Data Analysis of FoodHub Orders

FoodHub Project and Python-Foundation

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Mona Desai

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Executive Summary

- Conclusions, actionable insights
  - Weekend delivery times are significantly faster than weekday delivery times
  - 40% of ratings are "not given"or not rated - could lead to incomplete analysis
  - Top 5 Restaurants by order count also have high rating
  - Mean delivery time is ~24 minutes; ~10% or orders take over 60 minutes, meaning high deviation
  - Top 3 cuisine have 50% of the total orders and earn higher revenue
- Recommendations:
  - Reduce weekday delivery times
  - Incentivize people to give ratings as to get a better dataset
  - Normalize delivery time distribution
  - Focus promotions to the top 3 cuisine types

Business Problem Overview and Solution Approach

- Problem
  - ~40% of the orders have “Not Given” rating or not rated
  - Grow revenue with popular cuisines or restaurants
- Solution approach / methodology
  - Integrate rating system with delivery - Improves ratings dataset and timeliness
  - Promotional offers for ratings and/or customer surveys - Builds a loop for customer service
  - Offer promotions to higher priced top 3 cuisines or restaurants - translates to higher revenue
  - Offer promotions top 5 popular restaurants - translates to higher revenue

Data Overview

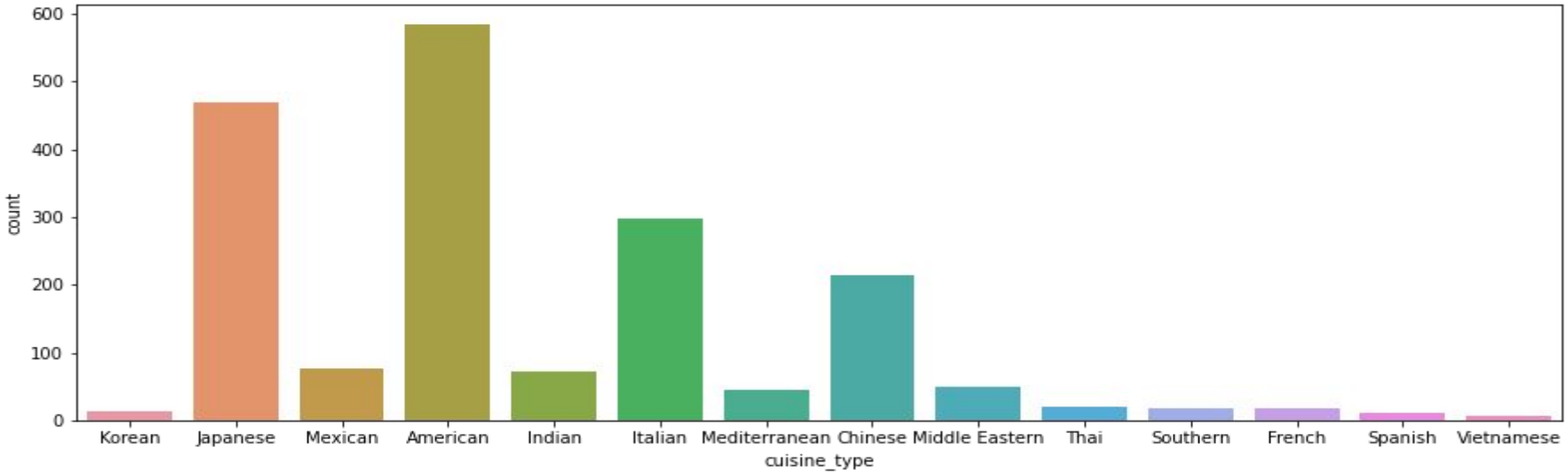
- CSV data on Food order delivery in Data Dictionary/Tabular form
- Columns - order_id, customer_id, restaurant_name, cusine_type, cost_of_orders, day_of_the_week, rating, food_preparation_time and delivery_time
- Dimensions: 1898 Rows X 9 Cols
- 5 Numerical and 4 Categorical data type.
- No missing values in the Dataset

Data Overview continued...

- Numerical data Statistics:
  - cost_of_order: Avg = $16, Min = $4 & Max = $35
  - delivery_time: Avg = 24 mins, Min = 15 mins, Max = 33 mins; 75% = 28 mins
  - food_preparation_time: Avg = 27 mins
- ratings: in range 3-5; 736/1898 is ‘not given’ - ~40% of all orders

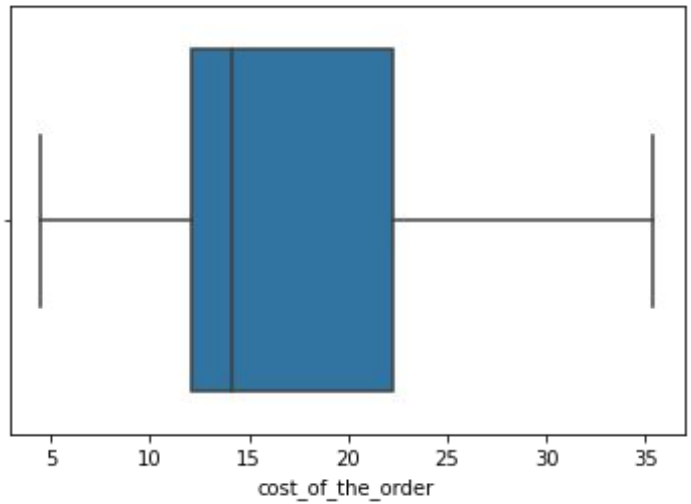
Univariate Analysis

- 1898 unique orders
- 1200 customer_id. Many repeated customers
- Total 178 restaurants
- Top 5 cuisine types are American, Japanese, Italian, Chinese and Mexican.



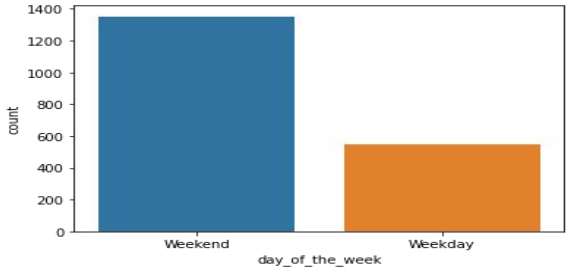
Univariate Analysis Continued

- Cost_of_the_order data chart is right skewed.
- Min cost_of_the _order is $4, max is ~$35
- 50% orders cost $14 and less

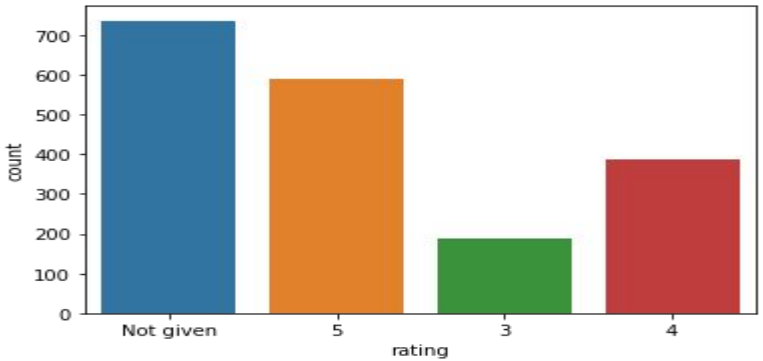


Univariate Analysis Continued

- Weekend orders are 2X Weekdays

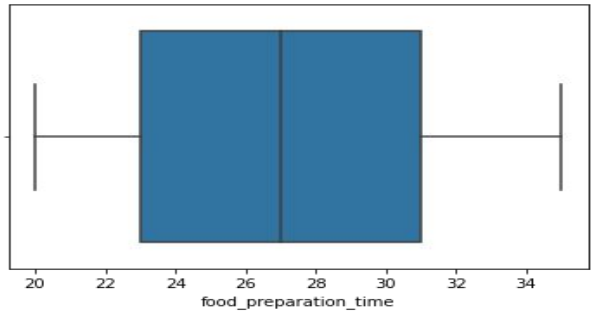


- 31% orders have 5 rating
- More than 40% orders have ‘not given’ ratings/not rated

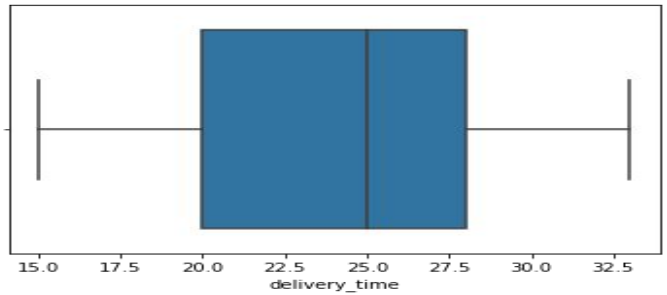


Univariate Analysis Continued

- food_preparation_time data chart is “Normally Distributed”



- delivery_time data chart is left skewed



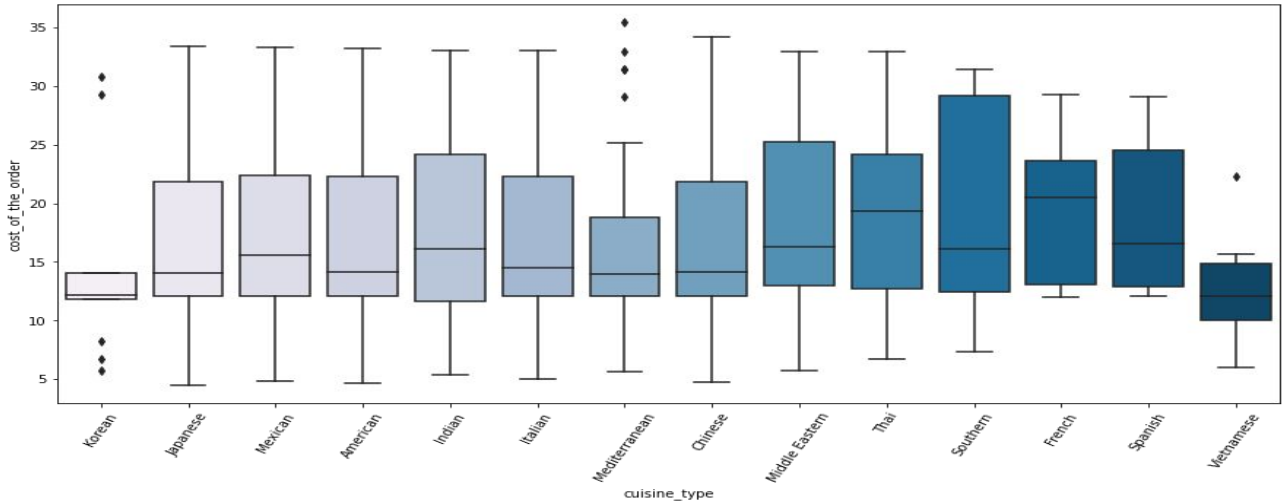
Univariate Analysis Continued

- Top 5 restaurants by orders
  - Shake Shack 219
  - The Meatball Shop 132
  - Blue Ribbon Sushi 119
  - Blue Ribbon Fried Chicken 96
  - Parm 68

- American is the most popular cuisine on the weekends
- ~29% of the orders cost > $20
- Average delivery time is ~24 minutes
- Top 3 customers by orders who won the 20% discount coupon
  - 52832 13
  - 47440 10
  - 83287 9

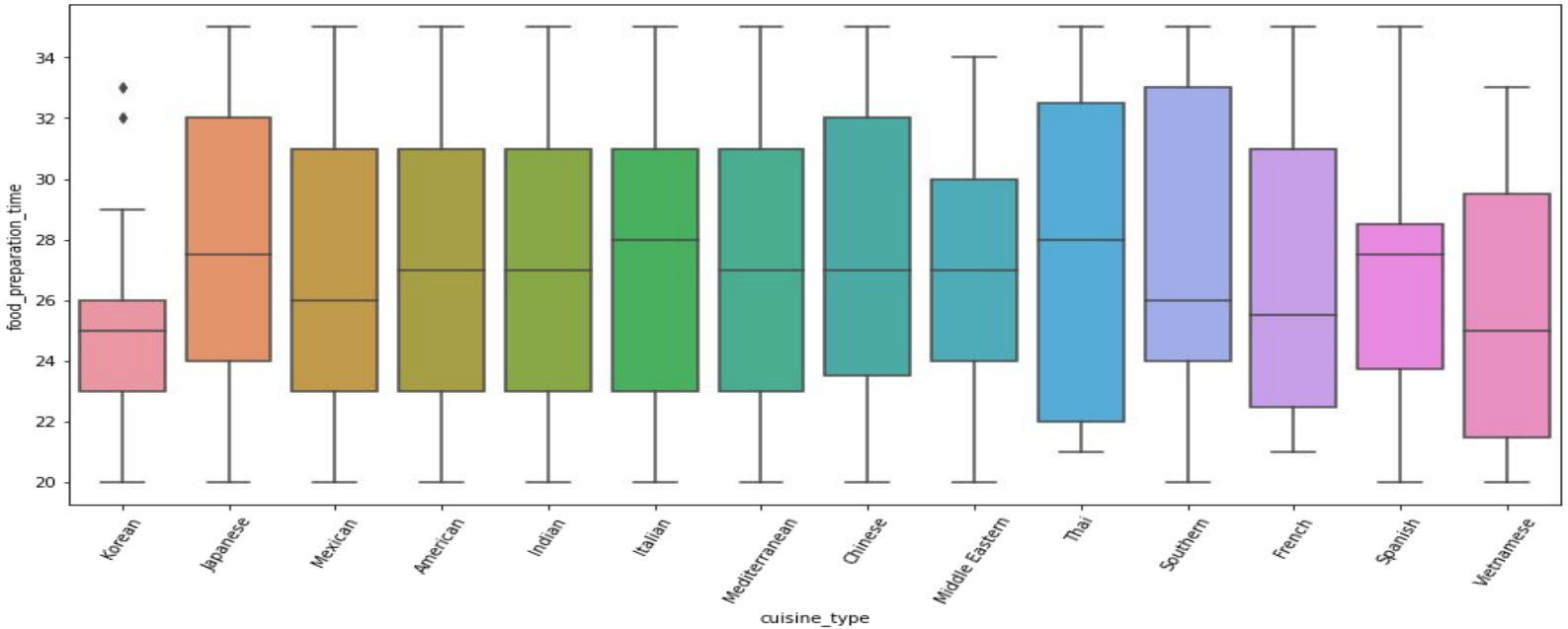
Multivariate Analysis

- Cuisine vs Cost of order
  - Lot of variability in cost of orders by cuisine type.
  - Korean and Vietnamese cuisines cost very less and they have some outliers.
  - American, Japanese, Italian, Chinese, Mexican cuisines have almost similar cost range.



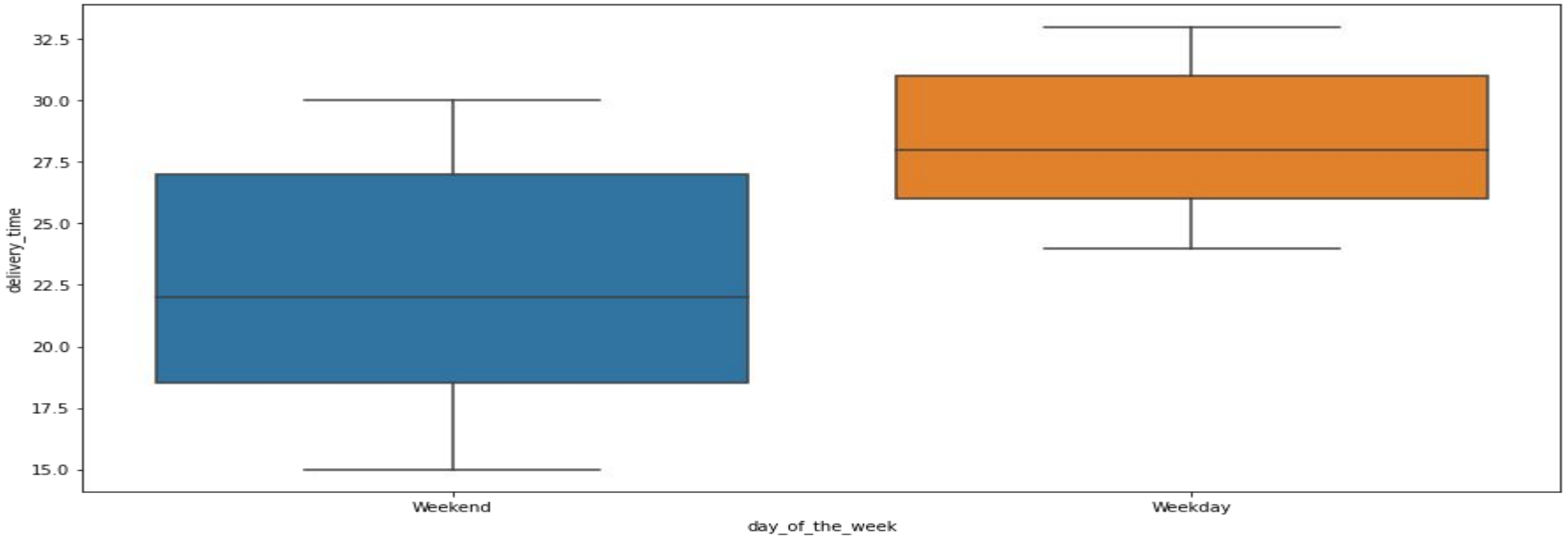
Multivariate Analysis continued

- Cuisine vs Food Prep Time
  - Same variability across cuisine type.
  - 50% of the order for all cuisine takes ~ 25-28 mins.



Multivariate Analysis continued

- Day of week vs Delivery Time
  - Orders take 20% longer to deliver on weekends vs weekdays

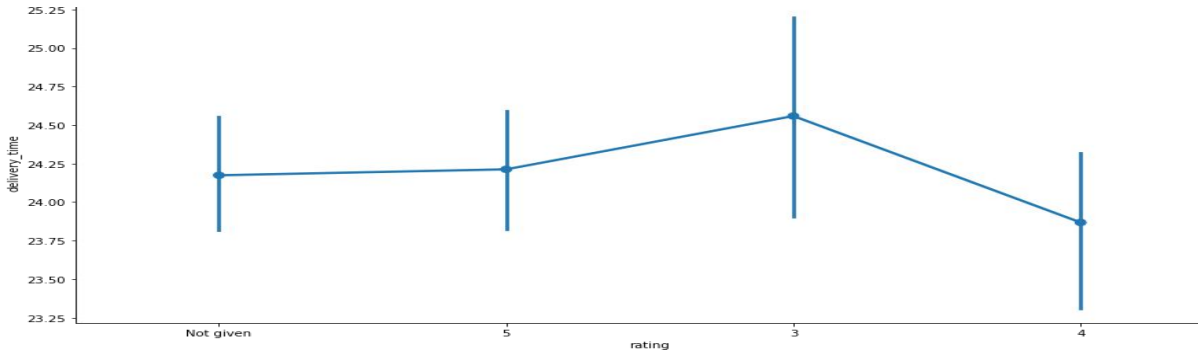


Multivariate Analysis continued

- Top 5 restaurants by revenue

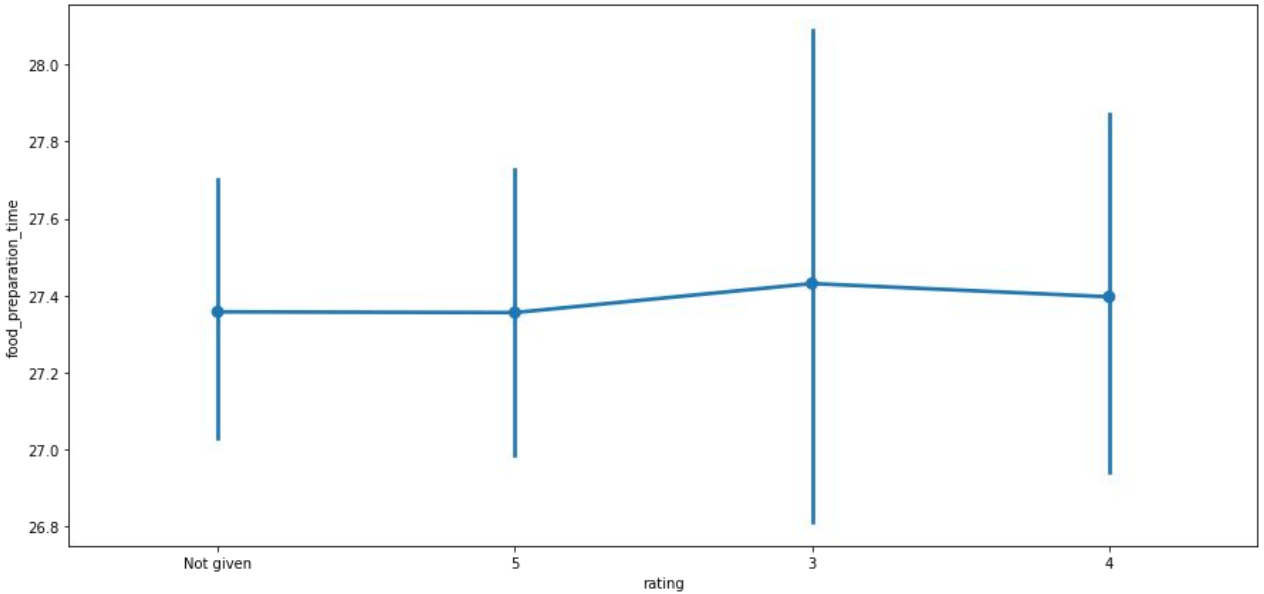
Shake Shack	3579.53
The Meatball Shop	2145.21
Blue Ribbon Sushi	1903.95
Blue Ribbon Fried Chicken	1662.29
Parm	1112.76

- Rating vs Delivery Time
  - Delivery time and ratings are not well correlated



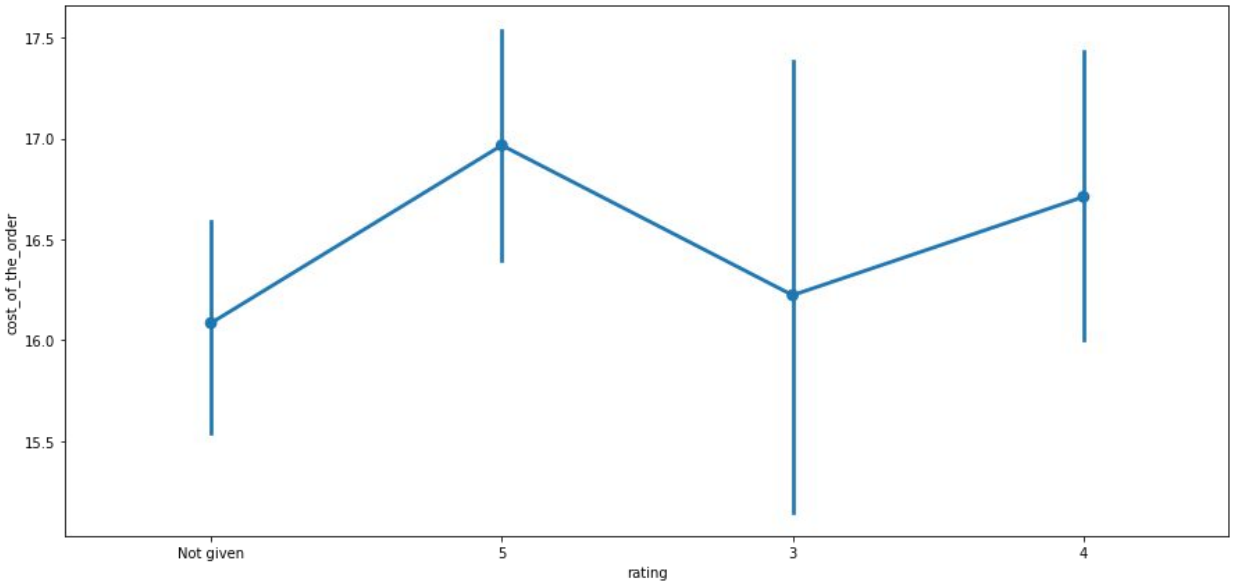
Multivariate Analysis continued

- Rating vs Food preparation time
  - There is not much impact on rating because of the food preparation time.



Multivariate Analysis continued

- Rating vs Cost of the order
  - Higher cost of orders have average higher rating



Multivariate Analysis continued

- Restaurants with 50+ rating and with the average >4 got the promotional offer

Restaurant name	# of ratings	Average rating
Shake Shack	133	4.5
The Meatball Shop	84	4.3
Blue Ribbon Sushi	73	4.2
Blue Ribbon Fried Chicken	65	4.2

- Net revenue ~ $6166 with a breakup of 25% on >$20 and 15% on $5-20
- ~10.5% of orders take >60 mins
- Mean delivery time: Weekend -22 mins, Weekdays-28 mins

Multivariate Analysis continued

- Correlation among variables
  - There is no significant correlation between delivery_time, food_preparation_time and cost_of_the_order