Food Hub Data Analysis

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Overview

- This data was collected by Food Hub, a food aggregator company in New York that offers access to multiple restaurants through a single smartphone app.
- Customers order food from restaurants via the app, and the app assigns a delivery person to pick it up the food for delivery to the customer
- The delivery uses map to notify the restaurant and waits for the food
- When food is ready, the delivery person picks the food and confirms pick up in the up
- The delivery person takes the food to the customer and confirms delivery in the app
- Customer can rate order in the app or elect to not.
- The food aggregator earn money by collecting a fixed of order cost of the order.

Data Dictionary

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: Cost of the order

day_of_the_week: Indicates whether the order is placed on a weekday or weekend (The weekday is from Monday to Friday and the weekend is Saturday and Sunday)

rating: Rating given by the customer out of 5

food_preparation_time: Time (in minutes) taken by the restaurant to prepare the food. This is calculated by taking the difference between the timestamps of the restaurant's order confirmation and the delivery person's pick-up confirmation.

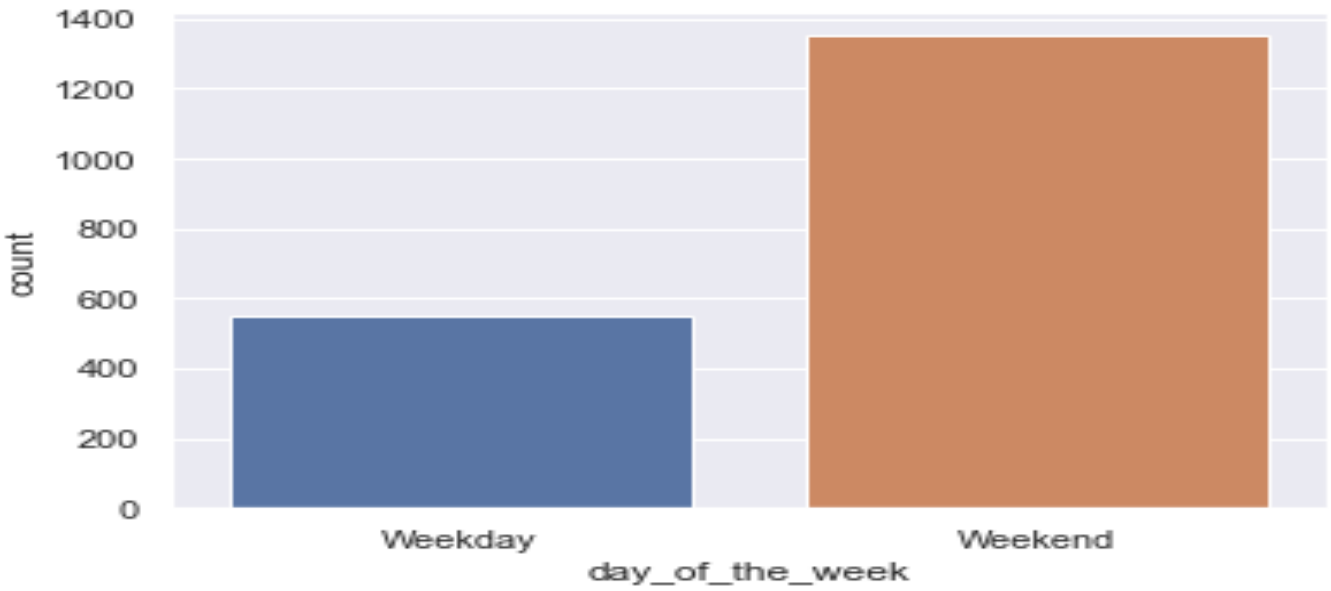
delivery_time: Time (in minutes) taken by the delivery person to deliver the food package. This is calculated by taking the difference between the timestamps of the delivery person's pick-up confirmation and drop-off information

Statistic

	cost of the order in dollars	food preparation time minutes	delivery time in minutes
count	1898	1898	1898
mean	16.49	27.37	24.16
std	7.48	4.63	4.97
min	4.47	20.0	15.0
25%	12.08	23.0	20.0
50%	14.14	27.00	25.00
75%	22.29	31.00	28.00
max	35.41	35.00	33.00

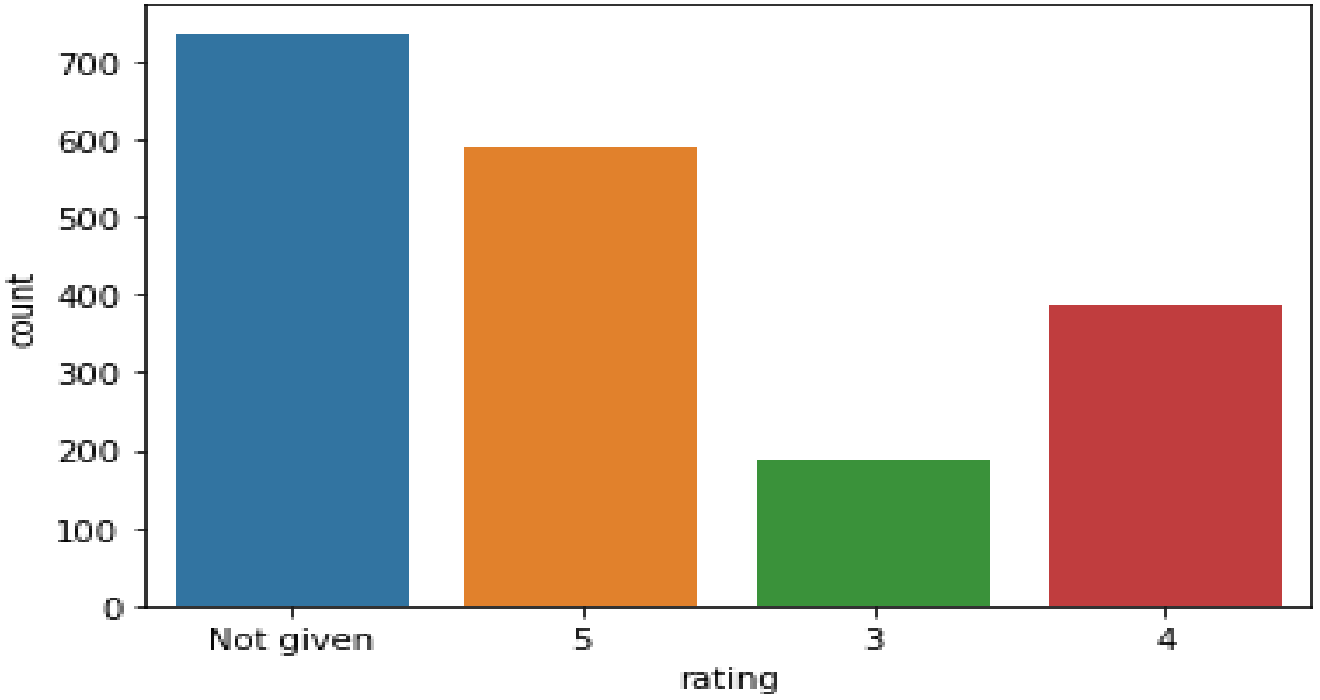
- Number of restaurants 174
- Number of cuisines 14

Number of orders and rating



- Twice as much orders were place on weekend as in weekdays

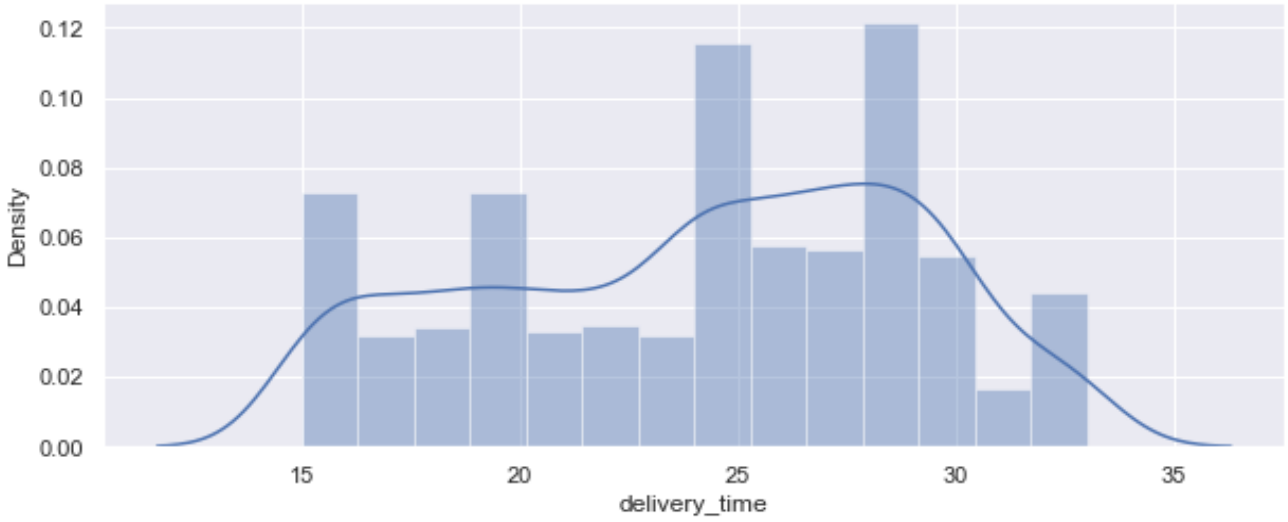
Customer ratings of restaurants

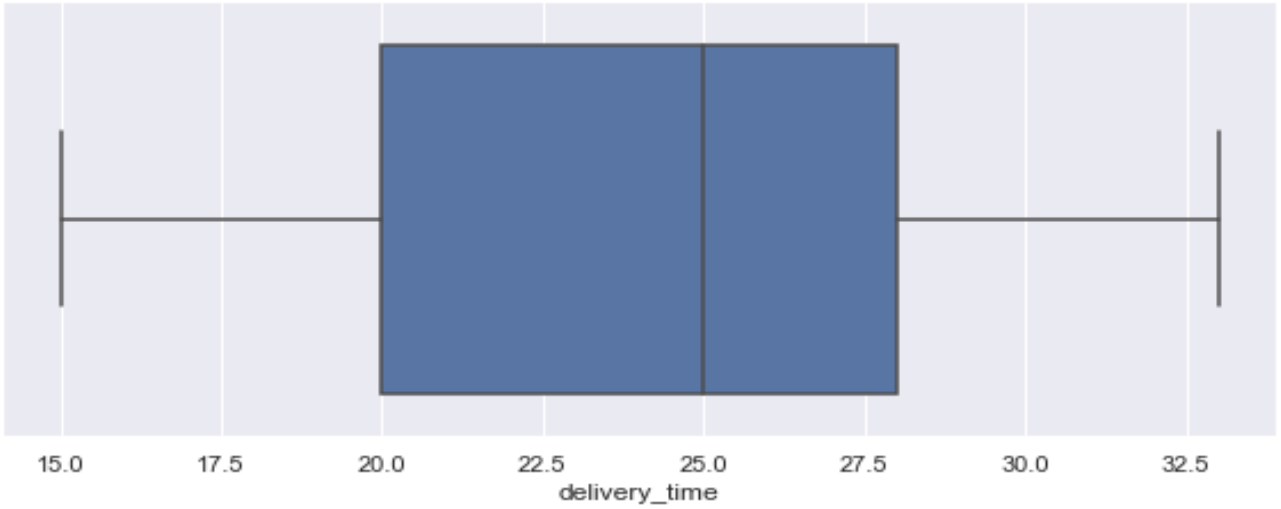


rating	count	percent
Not given	736	38.8%
3	588	31.0%
4	386	20.3%
5	188	9.9%

Rating systems consists of 1-5 with 5 being the highest

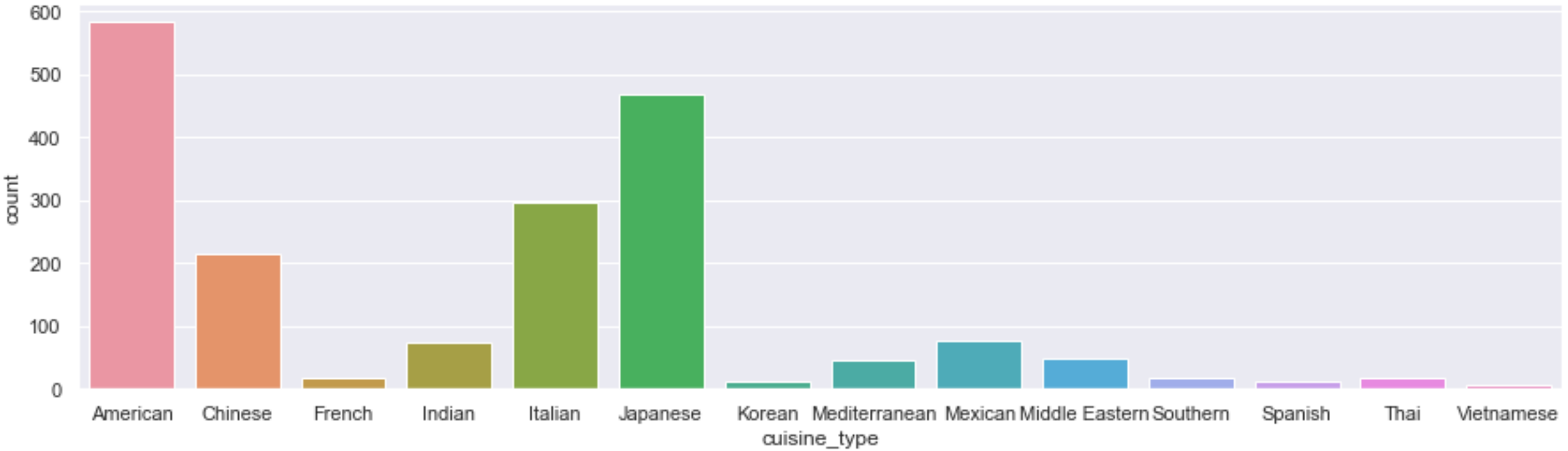
Delivery time





- The delivery time for food ranges from 15 to 35 minutes.
- The distribution is near even
- The media delivery time is 25 minutes
- The mean delivery time(calculated) is 24 minutes

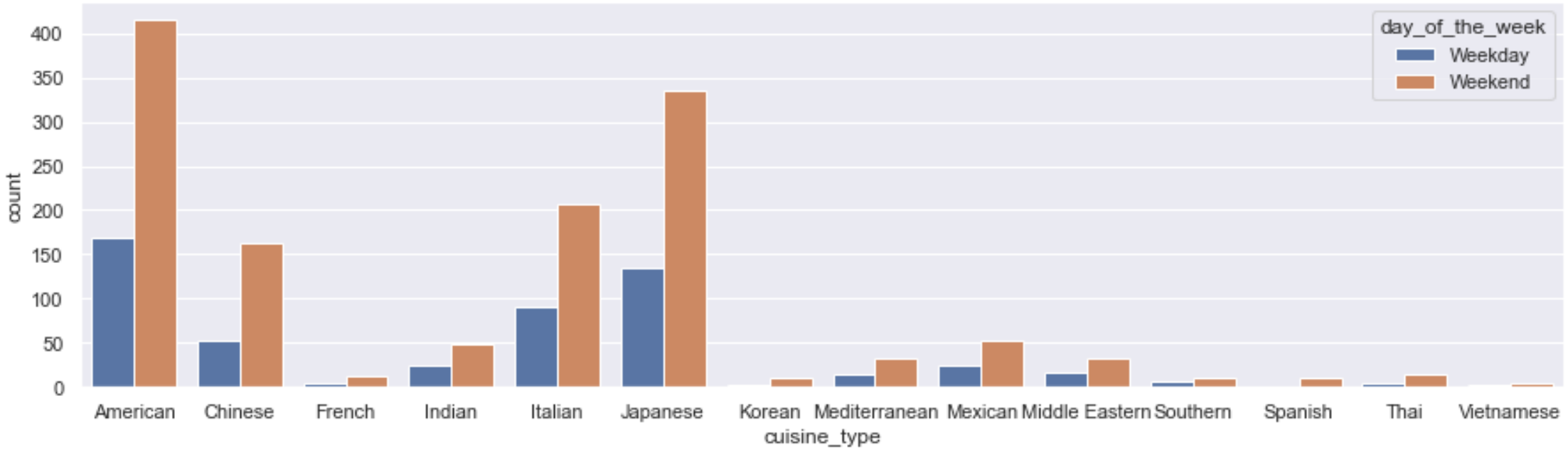
Count by cuisine type ordered



Of the cuisine types:

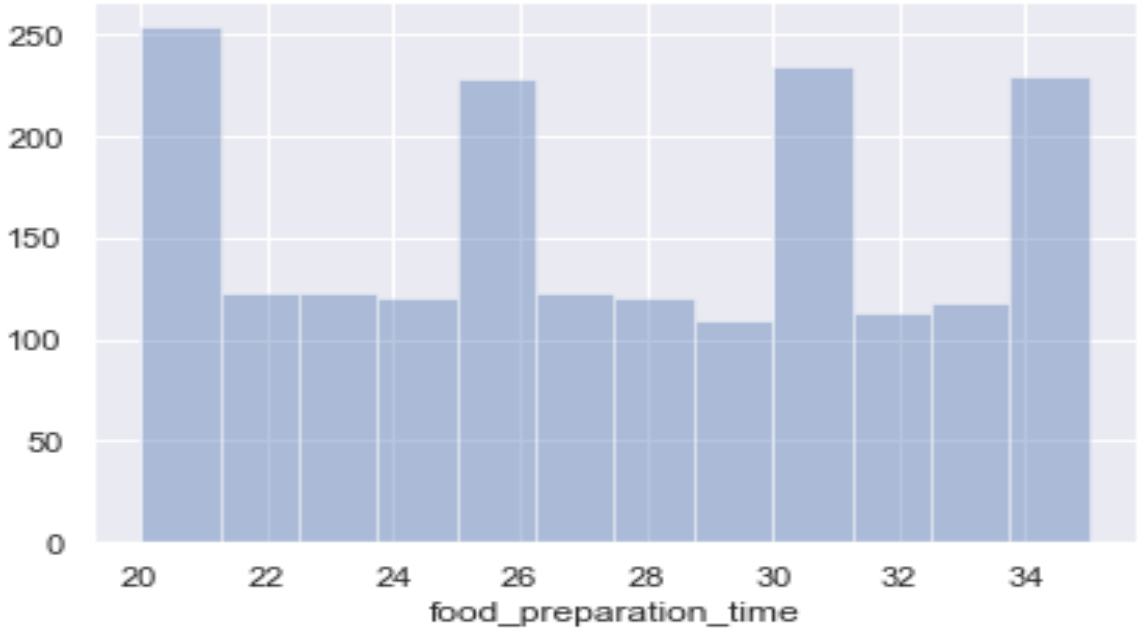
- American is the overall favorite
- followed by Japanese and Italian
- Spanish and Viatnamese were the least favorite

Count by cuisine types ordered weekday/weekend

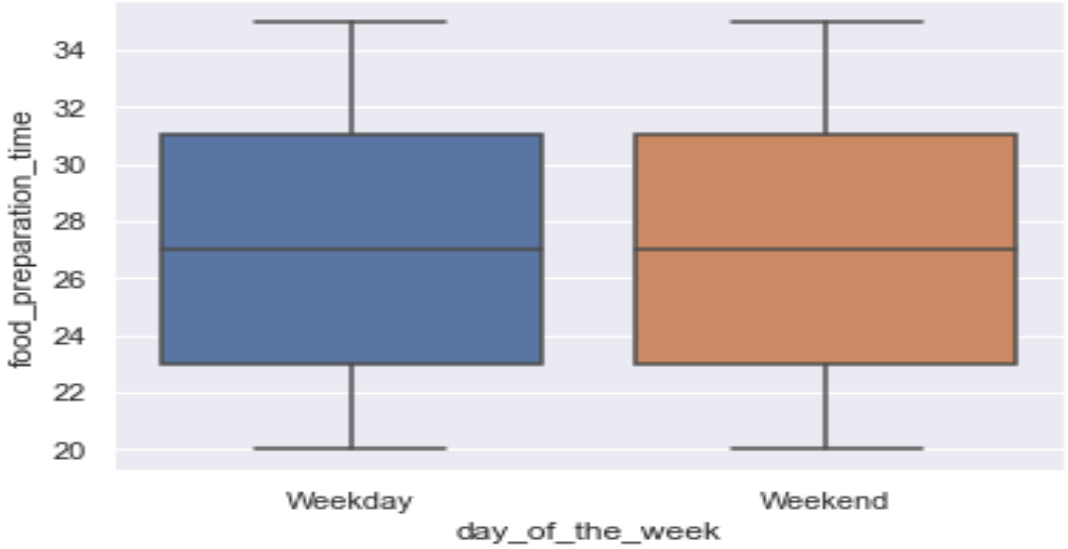


- All restaurants see more orders on weekends than on weekdays
- The popularity, by ration of the restaurants, remain almost similar on weekdays and weekends
- Implies cuisine preference not may not be related to weekday or weekend.

Food preparation time

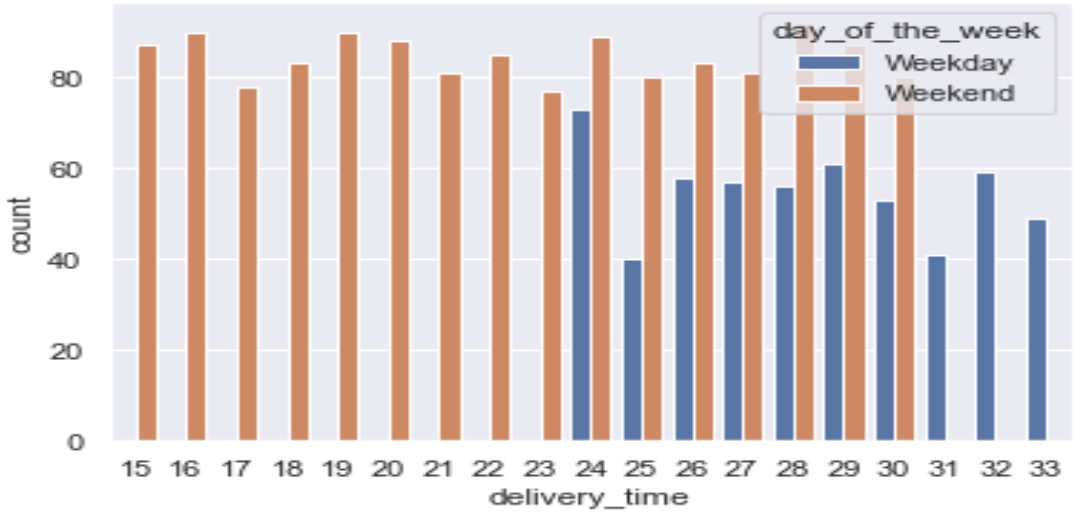


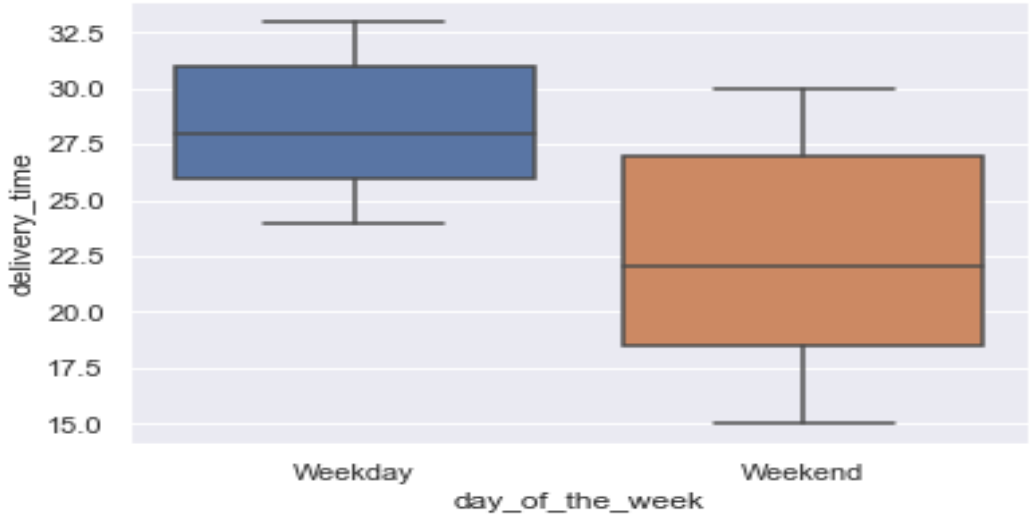
Food preparation time varies from 24 to 34 minutes



There is no difference in food preparation time between weekends and weekdays

Delivery time weekdays/weekends





- Weekend orders have the shorter delivery time, between 15 and 30 minutes. The median delivery time on weekend is about 24 minutes
- The weekday orders have a longer delivery time between about 24 minutes and 33 minutes. The median delivery time on weekday is about 28 minutes.
- This could be traffic related as there is usually more traffic on weekdays than weekends resulting in slow movement of people from one point to another.

Top 5 restaurants by orders

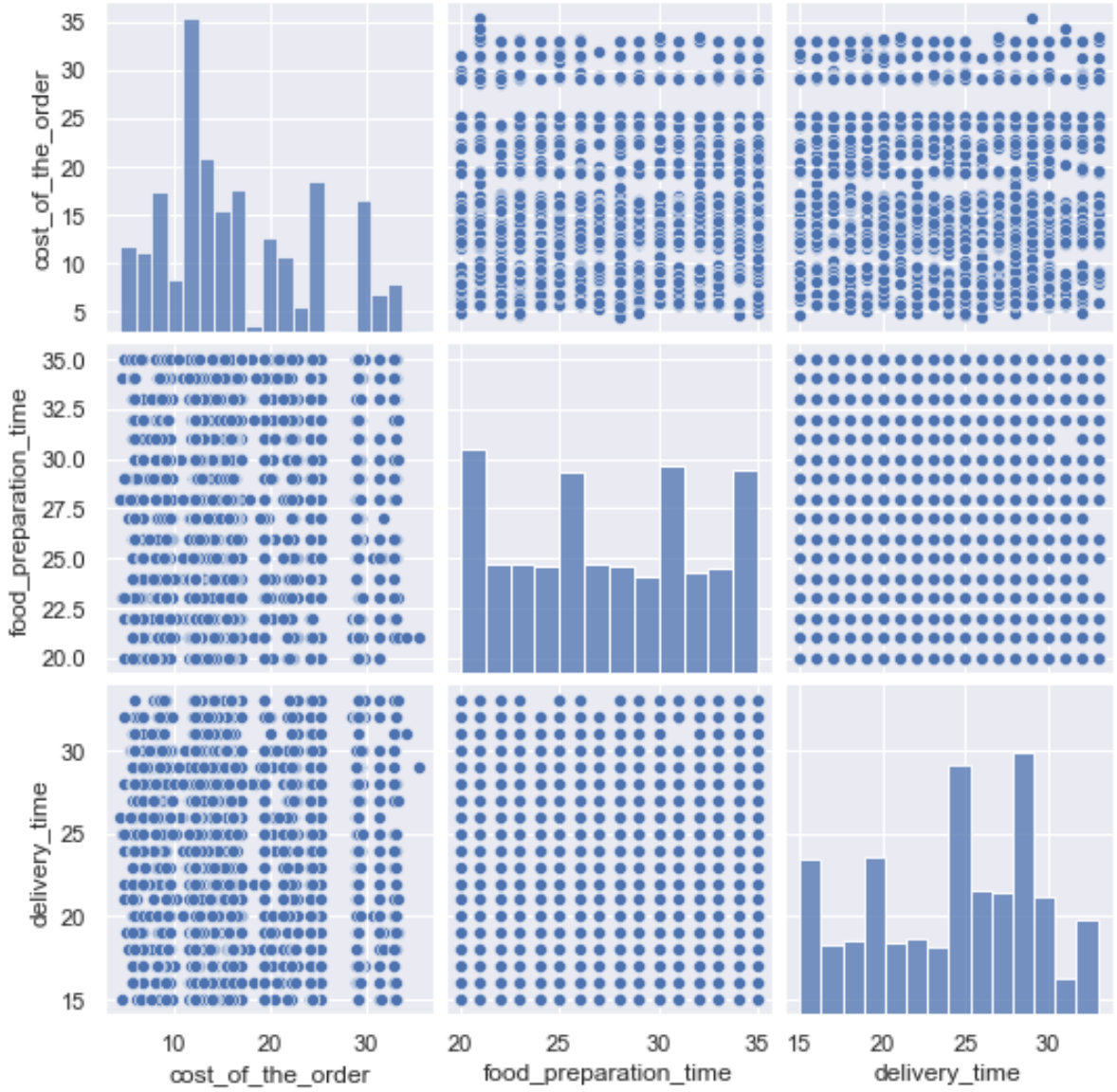
Top restaurants	Count by order	Percent	Total ranking
Shake Shack	219	11.5%	133
The Meatball Shop	132	7%	84
Blue Ribbon Sushi	119	6.2%	73
Blue Ribbon Fried Chicken	96	5.1%	64
Parm	68	3.5%	41

The top 5 restaurants out of 178 have ~30 % of the
total orders

They all had average rankings greater than 4

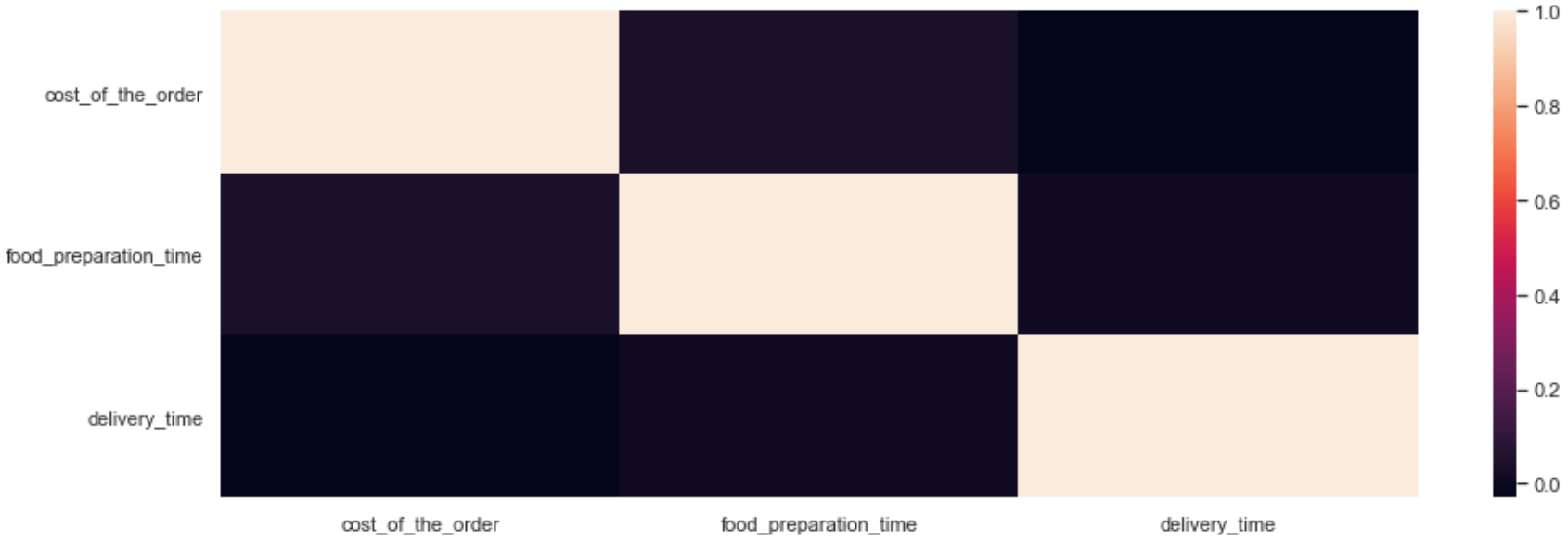
The all topped the rankings of all the restaurants

Pair plot of cost or order, food preparation time and delivery time



No relationship observed between these three Variables: cost of order, food preparation time and delivery time

Heat map showing correlation



No significant correlation observed

Suppose the company charges the restaurant 25% on the orders having cost greater than 20 dollars and 15% on the orders having cost greater than 5 dollars. The net revenue generated on all the orders given in the dataset will be $ 4, 104. 18

Some facts

- The mean delivery time (overall) is 24 minutes;

The mean delivery time for weekends is ~22.4 minutes

The mean delivery time for weekdays ~28 minutes

- The customer who spent a single amount on a single order spent $35.4. She ordered a Meditterranean cuisine type from Pylos restaurant. The order ID is 1477814 and the Customer ID is 62359
- The number of orders where the total order is greater than $20 is 555 representing 29.2% if all orders.

Conclusions

- There are more orders on weekends than on weekdays
- The food preparation time and cost of food are the same for weekends and weekday
- The delivery time for food is on the average about 6 minutes shorter on weekends than on weekdays
- The top restaurant by number of orders is Shake Shack followed by The Meat Ball
- Since Food Hub's earning are based on the cost of food, they make more money per minute on weekend than on weekdays.
- No correlation was found between delivery time, food preparation time and cost of food

Recommendations

- Since the favorites cuisines from the highest are American, Italian and Japanese cuisine, Food Hub must concentrate on, or bring in restaurants who deliver such cuisines to maximize profit.
- The favorite restaurants also have the highest average ratings, greater than 4. That means restaurant with good review are likely to have more orders.