

Foodhub Case Study

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Background

Food hub is an online food ordering portal based in Stoke-on-Trent, United Kingdom



Food delivery is a very volatile market and demand fluctuates wildly with time, pandemics, place, weather, local events, etc.

Currently, Foodhub has partnered with over thousands of takeaways & restaurants and offers local and international cuisines.



The key to being successful in this business is to be able to detect patterns in these fluctuations and cater to the demand at any given time.

Objective

The food aggregator company has stored the data of the different orders made by the registered customers in their online portal. Analysis of the data is needed to get a fair idea about the demand of different restaurants which will help them in enhancing their customer experience.

We will be majorly focusing on these problems -

- Top/frequent restaurant
- Top/frequent cuisines
- Ways to give incentive to top performing restaurant
- What factors influence the total time to deliver the food

Data Information

The data contains weather information, location and no. of pickups

Variable	Description
order_id	Unique ID of the order
customer_id	ID of the customer who ordered the food
restaurant_name	Name of the restaurant
cuisine_type	Cuisine ordered by the customer
cost_of_the_order	Cost of the order
day_of_the_week	order is placed on a weekday or weekend
rating	Rating given by the customer out of 5
food_preparation_time	Time (in minutes) taken by the restaurant to prepare the food
delivery_time	Time (in minutes) taken by the delivery person to deliver the food

Observations	Variables
1898	9

Note:

- There are many orders that have not been rated and have value of "Not given"
- Rating is stored as object and was needed to be converted to Integer to perform arithmetic and explore correlation with other numerical variable

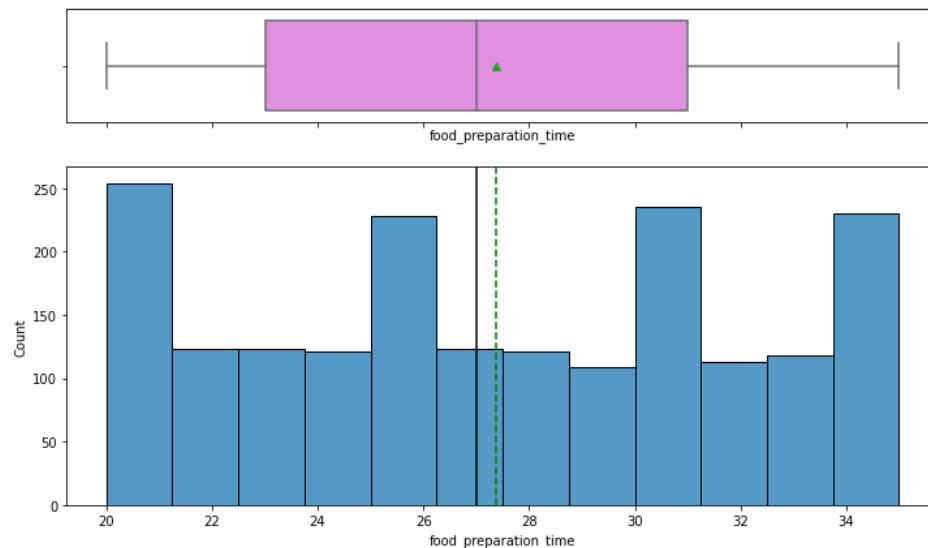
Exploratory Data Analysis – Food Preparation Time

Let us first explore some of the variables and how they are distributed

Food Preparation Time

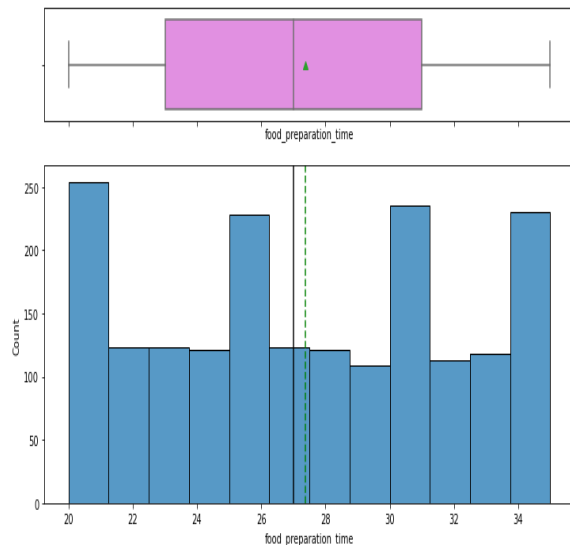
Observations:

- food_preparation_time does not have any outliers
- measures of central tendency for food_preparation_time is around 27 minutes
- Mean = 27
- Median 27



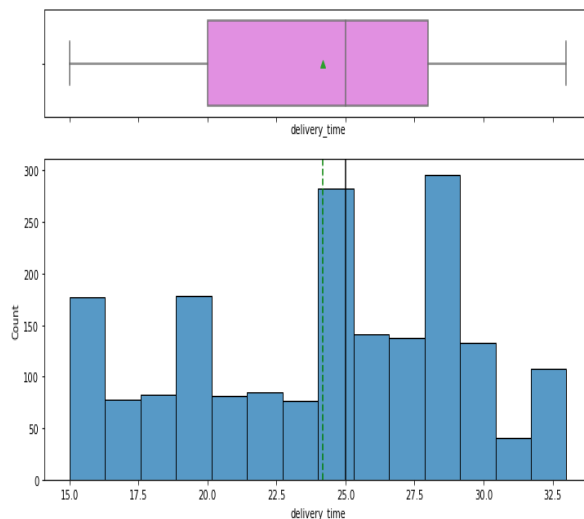
Exploratory Data Analysis – Prep Time, Delivery Time, Cost

Food Prep Time



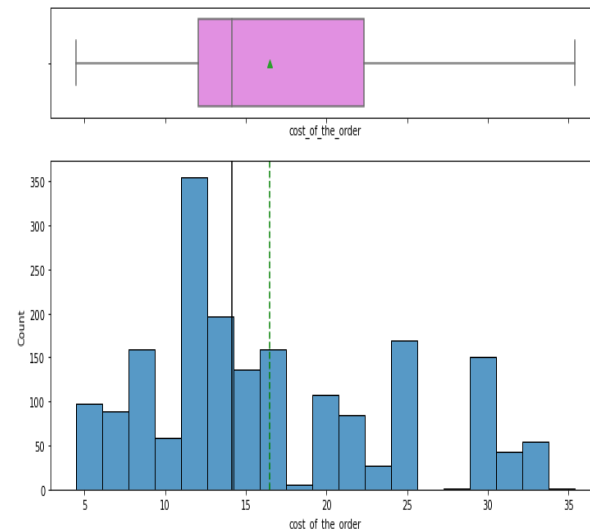
- Does not have any outliers
- Central tendency is around 27 minutes
- Mean = 27
- Median = 27

Delivery Time



- Does not have any outliers
- Central tendency is around 24-25 minutes
- Mean = 24
- Median = 25

Cost of the Order



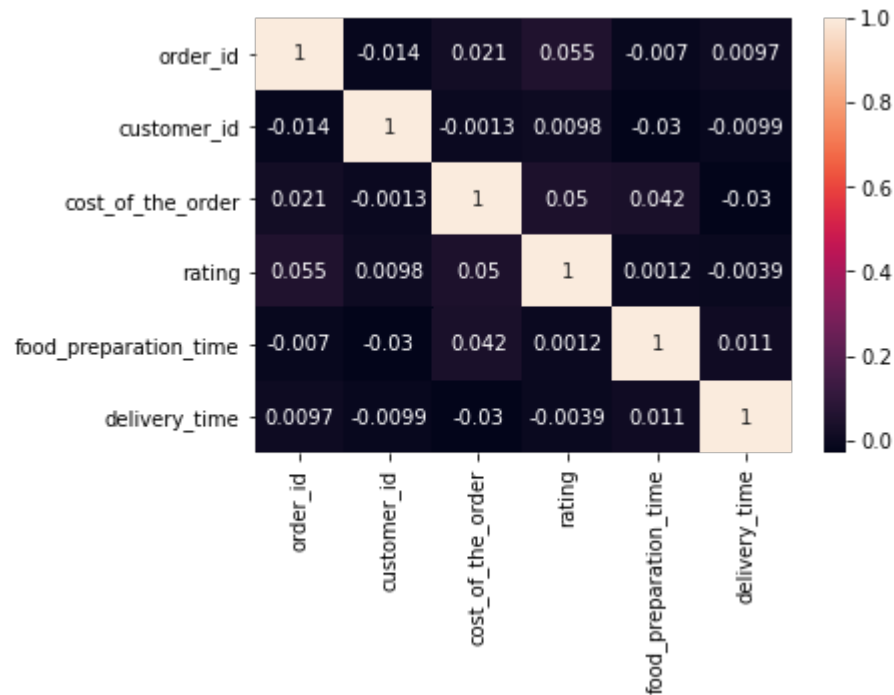
- Does not have any outliers
- Central tendency is around 14-16 minutes
- Mean = 16, Median = 14
- there is a type of order that costs 12.18 is a favorite among customers

Exploratory Data Analysis - Correlation matrix

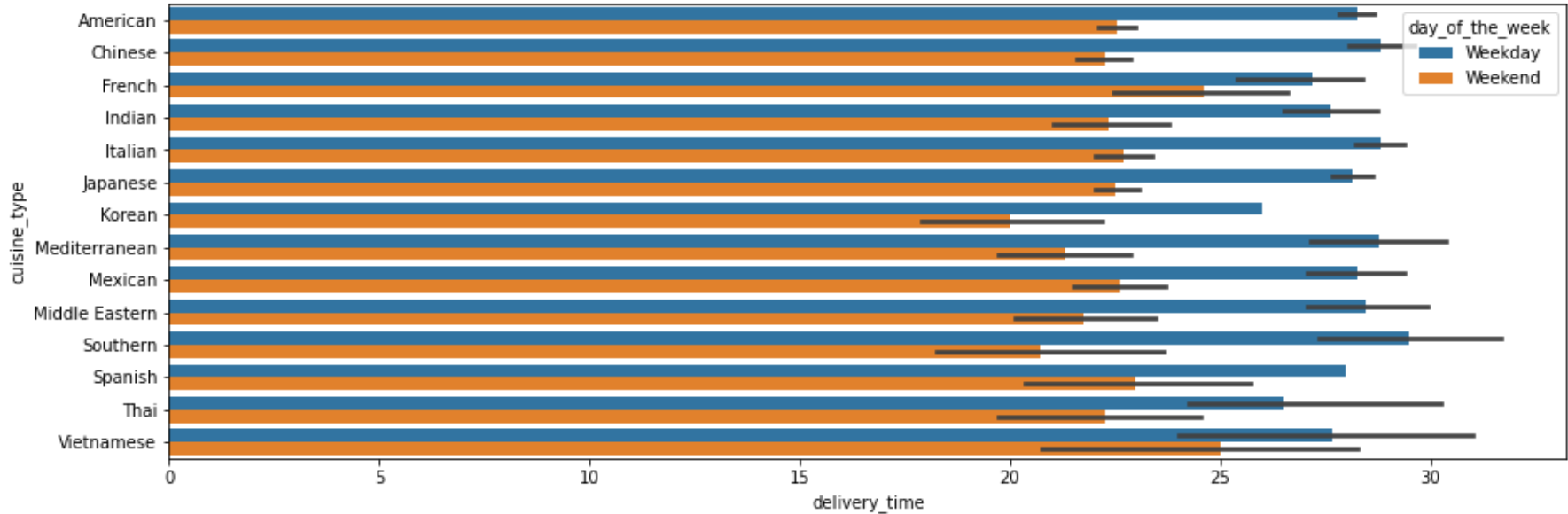
Observations:

- No light color boxes in the heatmap

Correlation matrix



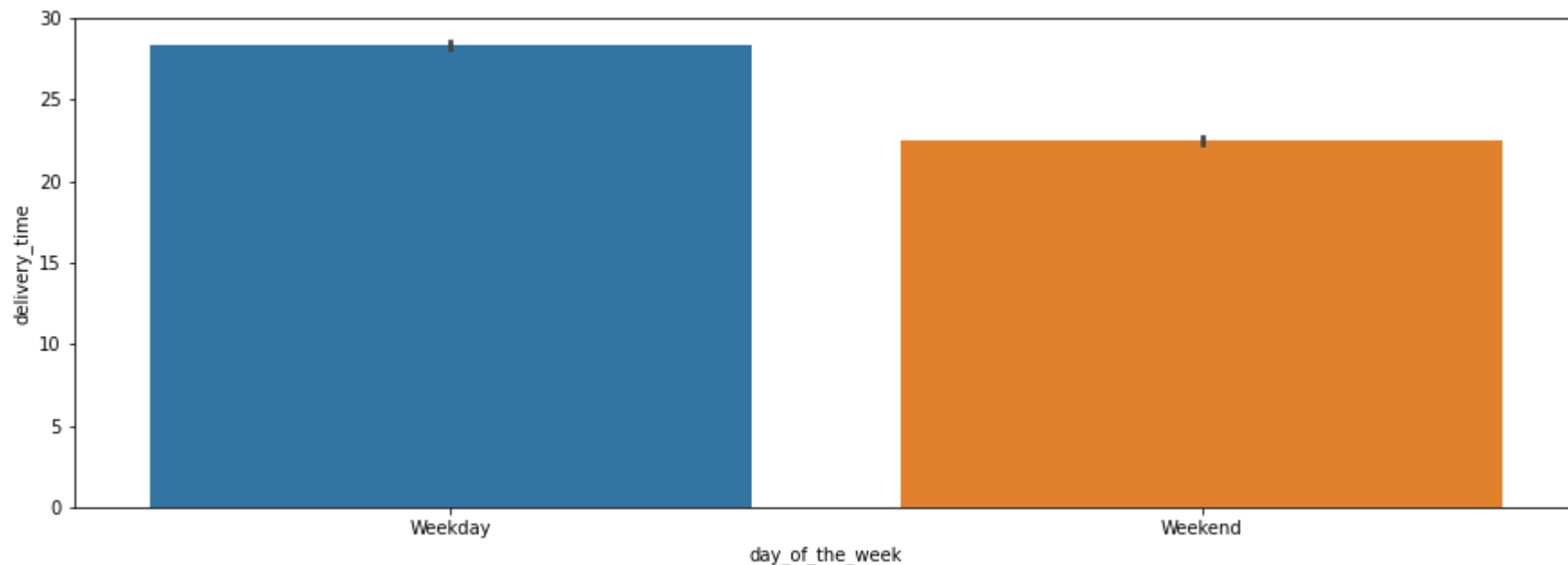
Exploratory Data Analysis – Delivery Time Vs Day of Week



Observations:

Delivery time across all cuisines types, is longer on Weekdays vs weekend.

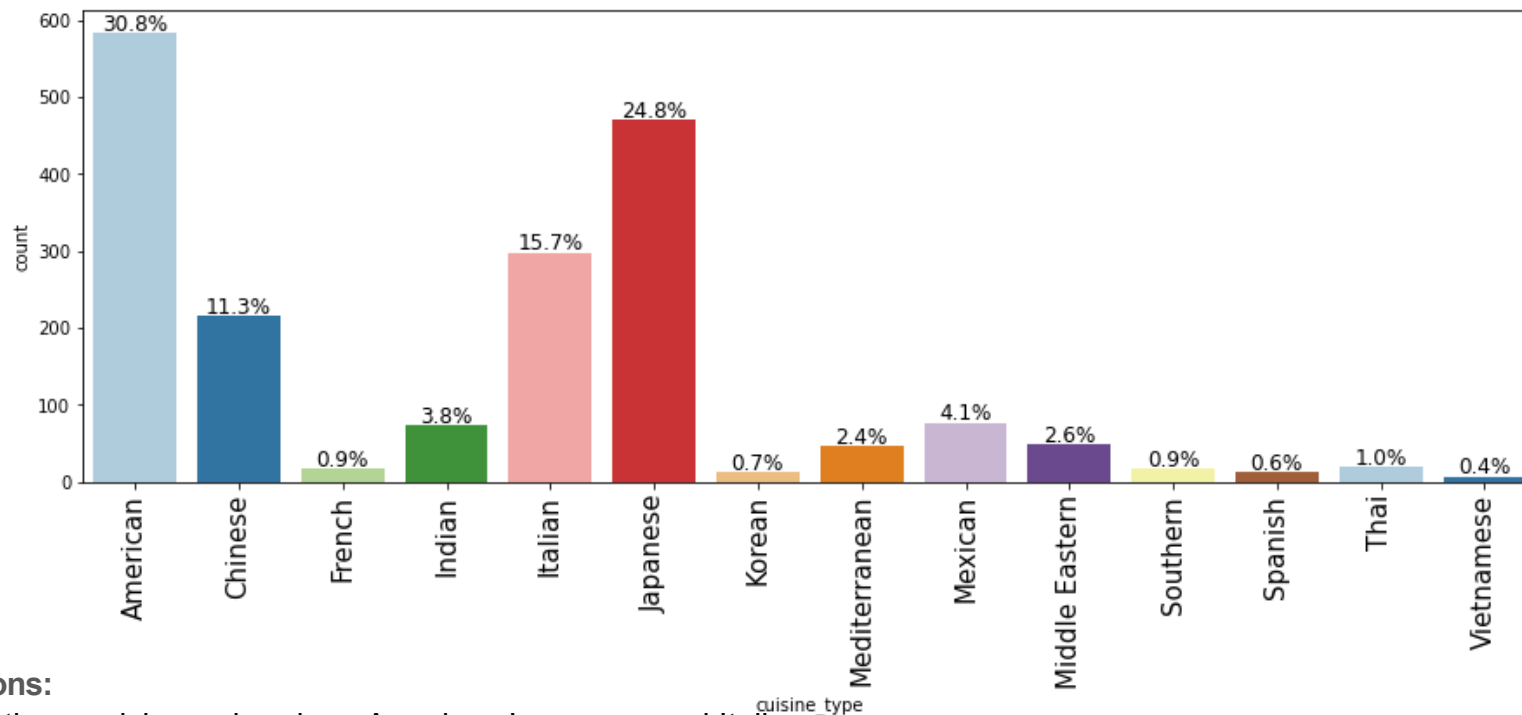
Exploratory Data Analysis – Day of Week & Delivery Time



Observations:

- Weekday mean = 28.340037
- Weekend mean = 22.470022
- Weekday mean value is higher than the Weekend mean, by approx. 6 minutes

Exploratory Data Analysis – Cuisine Type & Orders



Observations:

- Top three cuisine ordered are America, Japanese, and Italian
- Although widely considered as popular food choice, Chinese cuisine is not among top three most ordered cuisine
- Out of 14 cuisines in the data, most orders are centered around four cuisines type (American, Japanese, Italian and Chinese)

Conclusion

After all the analysis, we have been able to can conclude that

1. Cost of the order has wide range indicating that data consists from customers placing small orders as well larger order
2. Significant difference found between 1st quartile and minimum, and 3rd quartile and the maximum for cost, indicating there might be outliers to left and right in this variable
3. Out of 14 cuisines in the data, most orders are centered around four cuisines type (American, Japanese, Italian and Chinese)
4. American cuisine is the most popular over the wekeends
5. As expected, most orders are placed on weekends
6. Weekend demand is three times higher than the weekday demand
7. Large amount of customers don't rate their orders
8. Among the orders are that rated, most order have received the highest rating
9. 29% orders are above the cost of 20 dollars
10. Top 5 restaurants with highest number of orders:
 1. Shake Shack
 2. The Meatball Shop
 3. Blue Ribbon Sushi
 4. Blue Ribbon Fried Chicken
 5. Parm

Recommendations

Based on the analysis, there are following recommendations:

1. Delivery time is longer on weekdays vs weekend.
2. More research needs to be done to see if company is unable to assign drivers promptly during the Weekdays to pickup orders.
3. We need to procure more data on factors that impact the total delivery time
4. Having additional drivers during weekdays may lower the delivery time
5. Total of 736 orders that are not rated (have rating value of Not Given). Some incentives or reminder to given sent to interest customer to provide rating.
6. Although widely considered as popular food choice, Chinese cuisine is not among top three most ordered cuisine
7. Most orders are centered around four cuisines (American, Japanese, Italian and Chinese)
8. Having promotion or incentive to order from non-common cuisine may tap market from other restaurants

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Power Ahead

