


FoodHub Project

Foundations - Python and Statistics



Anna
Lapushner

author

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The United States is experiencing a surge in demand for online food delivery services, driven by busy lifestyles and the convenience of ordering meals from a range of restaurants via mobile apps

The revenue in the Online Food Delivery market in the United States is projected to reach **US\$353.30bn** in 2024

FoodHub is a food aggregator company that connects customers with restaurants via a mobile app

At an annual projected growth rate of 9.76% (CAGR 2024-2029), the projected market volume is **US\$562.70bn** by 2029

FoodHub is responsible for the order taking, pick up and delivery of the food package

Customer browses, chooses, and orders food from one of multiple restaurants in a centralized interface

Restaurant receives a direct online order from a customer

Order is confirmed by the restaurant

App assigns a delivery person from the company to pick up the order

Delivery person uses the map to reach the restaurant and waits for the food package

Delivery person confirms the pick-up of the food package

S/he travels to the customer's location to deliver the food

Delivery person confirms the drop-off

Customer can rate the order

METHODOLOGY:

Provide the right data driven insights to help FoodHub enhance their customer experience

Problem

FoodHub does not have data driven insights to inform operational business decisions

Solution

Use univariate and bivariate analysis to analyze the data

Use data visualization to fairly describe the demand of different restaurants and justify business recommendations

OBJECTIVES:

Improve customer satisfaction and customer retention

Increase company revenue and market share

METHODOLOGY

Provide the right data driven insights to help FoodHub enhance their customer experience

UNIVARIATE
ANALYSIS

MULTIVARIATE
ANALYSIS

Data driven insights can help improve operational performance

This unmanipulated data will further provide FoodHub with valuable strategic business insights

**TOTAL
ROWS**
1898

**TOTAL
COLUMNS**
9

There are no missing values in the data

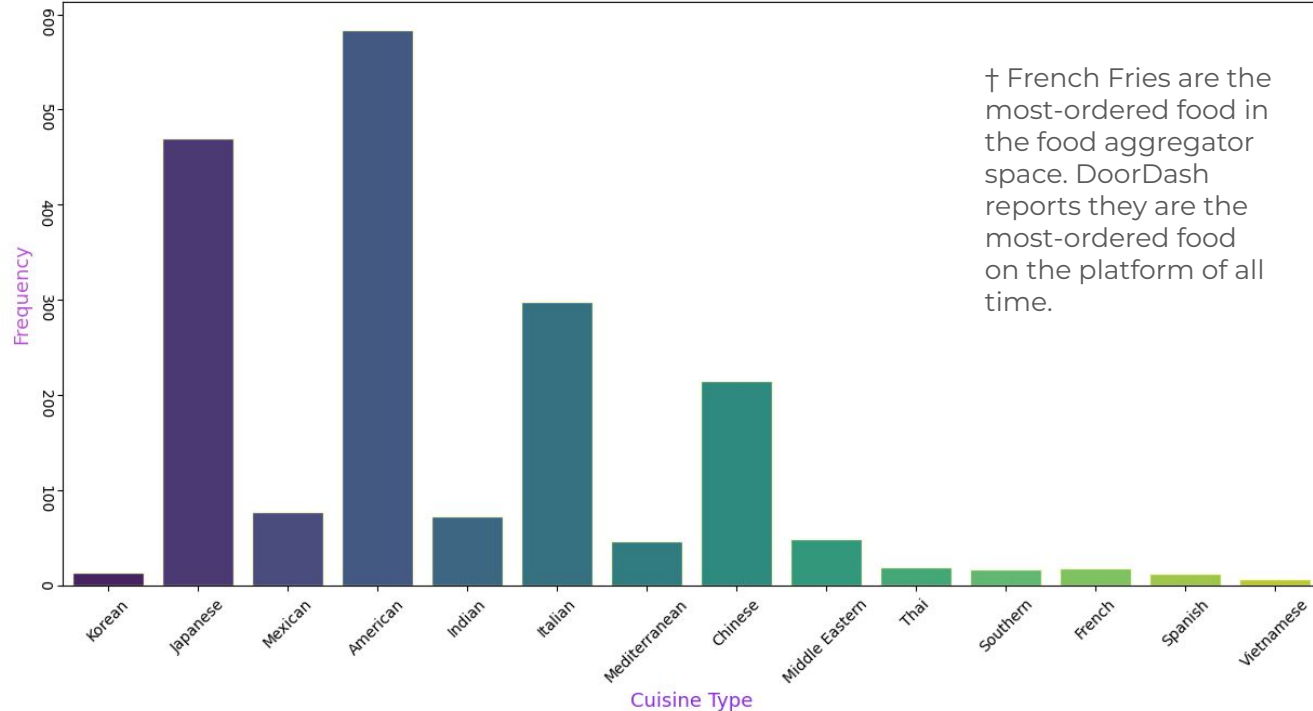
Order ID	1898 unique orders		
Customer ID	1200 unique customers		
Restaurant Name	178 participating restaurants		
Cuisine Type	14 cuisine types		
Cost of the Order	Average = \$16.50	7.5	10
Day of the week	Divided into weekends and weekdays		
Rating	736 orders have not been rated		
Food Preparation Time	Average = 27	4.6	8
Delivery time	Average = 24	5.0	8

Standard
of
Deviation

IQR

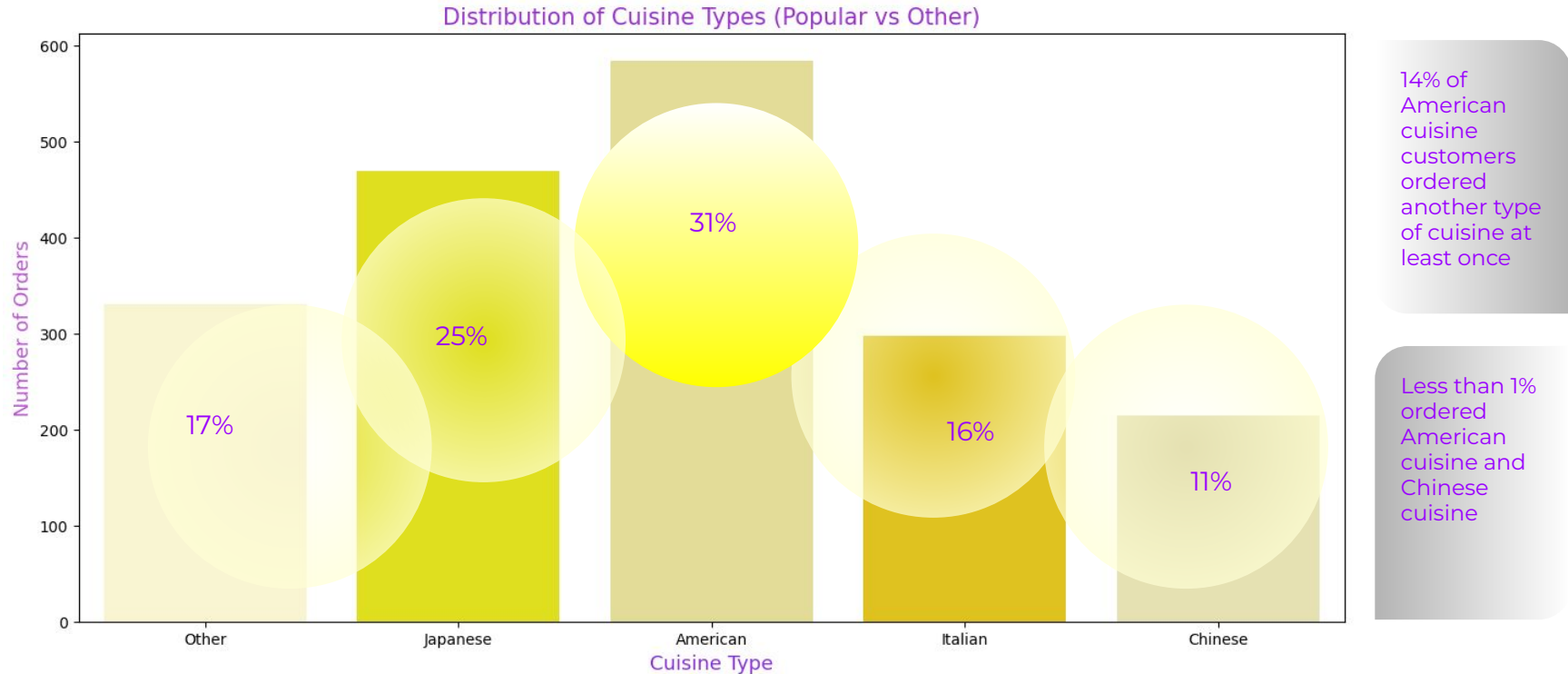
American cuisine is the most popular choice on FoodHub and in the entire food aggregator market

Number of orders distributed by cuisine type

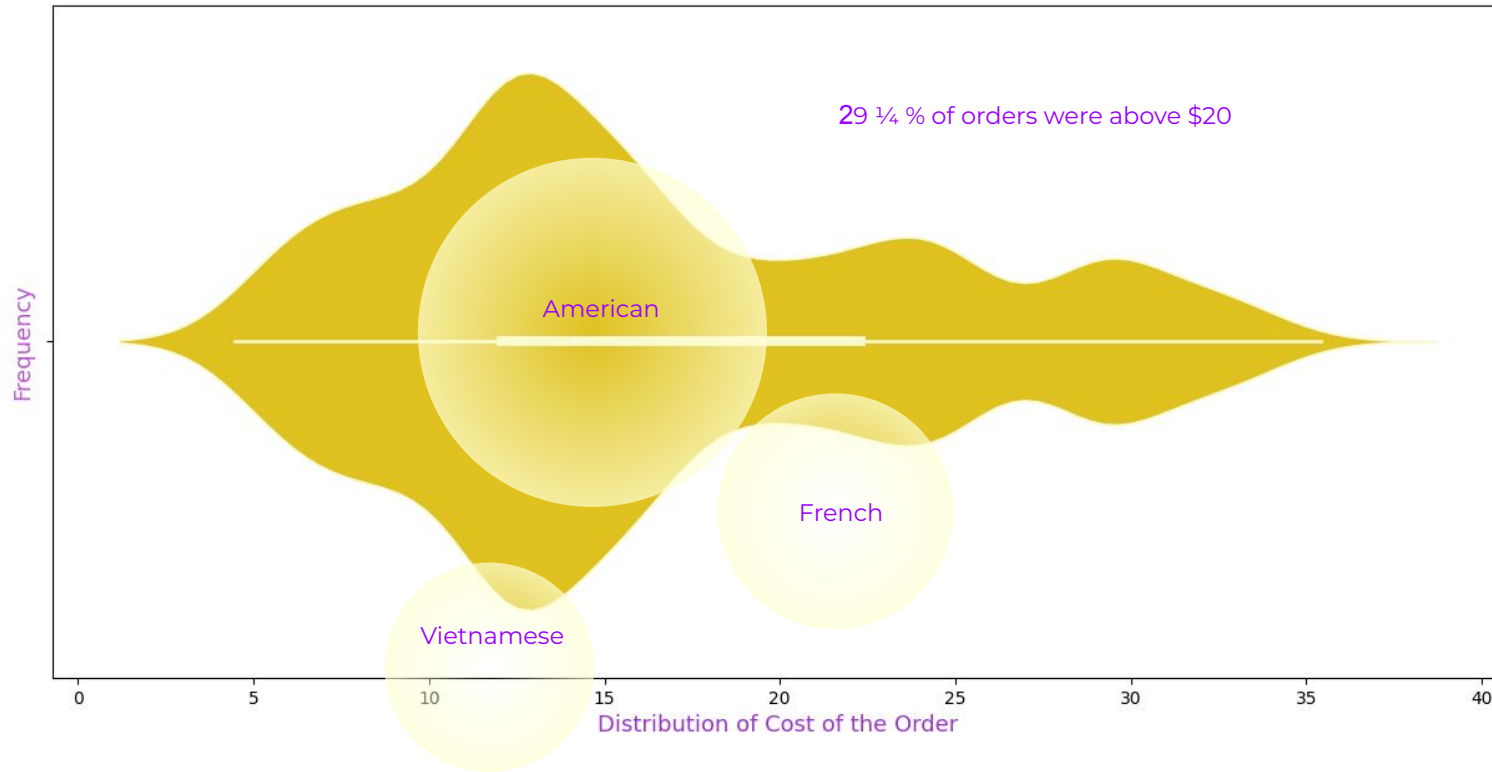


Source:
† DoorDash Investor Relations
~ Statista

American, Japanese, Italian and Chinese cuisines are the most popular
The top two cuisines comprise the majority (56%) of orders on FoodHub



The average cost of an order is \$16.50 with an interquartile range of \$10.22
The minimum order is \$4.47 and the maximum order is \$35.41



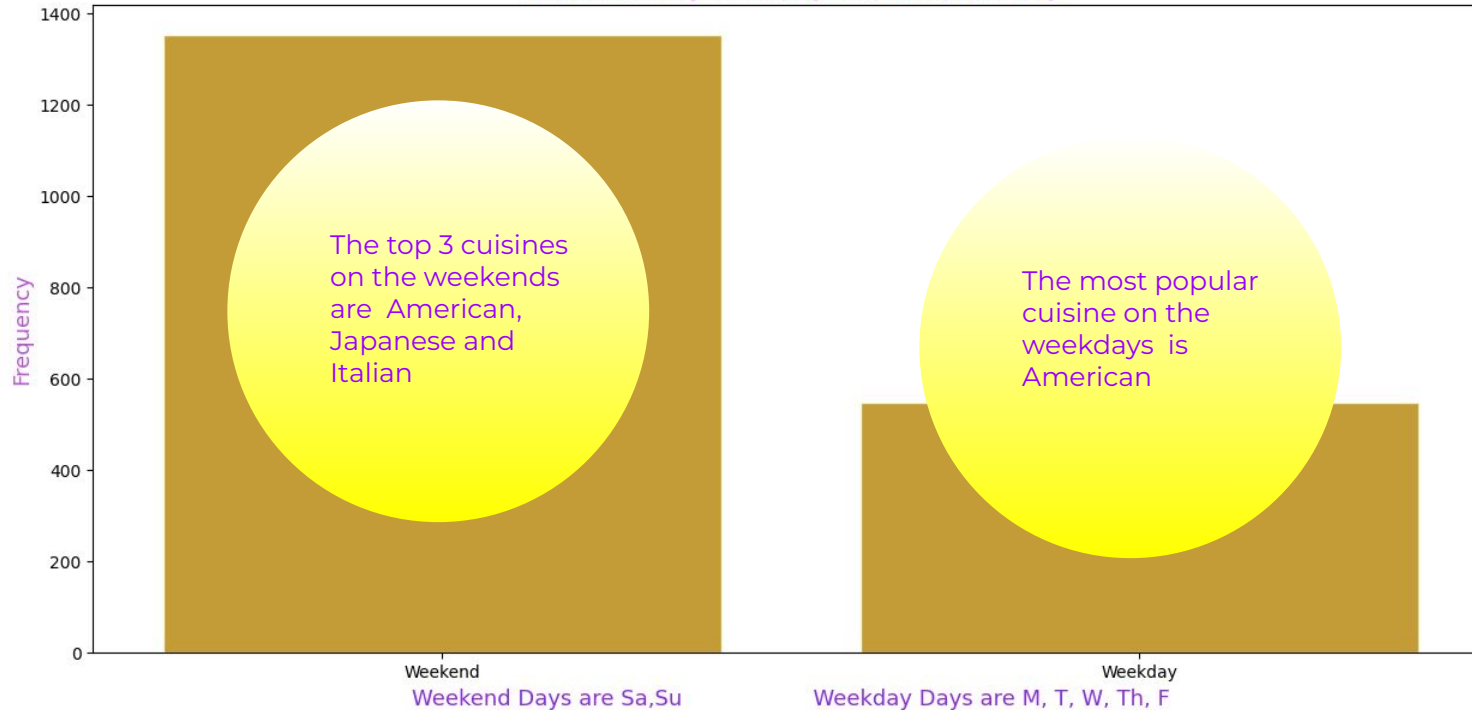
The average order for a food app delivery order is \$36.20†

The mean FoodHub order is almost half of the industry trend

Source:
† PYMTS Research

Weekend volume is more than 2X weekday volume

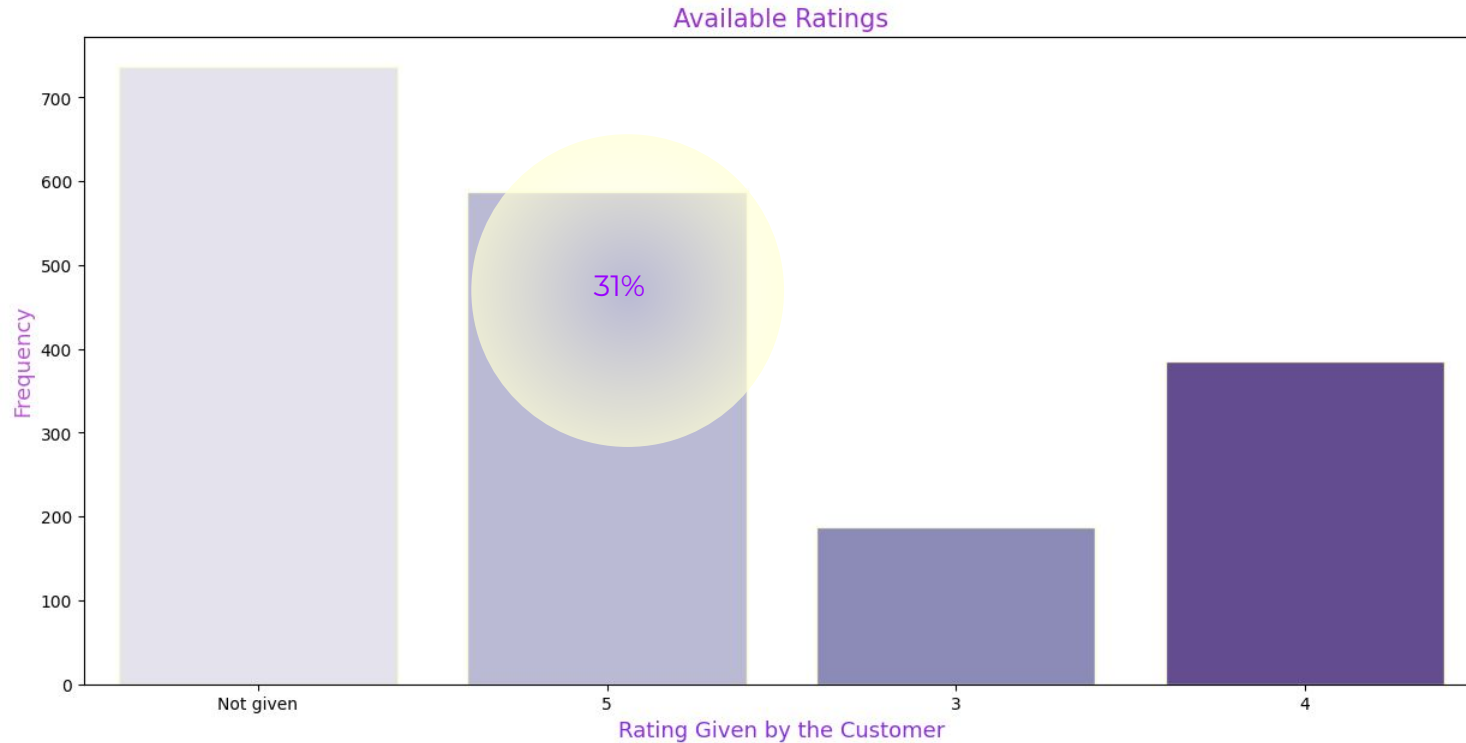
Distribution by Weekday and Weekend Day



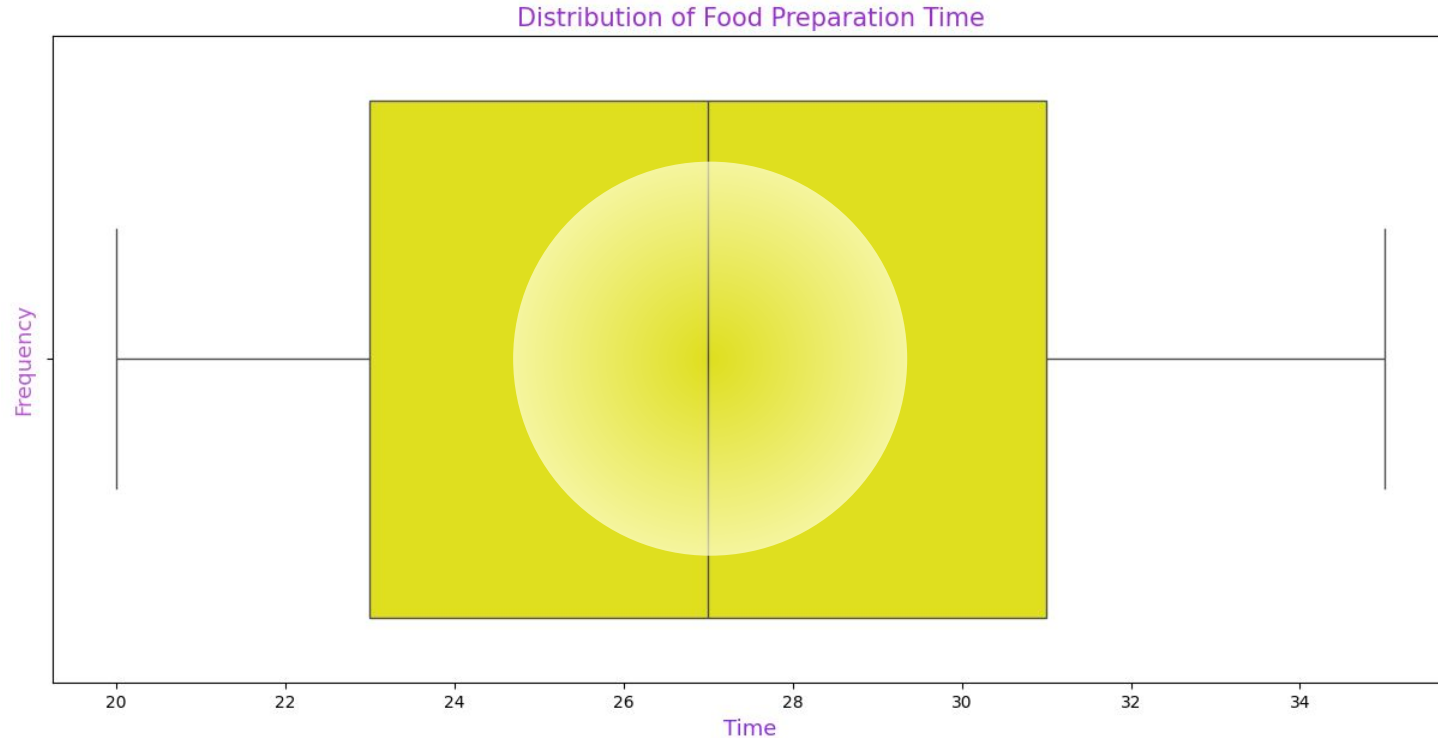
The median price of an order on a weekend day is \$14.41

The median price of an order on a weekday is \$14.07

FoodHub is getting reasonably good ratings, with 5 being the most frequent rating
38.78% of orders are not rated

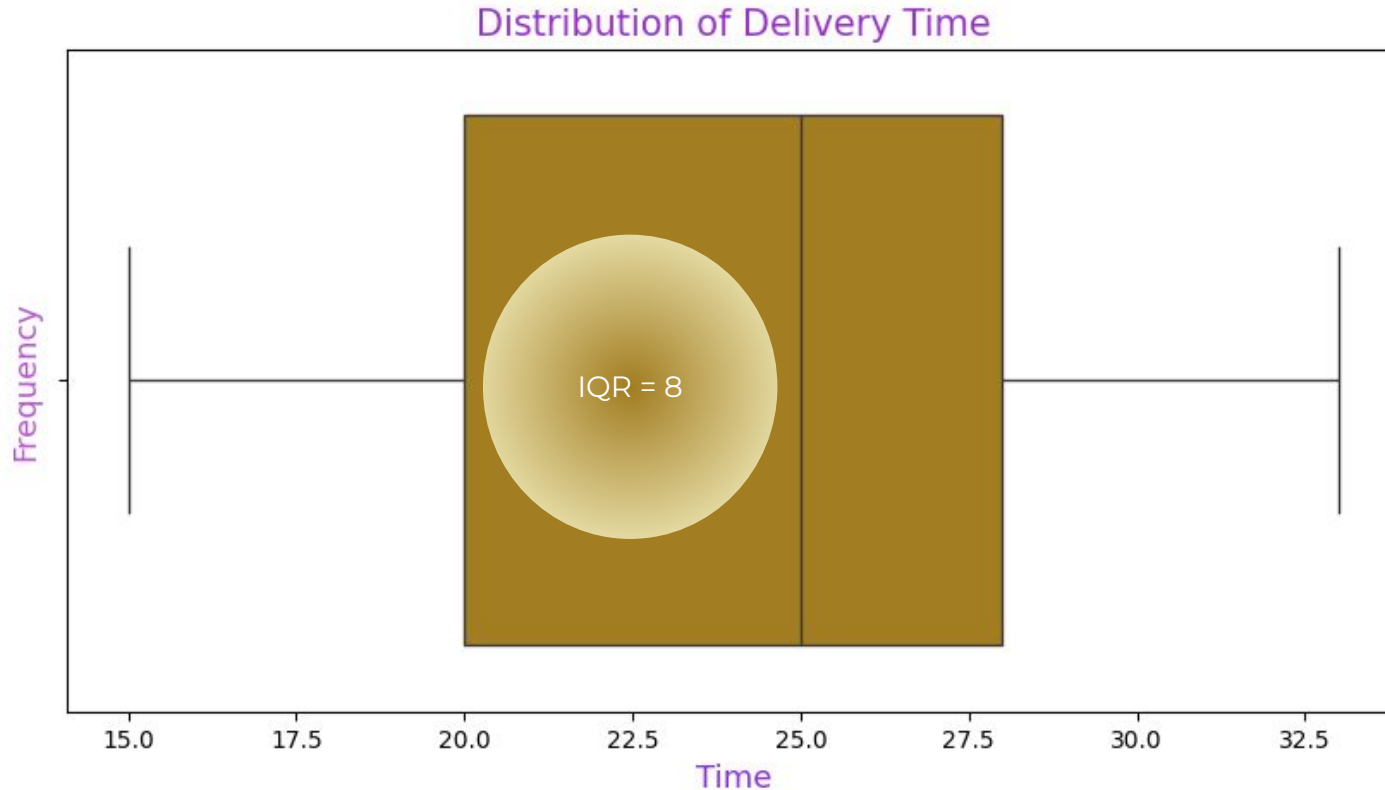


The average food preparation time of participating restaurants is 27 minutes
There is a normal distribution of the delivery time with a standard deviation of 4.6 minutes



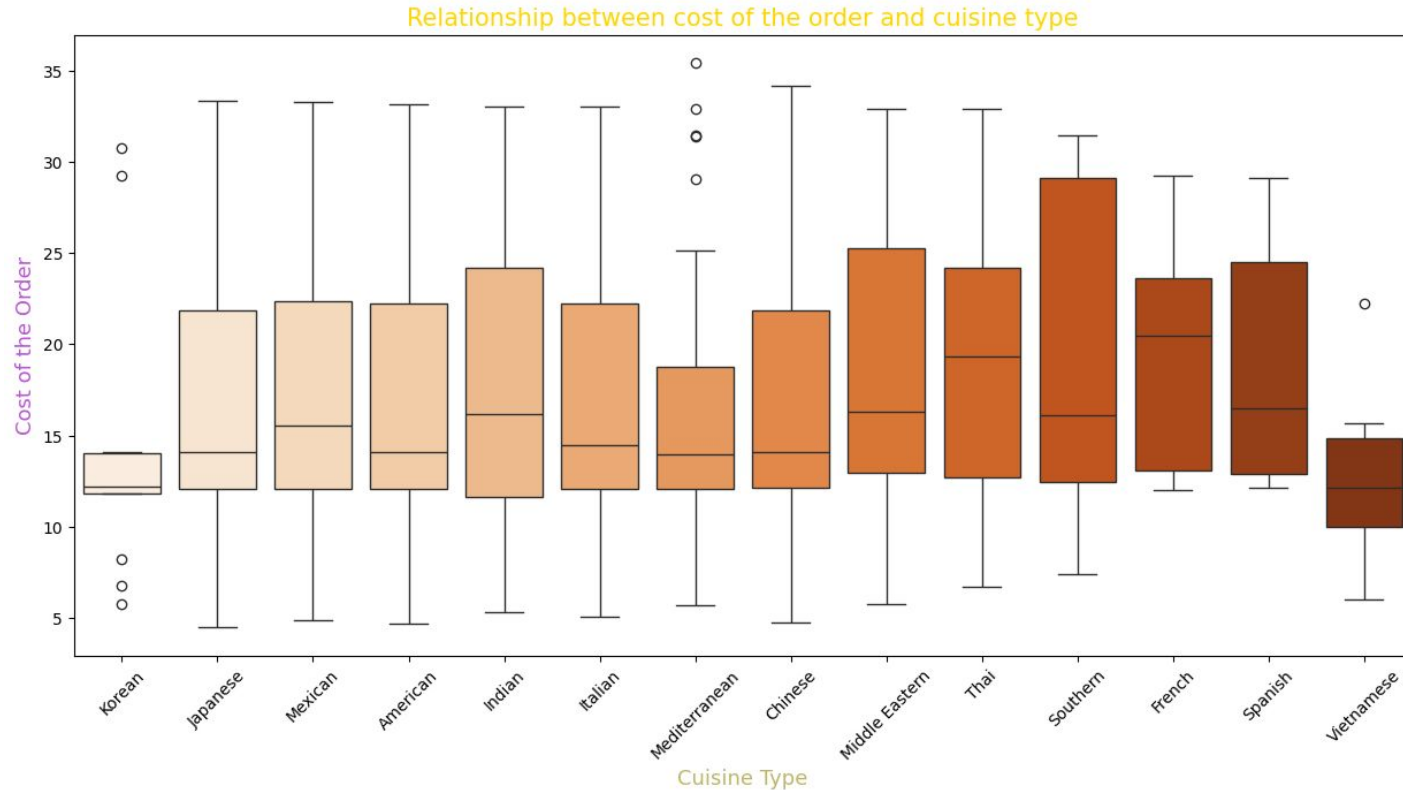
The average delivery time is 24 minutes

There is a right skewed distribution of the delivery time with a standard deviation of 5 minutes



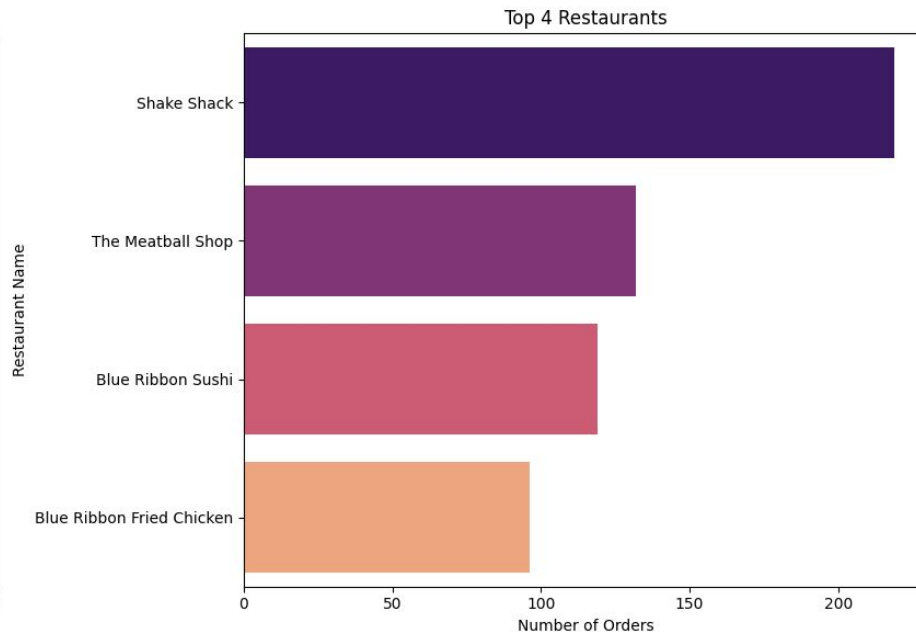
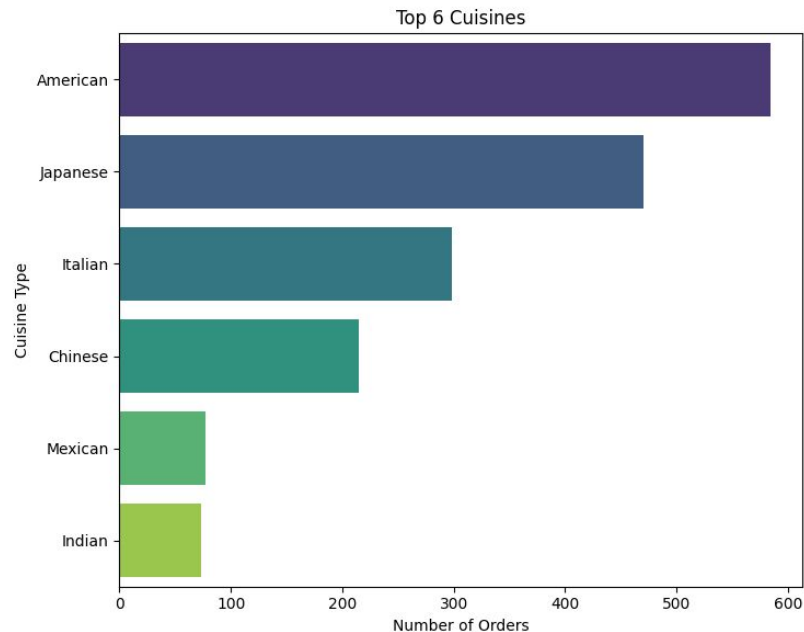
10.54 %
of orders
take more
than 60
minutes to
deliver

There is a significant variation inside the cost of the orders data in all of the cuisine groups with the exception of Vietnamese and Thai

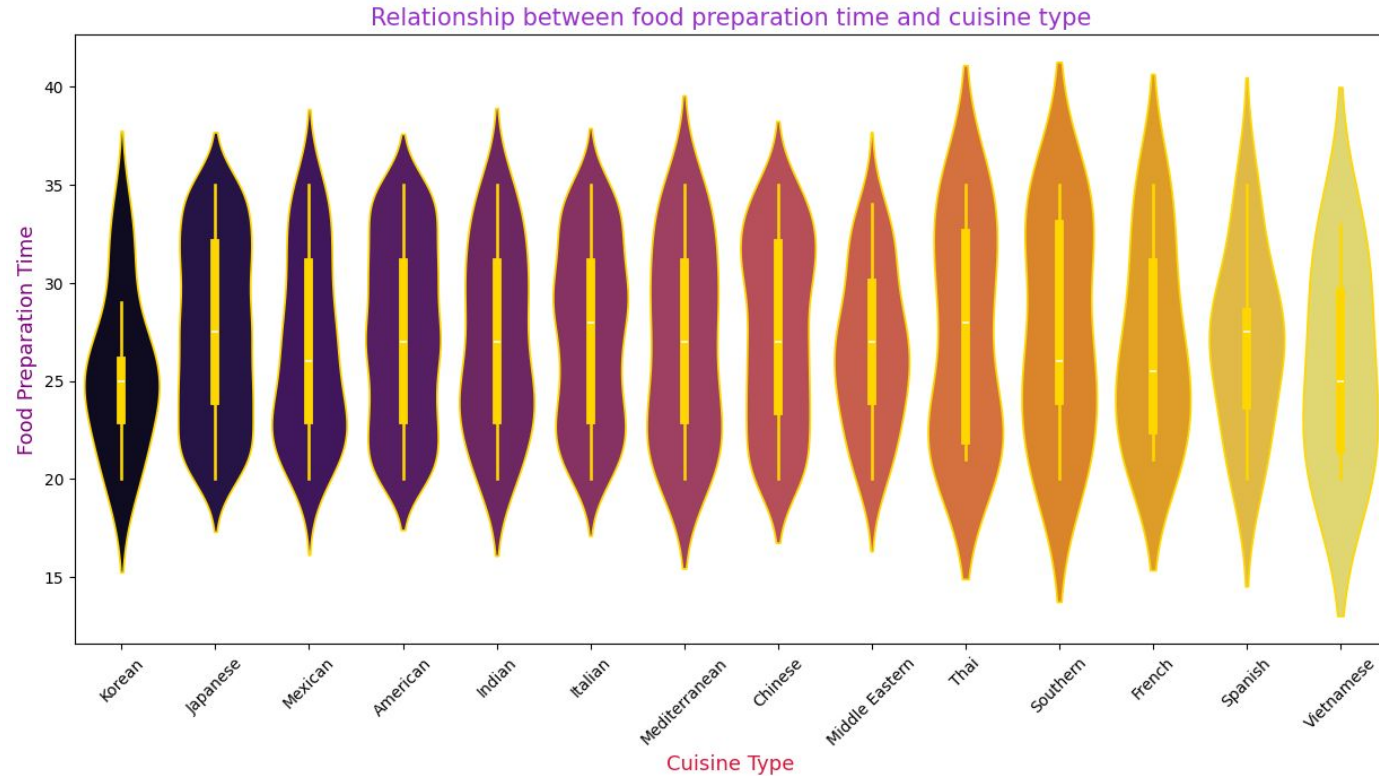


The top four restaurants reflect the top two cuisines

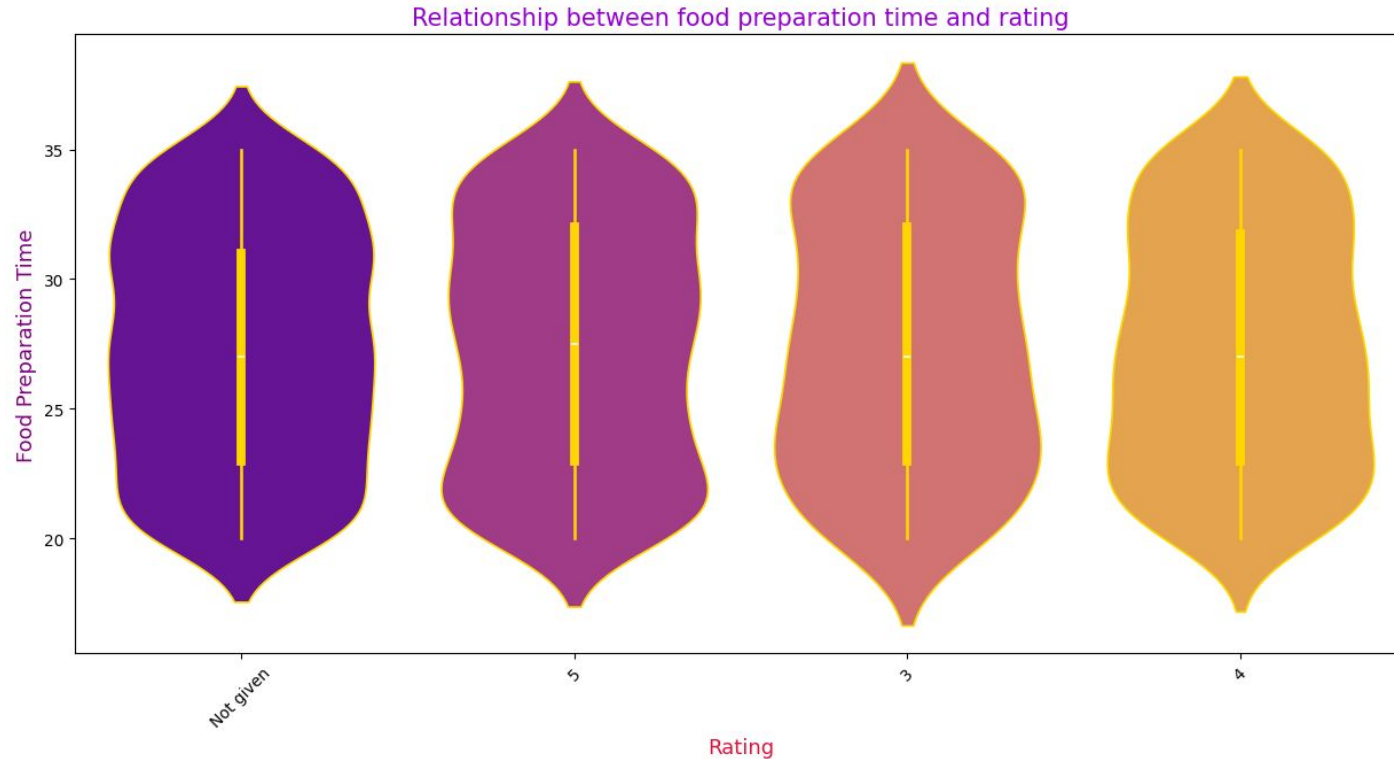
There are 41 American restaurants and 2 Southern restaurants, with some overlap in menu items



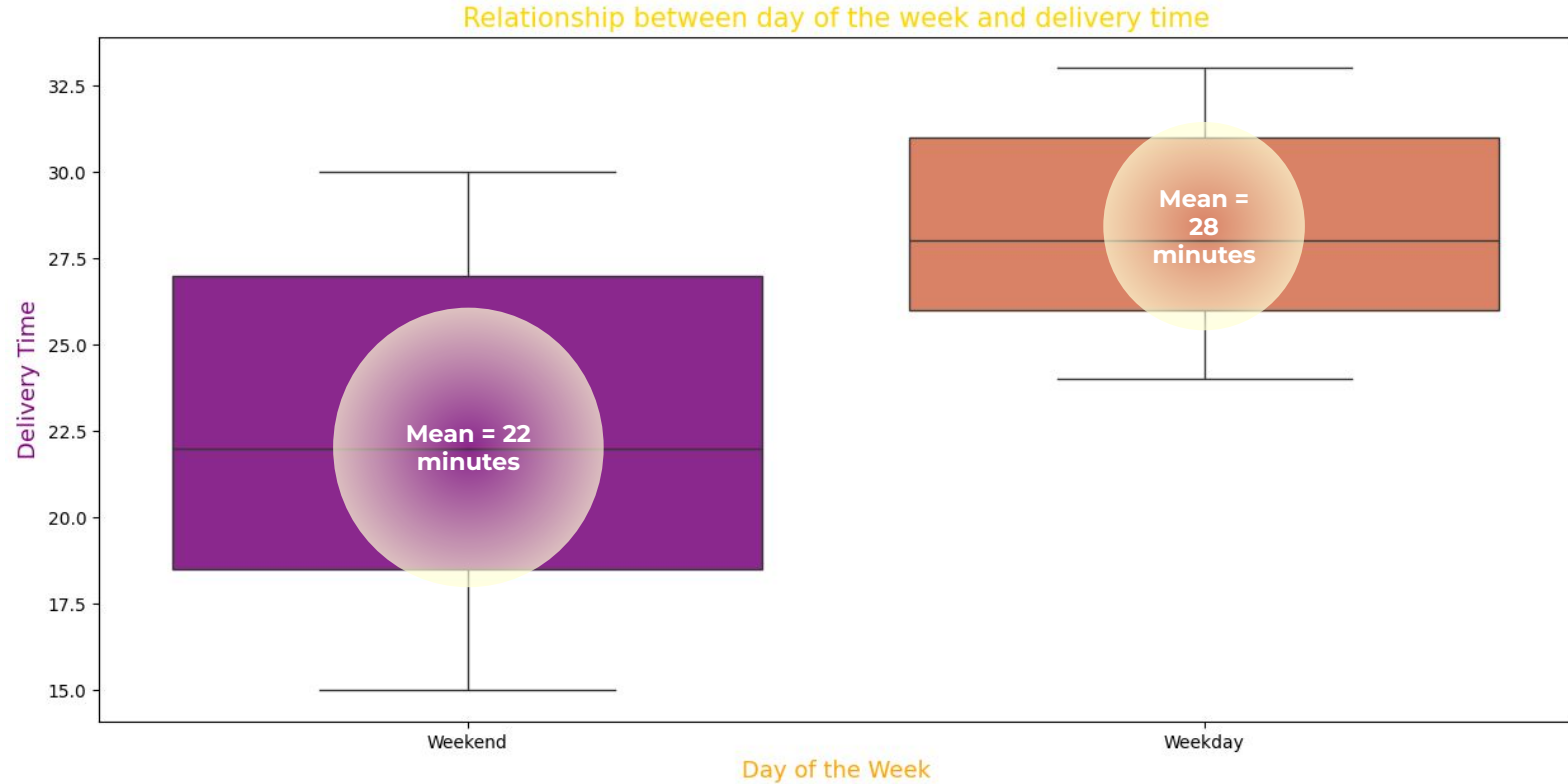
There is a significant spread to the data in the food preparation time from less than 15 minutes to greater than 40 minutes



There is a similar spread and distribution of correlated food preparation time to rating data
Food preparation time did not affect customer satisfaction with their order

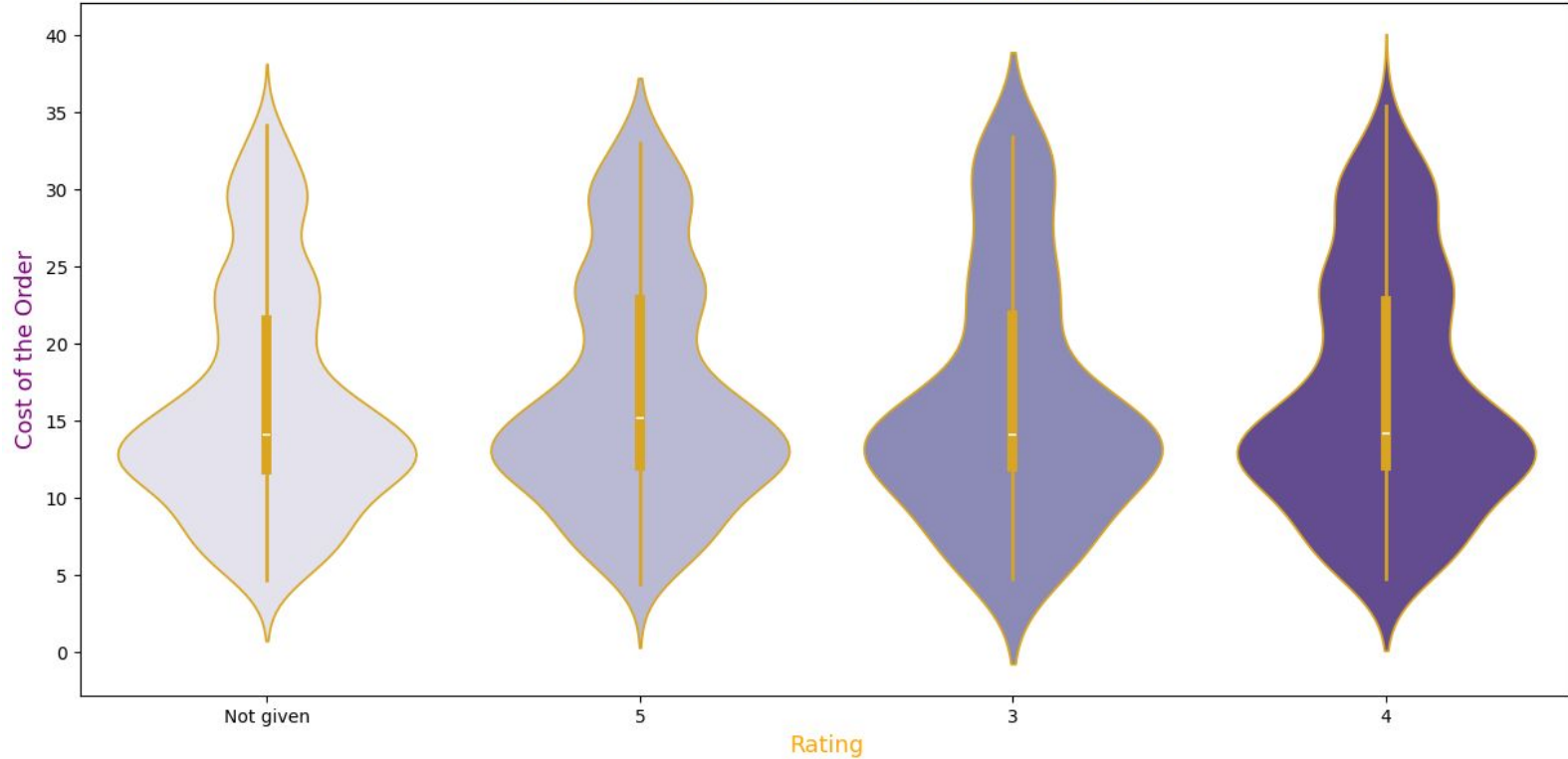


There is a very significant difference between weekend delivery time and weekday delivery time



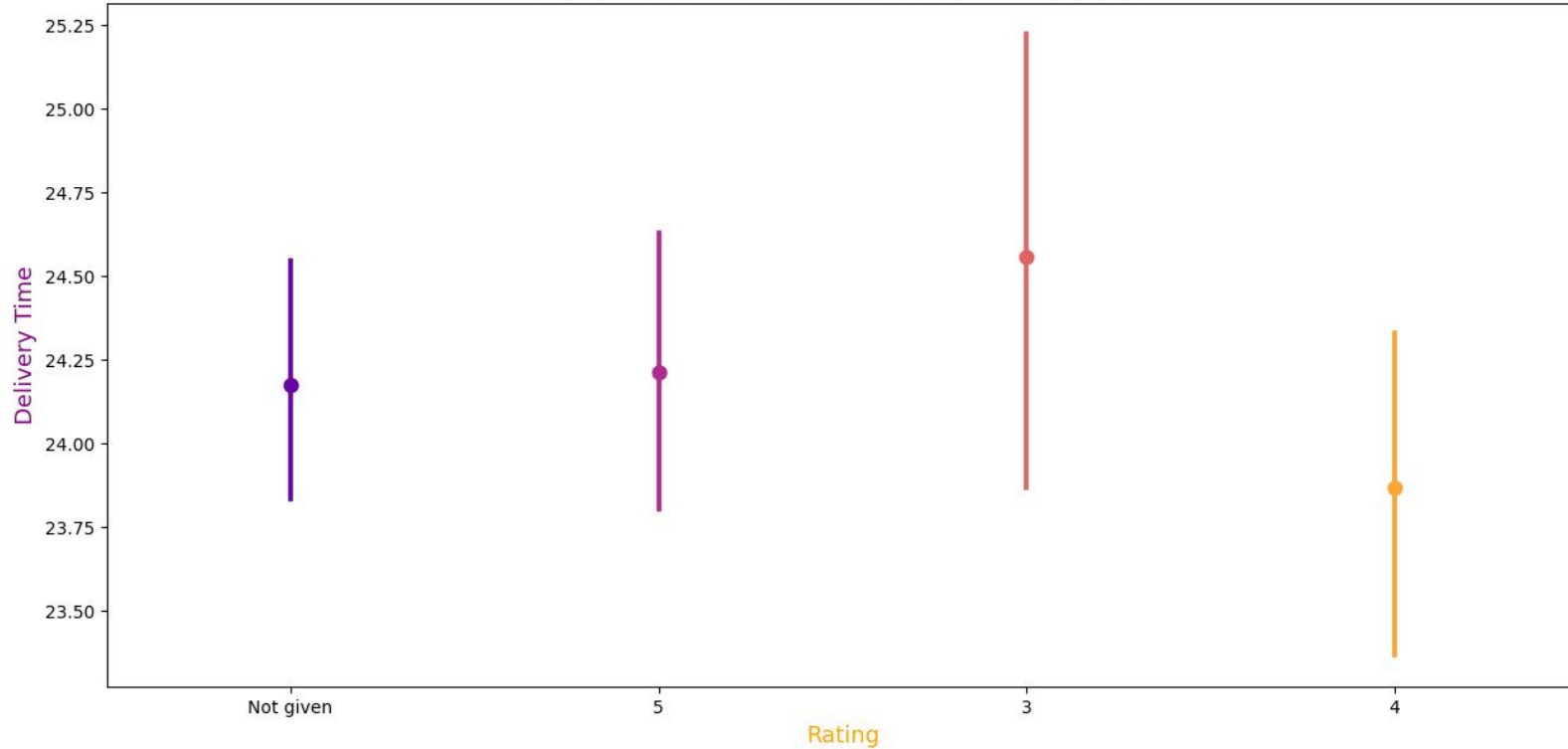
There is a similar spread and distribution of order cost as correlated to rating data
The cost of the order did not affect customer satisfaction according to their rating

Relationship between rating and cost of the order



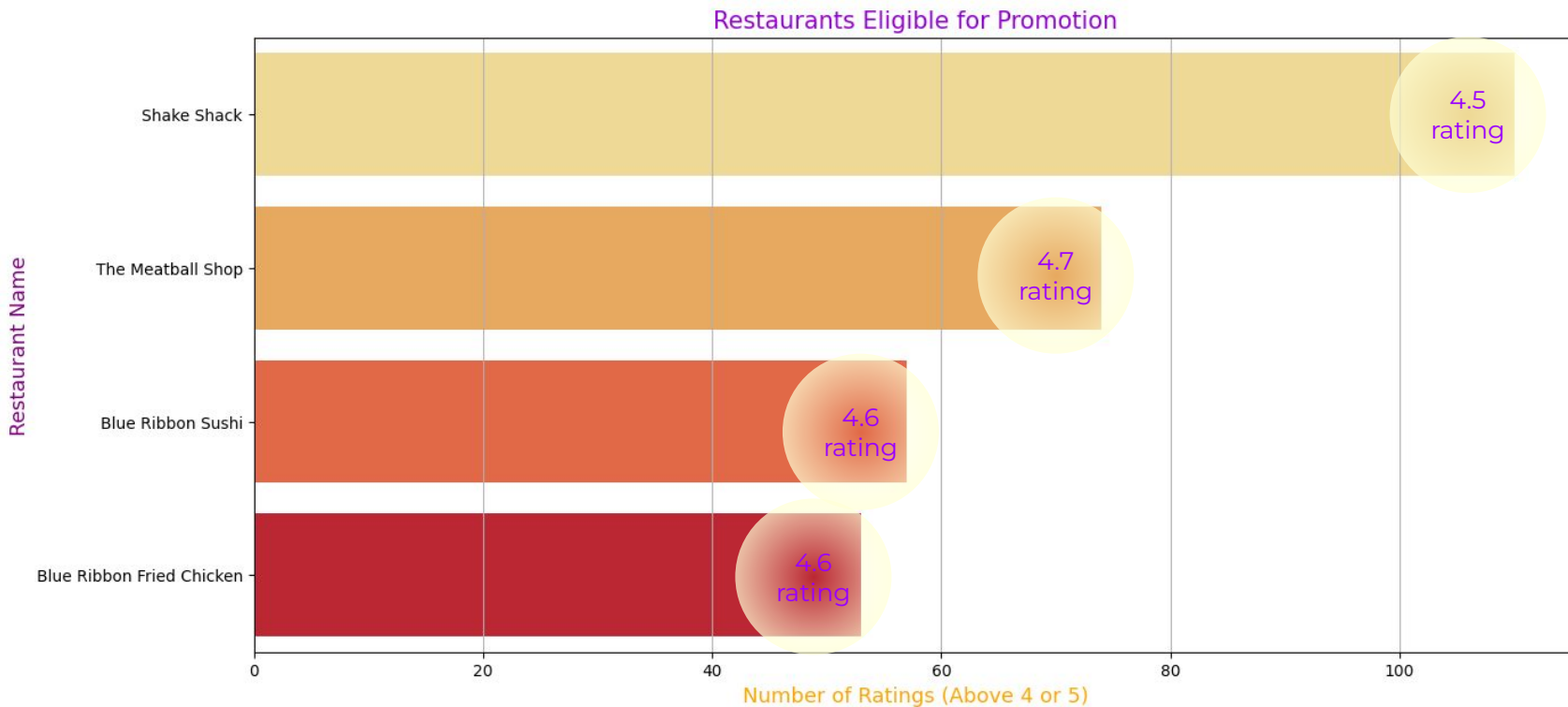
There is a correlation between longer delivery time and lower customer satisfaction

Relationship between rating and delivery time

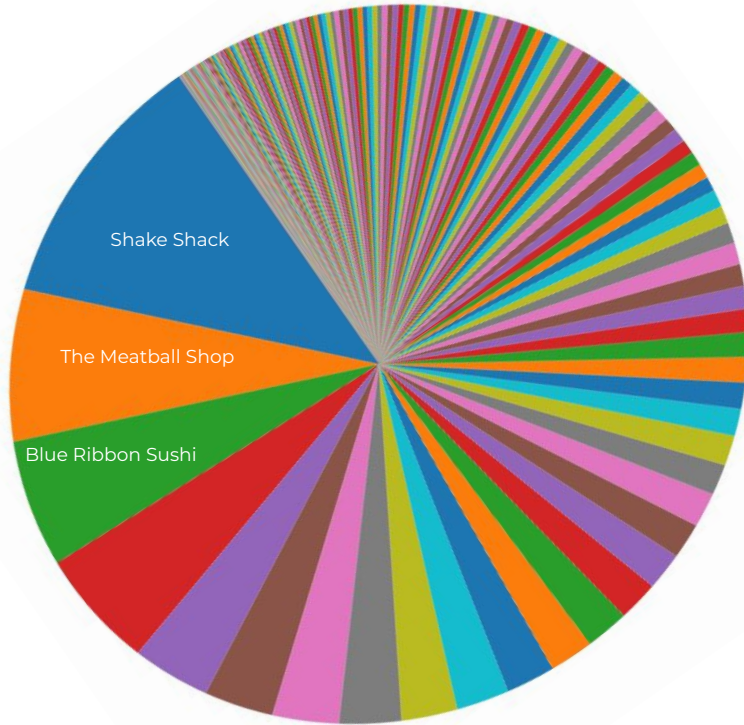


The restaurants eligible for a promotion are:

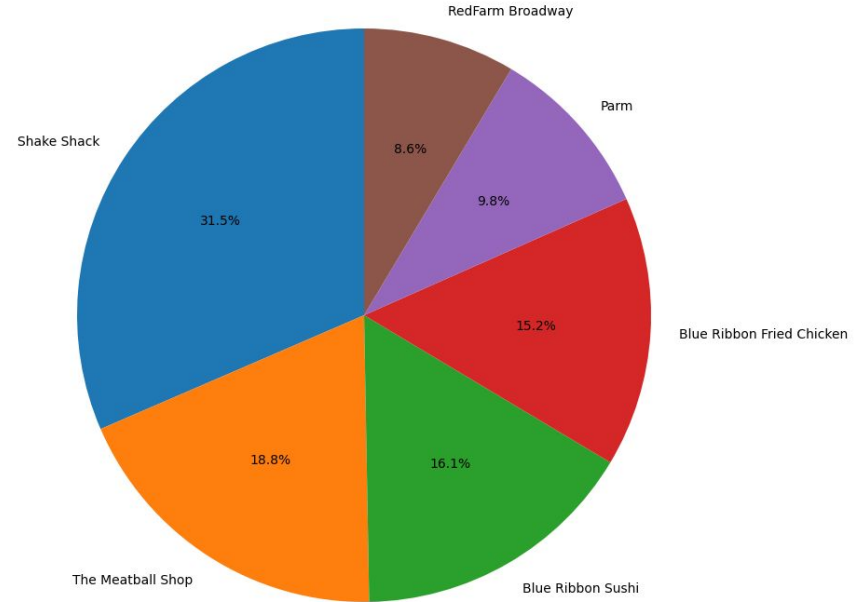
Shake Shack, The Meatball Shop, Blue Ribbon Sushi and Blue Ribbon Fried Chicken



The Net Revenue generated by the company is \$6166.30



Revenue Distribution by Restaurant (Above 3%)



Refer to Appendix for full list of participating restaurants

EXECUTIVE SUMMARY: PART I

Customer browses and orders food from a mobile app

Most revenue comes from a handful of restaurants

FoodHub's average order is over 30% less than the national trend

App assigns a delivery person from the company to pick up the order

- ❖ 34% of potential customers search for food orders directly on an app, 22% on restaurant website and 16% via the internet~
- ❖ DoorDash reported 20% attrition due to customer preference to order by phone
- ❖ Add automated phone order system
- ❖ Build a website

- ❖ Develop promotions to divert traffic to less in demand restaurants that offer similar items on weekend days
- ❖ Increase exclusive partnerships with well known national chain restaurants to benefit from existing brand awareness and brand loyalty

- ❖ According to DoorDash, alcohol deliveries have doubled between 2022 and 2023†
- ❖ Promote a drink order to the customer while s/he waits for their food order
- ❖ Offer promotions on appetizers and desserts

- ❖ There is 2X volume on weekend days
- ❖ Weekday deliveries take 26% more time than weekend day deliveries
- ❖ Research reasons for delivery delays

† Source: DoorDash Investor Relations
~ Persuasion-Nation

EXECUTIVE SUMMARY: PART II

Delivery person uses the map to reach the restaurant and waits for the food package

Delivery person drops off the food package

Restaurant Matrix

Food aggregator business overview

- ❖ Weekend deliveries take 20% less time than weekend day deliveries
- ❖ Enhance delivery map to improve delivery routes
- ❖ Increase bicycle deliveries on weekdays

- ❖ 40% of orders don't receive a rating
- ❖ Coach delivery people to kindly ask the customer to rate their experience
- ❖ Food packages currently do not include printed coupons
- ❖ Include printed coupon in food delivery package

- ❖ FoodHub has 178 participating restaurants
- ❖ Over 50% of revenue comes from the top 14 restaurants
- ❖ Conduct A/B promotions on like menu items to divert traffic away from busy restaurants to improve customer experience and partner relations

- ❖ At an annual projected growth rate of 9.76%, the market volume is projected to reach US\$560.70bn by 2029
- ❖ Competitors are partnering with grocery stores
- ❖ Chain restaurants are more receptive to partnerships

Source: McKinsey & Company

APPENDIX

Shake Shack	Sarabeth's Restaurant	Dickson's Farmstand Meats	Amy Ruth's	Balade
The Meatball Shop	L'Express	Mamoun's Falafel	Piccolo Angelo	Gaia Italian Cafe
Blue Ribbon Sushi	Delicatessen	Byblos Restaurant	The Odeon	Chola Eclectic Indian Cuisine
Blue Ribbon Fried Chicken	Café China	Bistango	Despal±a	Woorijip
Parm	Burger Joint	Donburi-ya	Izakaya Ten	'wichcraft
RedFarm Broadway	Benihana	da Umberto	Big Daddy's	La Follia
RedFarm Hudson	Xi'an Famous Foods	Hummus Place	Mira Sushi	Market Table
TAO	Yama 49	Schnipper's Quality Kitchen	Bukhara Grill	Wa Jeal
Han Dynasty	Hatsuhana	V-Nam Cafe	Olive Garden	Cipriani Le Specialita
Rubirosa	Sarabeth's East	indikitch	Xe May Sandwich Shop	Big Wong Restaurant 大 Wong 餐厅
Sushi of Gari 46	Pepe Rosso To Go	Le Grainne Cafe	brgr	Hunan Manor
Nobu Next Door	Vanessa's Dumpling House	Lucky's Famous Burgers	Haandi	
Blue Ribbon Sushi Bar & Grill	Sarabeth's	UVA Wine Bar & Restaurant	Zero Otto Nove	
Chipotle Mexican Grill \$1.99 Delivery	Cafeteria	Hot Kitchen	Anjappar Chettinad	
Five Guys Burgers and Fries	12 Chairs	Tarallucci e Vino Restaurant	Chote Nawab	
Momoya	Waverly Diner	Friend of a Farmer	Galli Restaurant	
Blue Ribbon Sushi Izakaya	Pylos	Olea	Cafe de La Esquina	
Jack's Wife Freda	Grand Sichuan International	Hangawi	Taro Sushi	
Tamarind TriBeCa	5 Napkin Burger	Room Service	Paul & Jimmy's	
ilili Restaurant	Lantern Thai Kitchen	Dirty Bird to Go	Spice Thai	
Bareburger	Dos Caminos	Kambi Ramen House	Crema Restaurant	
Sushi of Gari Tribeca	Kanoyama	Tortaria	Dig Inn Seasonal Market	
Cafe Mogador	The Loop	Haveli Indian Restaurant	Nha Trang One	
Westville Hudson	Mission Cantina	El Parador Cafe	Le Zie 2000 Trattoria	
Hill Country Fried Chicken	Carmine's	Emporio	Moonstruck on Second	
The Kati Roll Company	Cho Dang Gol	Haru Gramercy Park	Pepe Giallo	
PJ. Clarke's	Bhatti Indian Grill	Il Bambino	Wo Hop Restaurant	
Sushi of Gari	Serafina Fabulous Pizza	Lucky Strike	Sarabeth's West	
The Smile	Go! Go! Curry!	Rohm Thai	Hibino	
Yama Japanese Restaurant	DuMont Burger	Klong	Sushi Choshi	
Otto Enoteca Pizzeria	Tres Carnes	67 Burger	Hiroko's Place	
Vanessa's Dumplings	Amma	Ravagh Persian Grill	Coppola's East	
Balthazar Boulangerie	Blue Ribbon Brooklyn	Pongsri Thai	Dos Caminos Soho	
Cafe Habana	Tony's Di Napoli	Aurora	Alidoro	
Empanada Mama (closed)	Asuka Sushi	Terakawa Ramen	Hampton Chutney Co.	
Sushi Samba	Bubby's	Socarrat Paella Bar	Kori Restaurant and Bar	
Boqueria	Song Thai Restaurant & Bar	Posto	The MasalaWala	
Melt Shop	Pinto Nouveau Thai Bistro	Philippe Chow	Rye House	
J. G. Melon	Barbounia	Prosperity Dumpling	Frank Restaurant	
S'MAC	Saravanaa Bhavan	Don's Bogam BBQ & Wine Bar	Samurai Mama	
Osteria Morini	Joe's Shanghai 老上海	Five Leaves	Lamarca Pasta	
Junoon	Vezzo Thin Crust Pizza	Dirty Bird To Go (archived)		