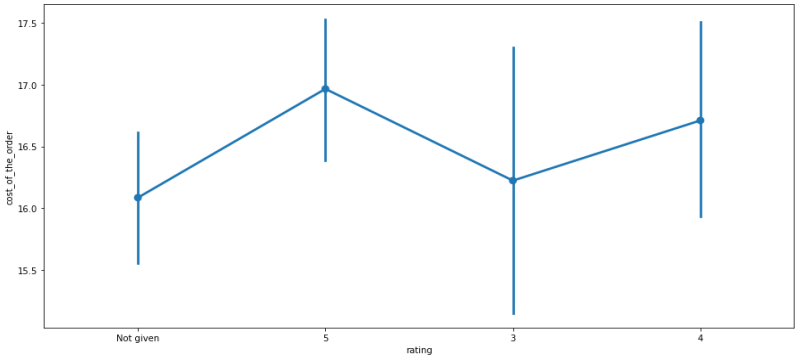


- Most customers did not leave a rating
- Majority the ones who did were happy with their experience

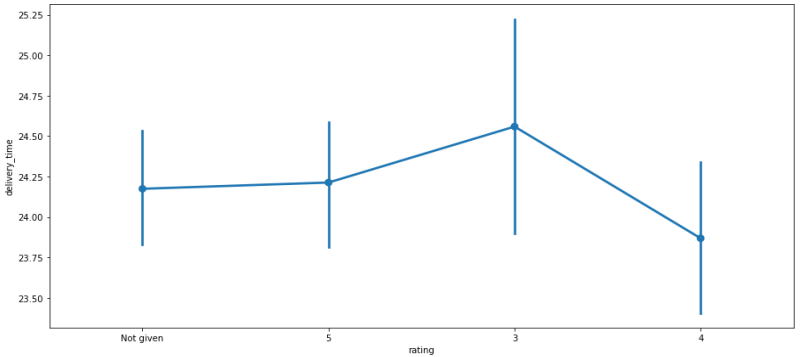
Ratings Data

Multivariate Analysis





- More expensive orders received higher ratings
- There is not a big correlation between delivery time and rating
- 38% (736) did not receive a rating



Great Learning

Happy Learning !