

Food Hub Order Analysis

Foundations - Python and Statistics

8/5/24

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Executive Summary

The data analyzed in this report provides key insights surrounding food orders made through the Food Hub App. In order to improve customer experience with the future intention to drive more business to the Food Hub app, I looked at current measurable insights. The data contained in this report shows what type cuisine the majority of users are ordering, the most popular ordering times, and the median price point of their orders.

I looked at 1898 orders, made by 1200 order IDs, for 178 restaurants, covering 14 types of cuisine.

My findings reflect the net revenue generated by the company across all orders is around \$1.15 / order. To keep the momentum going, Food Hub should capitalize on the existing customer base, within the already high performing cuisine categories and restaurants.

Food Hub has a strong customer base in 3 cuisine categories. The 4 restaurants serving these cuisines are eligible for a promotion Food Hub expressed an interest in running for their top performing restaurants.

The restaurants eligible for the promo offer are:

- Shake Shack
- Blue Ribbon Fried Chicken
 - American
 - 415 orders
 - \$11 - \$23 price range
 - \$14 avg order
- The Meatball Shop
 - Italian
 - 207 orders
 - \$11 - \$23 price range
 - \$15 avg order
- Blue Ribbon Sushi
 - Japanese
 - 335 orders
 - \$11 - \$22
 - \$14 avg

Business Problem Overview and Solution Approach

With weekend orders coming in at nearly 2.5 times that of weekday orders, we need to increase weekday orders.

- The majority of the orders are of a lower price range of less than \$20, with a median price range of around \$14.

- 4 cuisine types which have the lowest number of orders on the weekends and fall within the average price range of less than \$20 are:

- Korean
 - 11 orders
 - \$12 - \$14
 - \$12 avg
 - prep: 25.46 mins
- Vietnamese
 - 4 orders
 - \$10 - \$15
 - \$12 avg
 - prep: 25.71 mins
- Southern
 - 11 orders
 - \$11 - \$28
 - \$17 avg
 - prep: 27.59 mins
- Spanish
 - 11 orders
 - \$13 - \$24
 - \$17 avg
 - prep: 26.92 mins

To increase weekday sales of the lesser performing cuisine types, partnering a weekday promo with restaurants carrying these type cuisines. Market on price point and time to prepare in consideration of the customer's busy schedule.

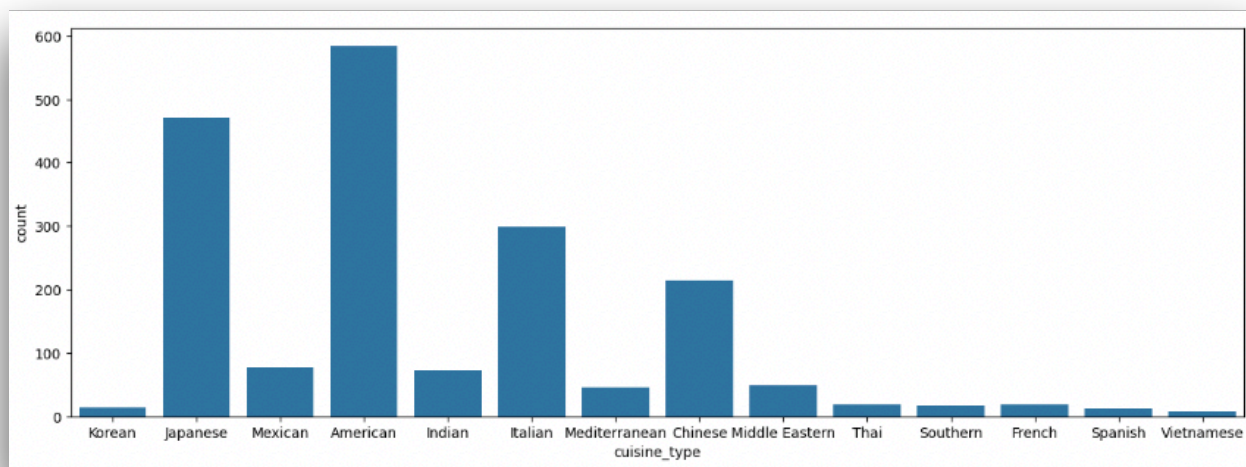
Offer a weekday "Refer A Friend" promo to your existing top ordering IDs. Give a discount when a friend uses Food Hub. Come full circle to increasing sales in the lower performing cuisine types by offering the referral promo for use at a restaurant which offers the cuisine types you are seeking to increase orders for.

Data Overview

- There are 1898 rows and 9 columns of data
- The 9 columns contain the following data types
 - 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 Preparation Time - int64
 - Delivery Time - int64
- There aren't any missing values in the data
- Food preparation time once an order is placed is as follows
 - The minimum food prep time is 20 mins
 - The average food prep time is 27 min
 - The maximum food prep time is 35 min
- Ratings were not given for 736 of the 1898 orders

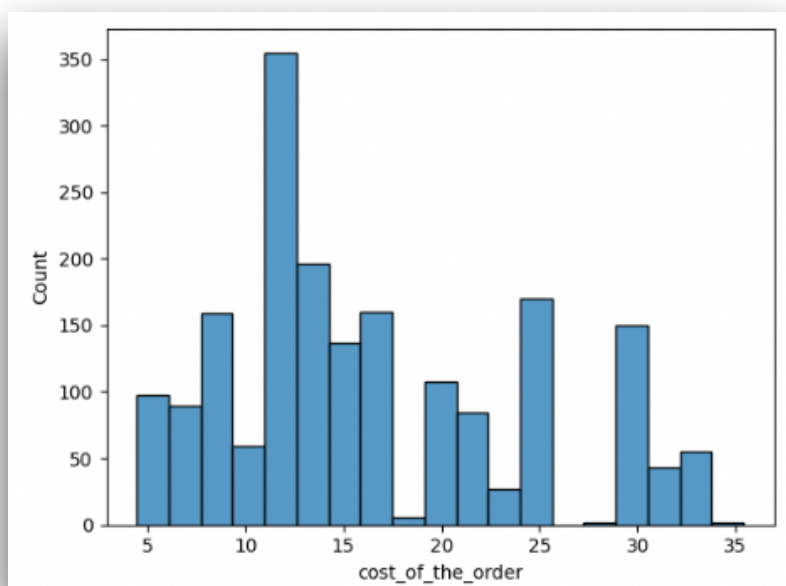
Univariate Analysis

- There are 1898 unique orders
- There are 1200 unique order IDs
- There are 178 unique restaurants in this analysis
- There are 14 unique types of cuisine in this analysis

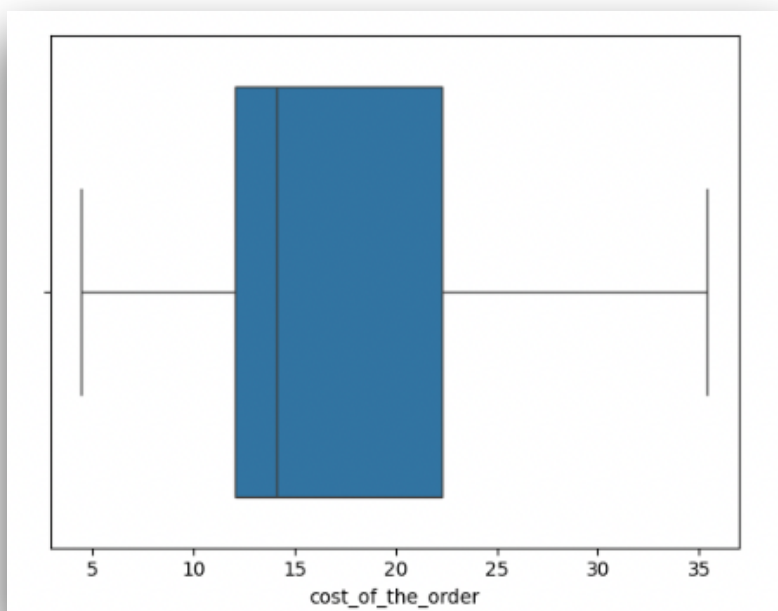


- American
- Japanese
- Italian
- Chinese
- Mexican
- Indian
- Mediterranean
- MiddleEastern
- Thai
- French
- Korean
- Southern
- Spanish
- Vietnamese

The majority of the orders are in the lower price range of less than \$20.



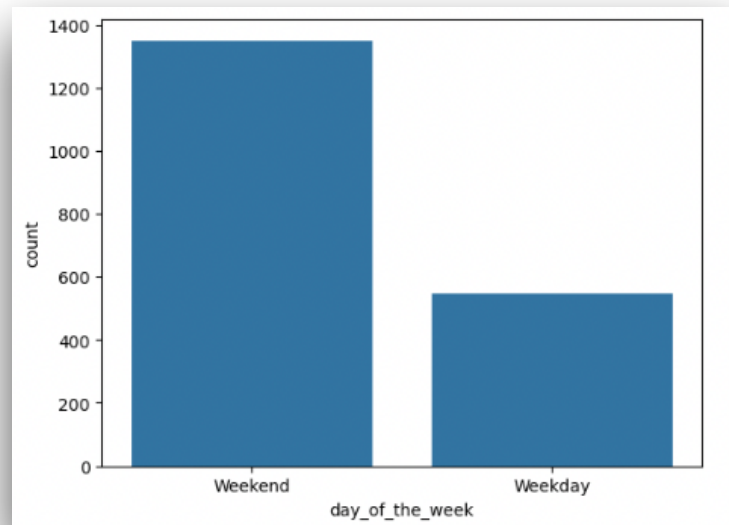
Of those orders, the median price range is around \$14.



The analysis covers both weekday and weekend orders

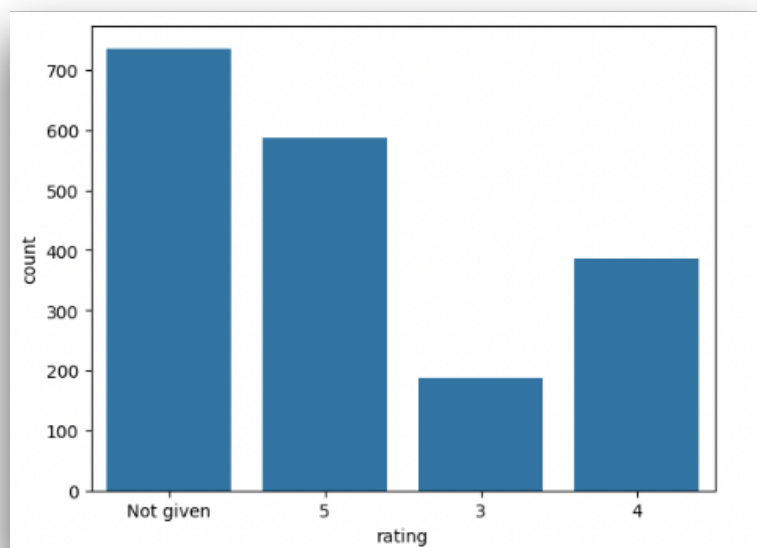
Weekend orders were nearly 2.5 times that of weekday orders

- 1351 weekend orders
- 547 weekday orders

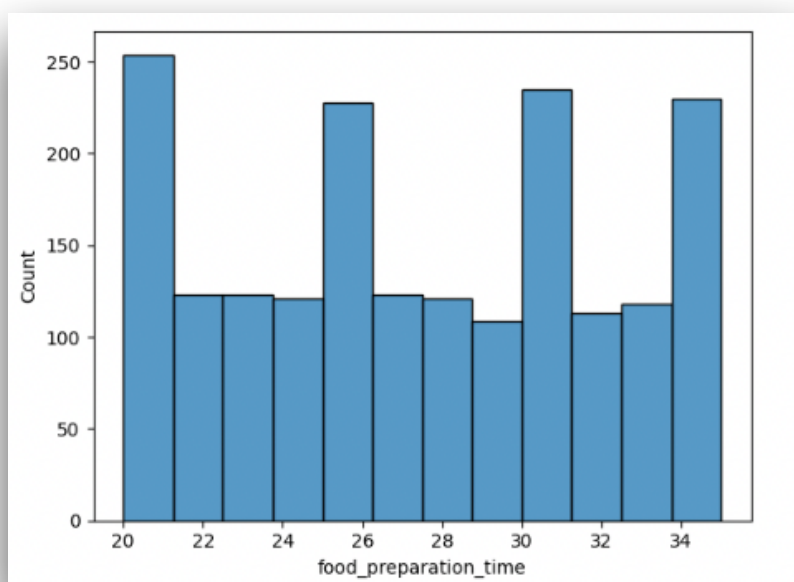


Of the 1898 orders, the ratings given are

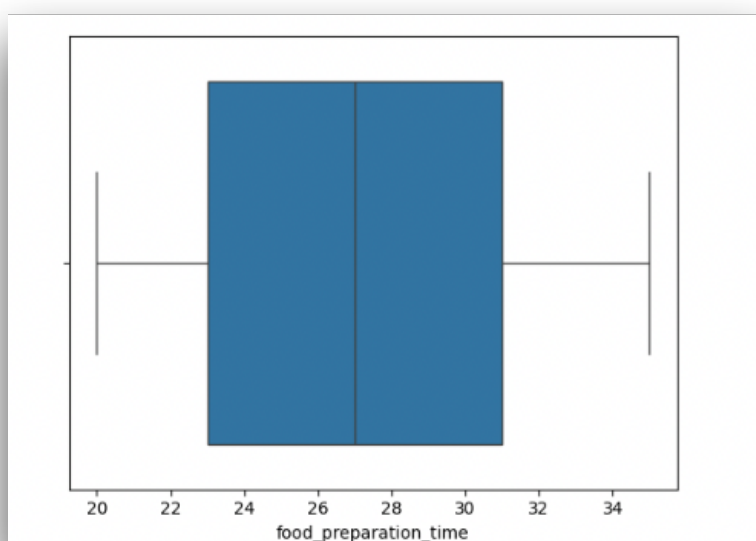
- 5 - 588 orders
- 4 - 386 orders
- 3 - 188 orders
- no rating - 736 orders



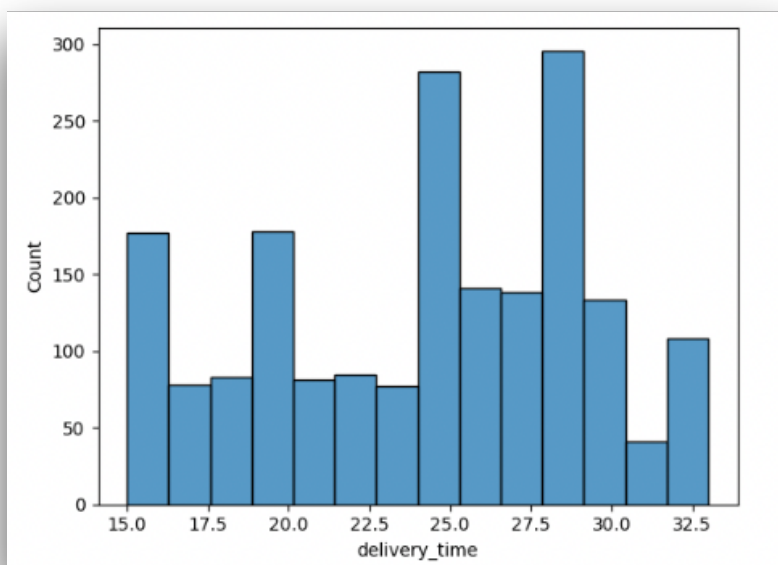
The time to prepare the food ranges from 20 - 35 minutes



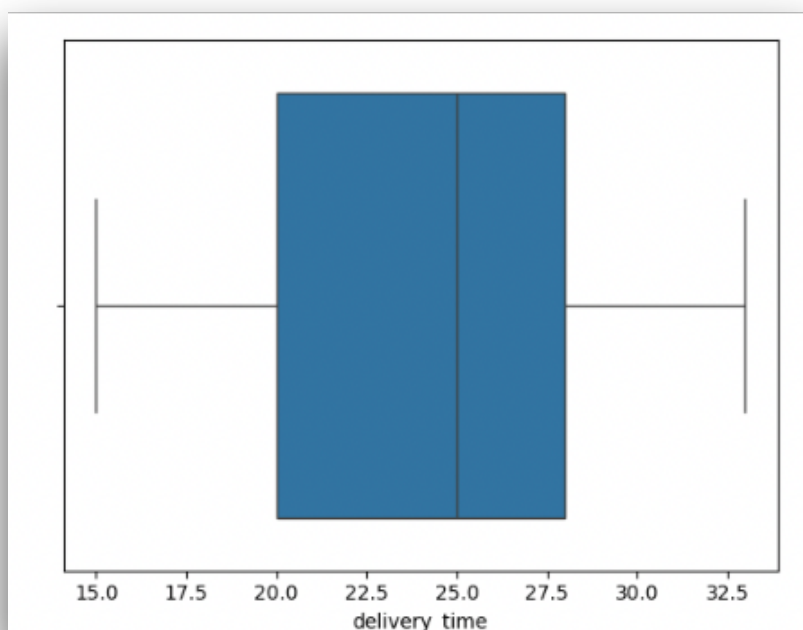
The average food preparation time falls in the middle of this range at 27 minutes.



The delivery time ranges between 15 - 33 minutes.



The average delivery time is skewed to the higher side of this range at 25 minutes.



The top 5 restaurants with the highest number of orders are

- Hangawi
- Blue Ribbon Sushi Izakaya
- Cafe Habana
- Blue Ribbon Fried Chicken
- Dirty Bird to Go

Weekend cuisine popularity from most to least popular

- American
 - 415 orders
- Japanese
 - 335 orders
- Italian
 - 207 orders
- Chinese
 - 163 orders
- Mexican
 - 53 orders
- Indian
 - 49 orders
- Mediterranean
 - 32 orders
- Middle Eastern
 - 32 orders
- Thai
 - 15 orders

- French
 - 13 orders
- Korean
 - 11 orders
- Southern
 - 11 orders
- Spanish
 - 11 orders
- Vietnamese
 - 4 orders

- The number of total orders above \$20 is 555, or 29.24%

- The mean delivery time 24.16 minutes

- The top 5 ordering customers, by customer ID, are

- 52832
 - 13 orders
- 47440
 - 10 orders
- 83287
 - 9 orders
- 250494
 - 8 orders
- 259341
 - 7 orders

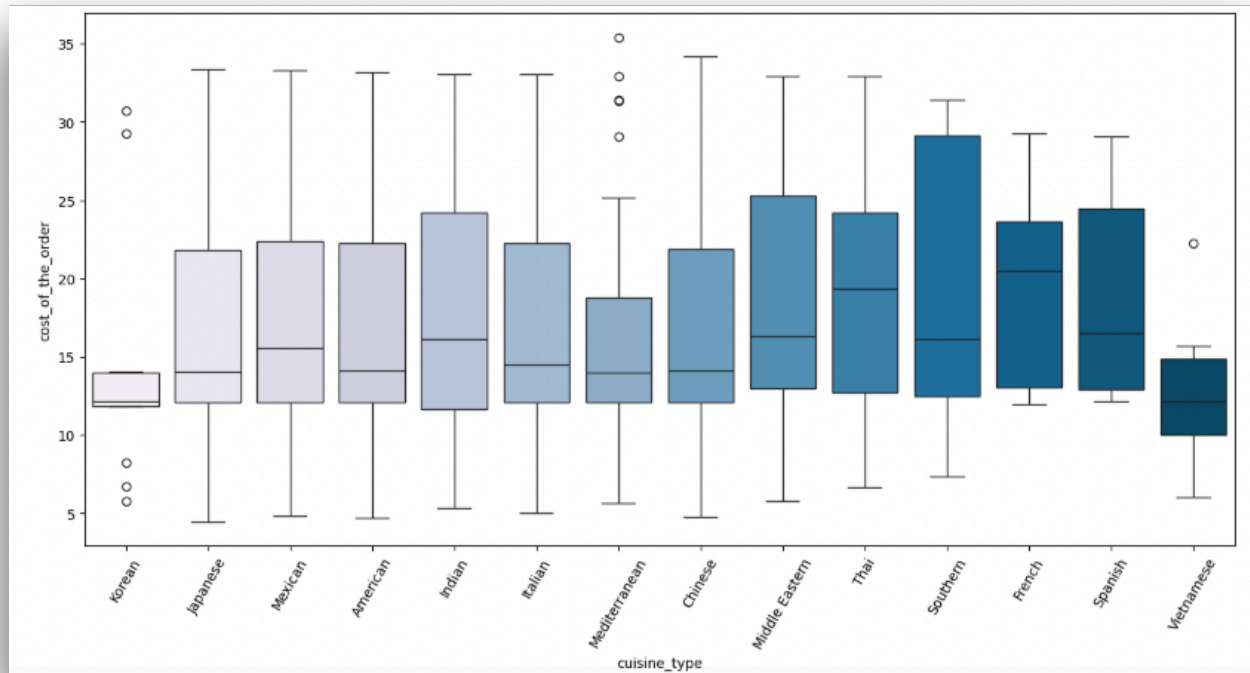
Multivariate Analysis

Cuisine Type vs Cost of the Order

- American
 - 415 orders
 - \$11 - \$23
 - \$14 avg
 - equal outliers
- Japanese
 - 335 orders
 - \$11 - \$22
 - \$14 avg
 - equal outliers
- Italian
 - 207 orders
 - \$11 - \$23
 - \$15 avg
 - slightly more upper range outliers vs lower
- Chinese
 - 163 orders
 - \$11 - \$22
 - \$14 avg
 - slightly more upper range outliers vs lower
- Mexican
 - 53 orders
 - \$11 - \$23
 - \$16 avg
 - equal outliers
- Indian
 - 49 orders
 - \$12 - \$24
 - \$17 avg
 - slightly more upper range outliers vs lower

- Mediterranean
 - 32 orders
 - \$11 - \$19
 - \$14 avg
 - equal outliers
- Middle Eastern
 - 32 orders
 - \$13 - \$25
 - \$17 avg
 - equal outliers
- Thai
 - 15 orders
 - \$12 - \$24
 - \$19 avg
 - equal outliers
- French
 - 13 orders
 - \$13 - \$23
 - \$20 avg
 - more upper end outliers vs lower
- Korean
 - 11 orders
 - \$12 - \$14
 - \$12 avg
 - no outliers
- Southern
 - 11 orders
 - \$11 - \$28
 - \$17 avg
 - more lower end outliers vs upper
- Spanish
 - 11 orders
 - \$13 - \$24
 - \$17 avg
 - more lower end outliers vs upper

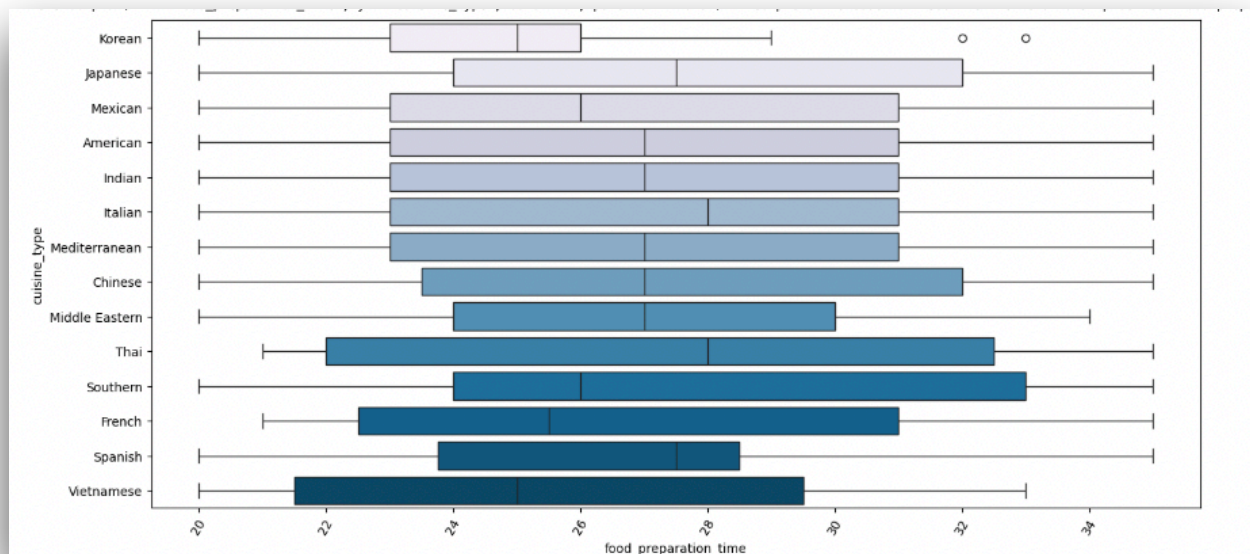
- Vietnamese
 - 4 orders
 - \$10 - \$15
 - \$12 avg
 - more upper end outliers vs lower



Food Preparation Time

cuisine_type	food_preparation_time
Southern	27.588235
Chinese	27.511628
Japanese	27.510638
Italian	27.483221
American	27.440068
Thai	27.315789
Indian	27.109589
Mediterranean	27.000000
Spanish	26.916667

French	26.888889
Mexican	26.727273
Middle Eastern	26.673469
Vietnamese	25.714286
Korean	25.461538



- Korean
 - low (11) order numbers
 - tighter, more predictable median price point
 - lowest median prep time
- Southern
 - low (11) order numbers
 - large median price range
 - few outliers
- Vietnamese
 - low (4) order numbers
 - median price range on the upper end
 - as many lower end outliers as are median price point

- Japanese (335 orders), Mexican (53 orders), American (415 orders), Italian (207 orders), Mediterranean (32 orders), Chinese (163 orders), Indian (49 orders)

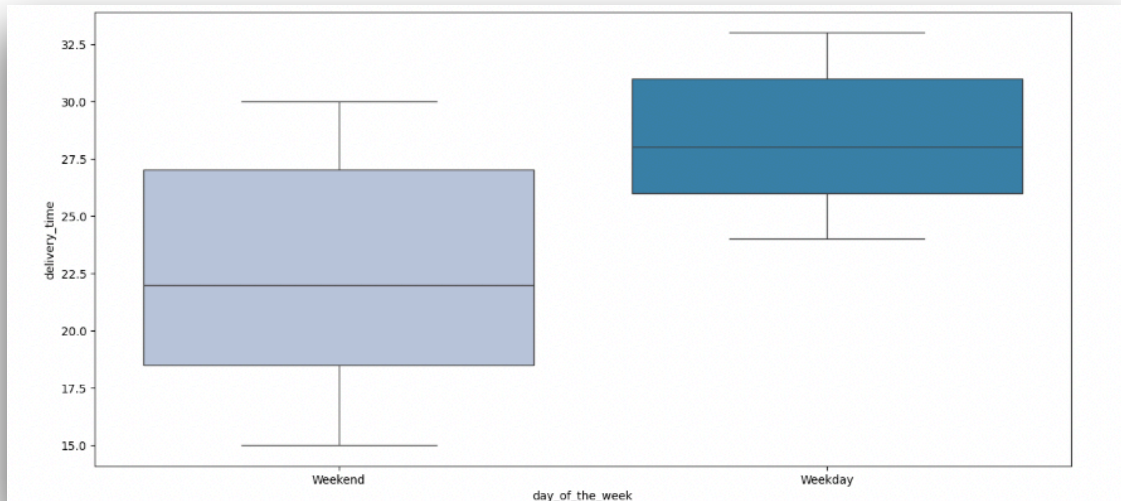
- median price range equally proportionate to whole
- equally proportionate outliers

- Average time to prepare food from greatest to least

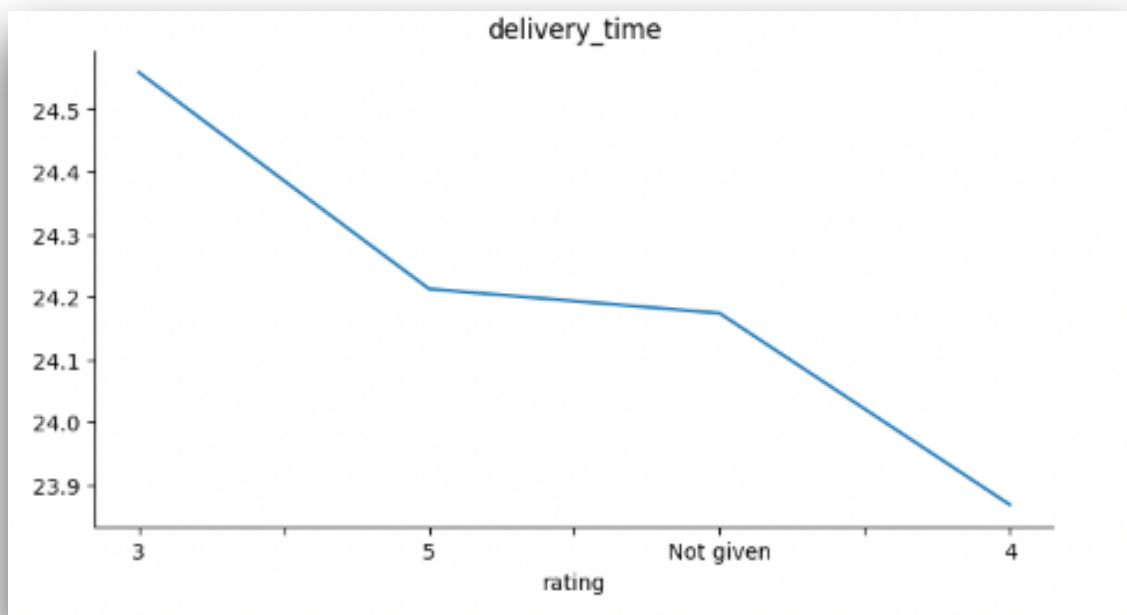
- Southern
 - 27.59 mins
- Chinese
 - 27.51 mins
- Japanese
 - 27.51 mins
- Italian
 - 27.48 mins
- American
 - 27.44 mins
- Thai
 - 27.32 mins
- Indian
 - 27.11 mins
- Mediterranean
 - 27 mins
- Spanish
 - 26.92 mins
- French
 - 26.89 mins

- Mexican
 - 26.73 mins
- Middle Eastern
 - 26.67 mins
- Vietnamese
 - 25.71 mins
- Korean
 - 25.46 mins
- Average delivery time
 - Weekday
 - 28.34 mins
 - Weekend
 - 22.47 mins
- Revenue Generated by each Restaurant and their cuisine type

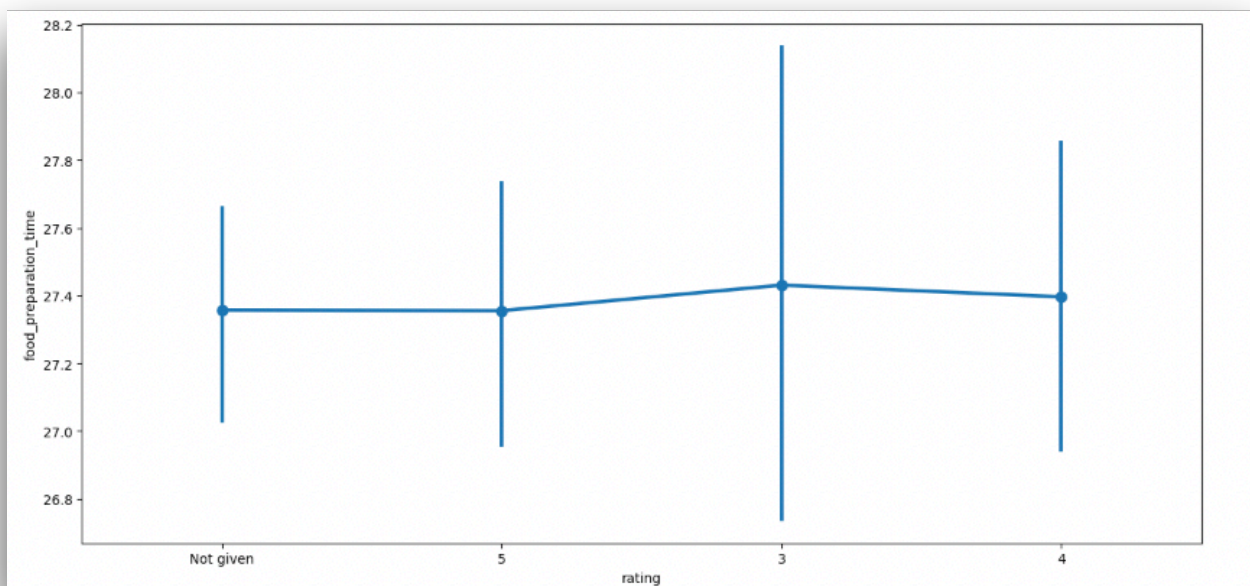
Shake Shack	American	\$3579.53
Blue Ribbon Sushi	Japanese	\$1903.95
The Meatball Shop	Italian	\$1821.01
Blue Ribbon Fried Chicken	American	\$1662.29
Parm	Italian	\$1112.76
RedFarm Broadway	Chinese	\$965.13
RedFarm Hudson	Chinese	\$921.21
TAO	Japanese	\$834.50
Han Dynasty	Chinese	\$755.29
Blue Ribbon Sushi Bar & Grill	Japanese	\$666.62
Rubirosa	Italian	\$660.45
Sushi of Gari 46	Japanese	\$640.87
Nobu Next Door	Japanese	\$623.67
Five Guys Burgers and Fries	American	\$506.47



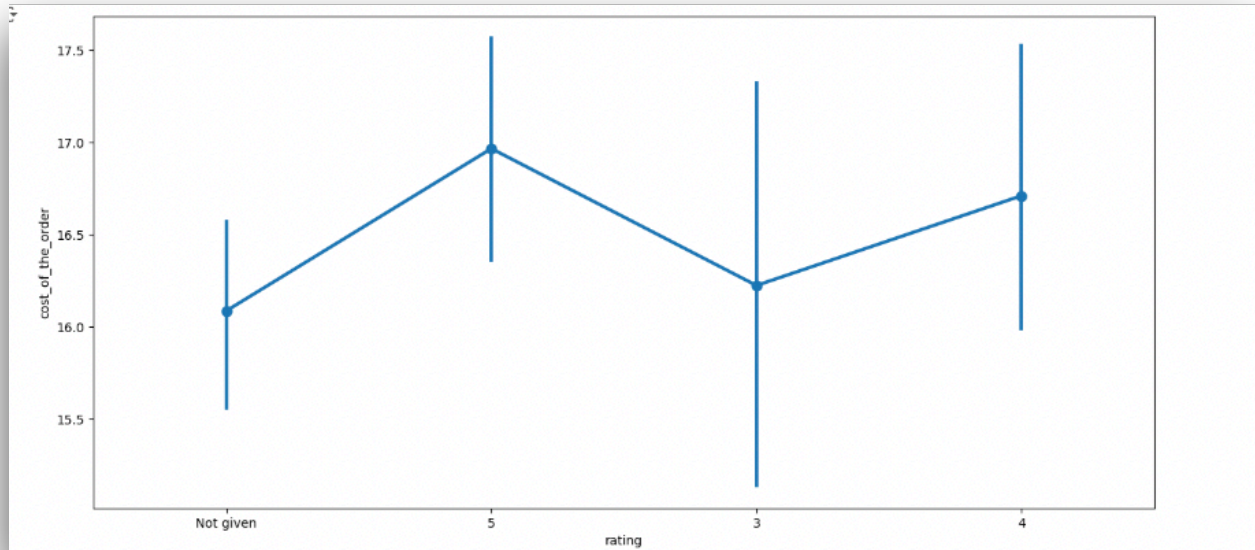
- Average delivery times associated with each rating category are within 1 minute of each other.
- The shortest delivery time ranked nearly the highest rating
 - 23.87 mins = 4 Rating
 - 24.17 mins = Not Given
 - 24.21 mins = 5 Rating
 - 24.56 mins = 3 Rating



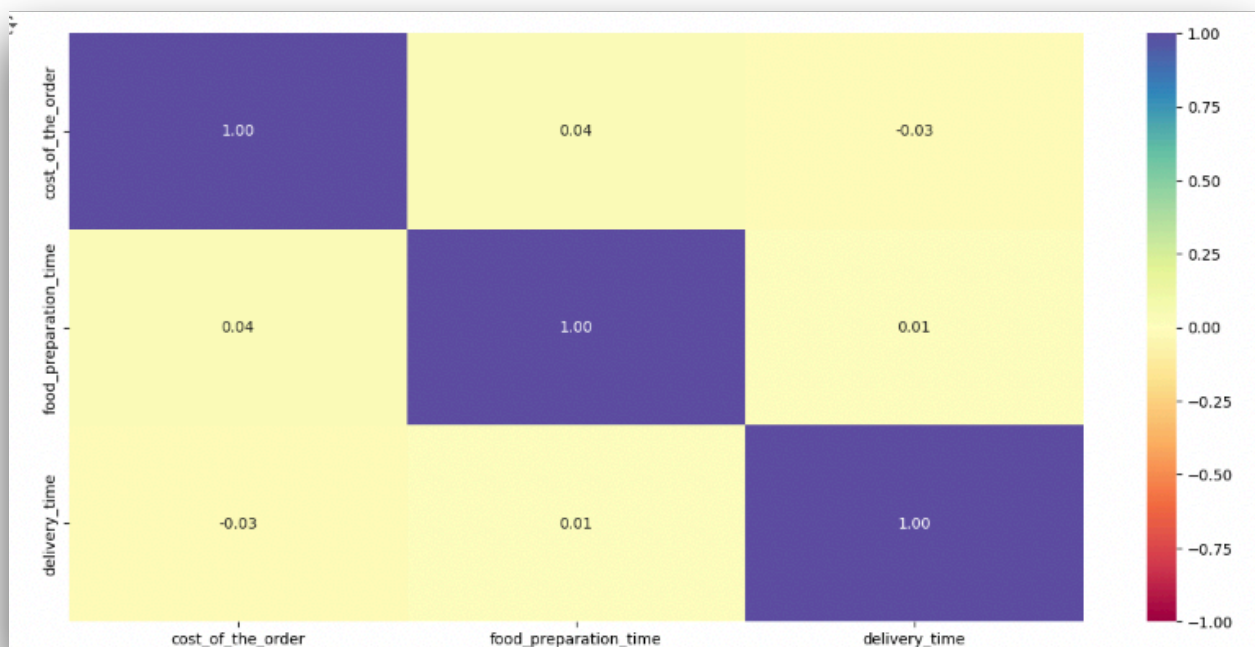
- Average food preparation time associated with each rating categories are within seconds of each other.
- The shortest food preparation time ranked the highest rating.
 - 27.36 mins = 5 Rating
 - 27.36 mins = Not Given
 - 27.39 mins = 4 Rating
 - 27.43 mins = 3 Rating



- Average cost of the order associated with each rating category are within cents of each other
- The more expensive average cost of the order ranked the highest rating
 - \$16.97 = 5 Rating
 - \$16.81 = Not Given
 - \$16.71 = 4 Rating
 - \$16.22 = 3 Rating



- Correlation between variables
 - The cost of the order is affected by
 - food preparation time
 - Delivery time is affected by
 - food preparation time



- Restaurants eligible for the promo offer are those with an average greater than 4 and count of more than 50.
 - Shake Shack
 - Rating of 4.28
 - rating count = 133
 - The Meatball Shop
 - Rating of 4.51
 - rating count = 84
 - Blue Ribbon Sushi
 - Rating of 4.22
 - rating count = 73
 - Blue Ribbon Fried Chicken
 - Rating of 4.33
 - rating count = 64
- The net revenue generated by the company across all orders is around \$1.15.
- The percentage of orders that have more than 60 minutes of total delivery time is 10.54%.
- The mean delivery time
 - Weekdays = 28 minutes
 - Weekends = 22 minutes

Conclusions and Recommendations

It is my recommendation for Food Hub to have a full circle approach to their growth objective. This can be accomplished by building a marketing strategy around what is already successful for them, leveraging their existing customer base.

To increase their customer base, they should offer a promo for existing users via a “refer a friend” campaign.

To increase sales in lesser performing cuisine categories, this promo should be applicable to the restaurants serving the lesser performing cuisines.

Another avenue to capitalize on would be to offer a promo for existing top performing restaurants, who are also serving the top ranking cuisine categories.

To address the need for increasing sales on weekdays, they should offer a promo through the top performing restaurants, on weekdays only. Effectively market to the top customers by strategically appealing to the practicality of the time they will save by ordering out. With the promotion, customers can eat out for a comparable cost as cooking at home, without the time and effort of actually cooking at home.