FoodHub Data Analysis

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Abstract

Data analysis of online food orders in NYC for FoodHub, an app connecting customers with restaurants. We identified consumption patterns, cuisine popularity, and key factors influencing customer satisfaction. The solution provided strategic recommendations to enhance user experience, increase weekday orders, and optimize partnerships with restaurants based on performance and customer ratings.

Introduction

Context

The number of restaurants in New York is increasing day by day. Lots of students and busy professionals rely on those restaurants due to their hectic lifestyles. Online food delivery service is a great option for them. It provides them with good food from their favorite restaurants. A food aggregator company FoodHub offers access to multiple restaurants through a single smartphone app.

The app allows the restaurants to receive a direct online order from a customer. The app assigns a delivery person from the company to pick up the order after it is confirmed by the restaurant. The delivery person then uses the map to reach the restaurant and waits for the food package. Once the food package is handed over to the delivery person, he/she confirms the pick-up in the app and travels to the customer's location to deliver the food. The delivery person confirms the drop-off in the app after

delivering the food package to the customer. The customer can rate the order in the app. The food aggregator earns money by collecting a fixed margin of the delivery order from the restaurants.

Objective

The food aggregator company has stored the data of the different orders made by the registered customers in their online portal. They want to analyze the data to get a fair idea about the demand of different restaurants which will help them in enhancing their customer experience. Perform the data analysis to find answers to these questions that will help the company to improve the business.

Data Description

The data contains the different data related to a food order. The detailed data dictionary is given below.

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

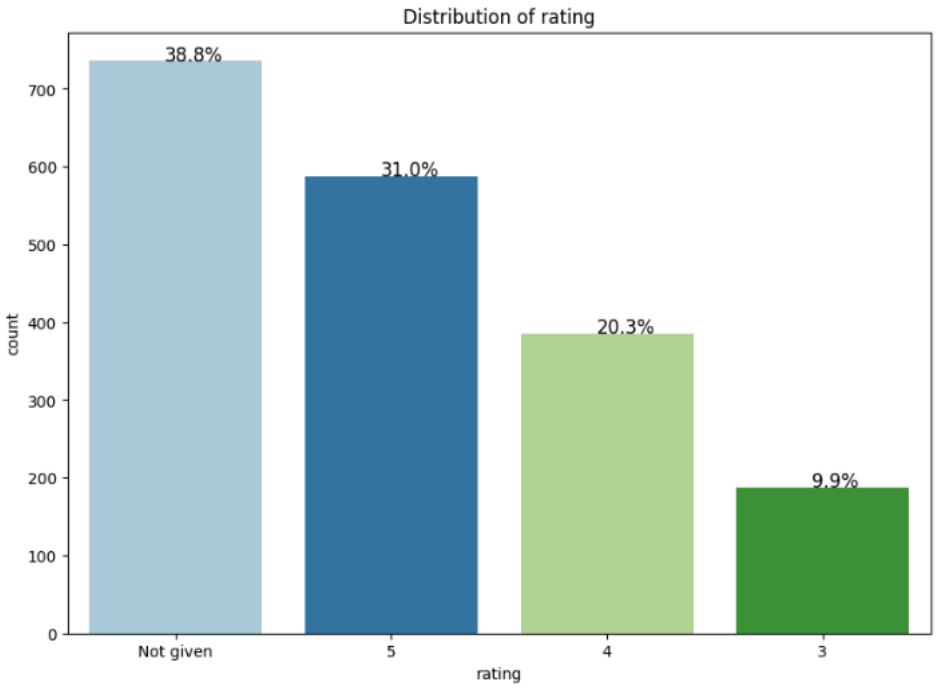
Results

We analyzed a dataset with information on nearly 2K restaurant orders placed online through the FoodHub app in New York City.

The main feature of interest here is the rating, which measures the customer's level of satisfaction with their order.

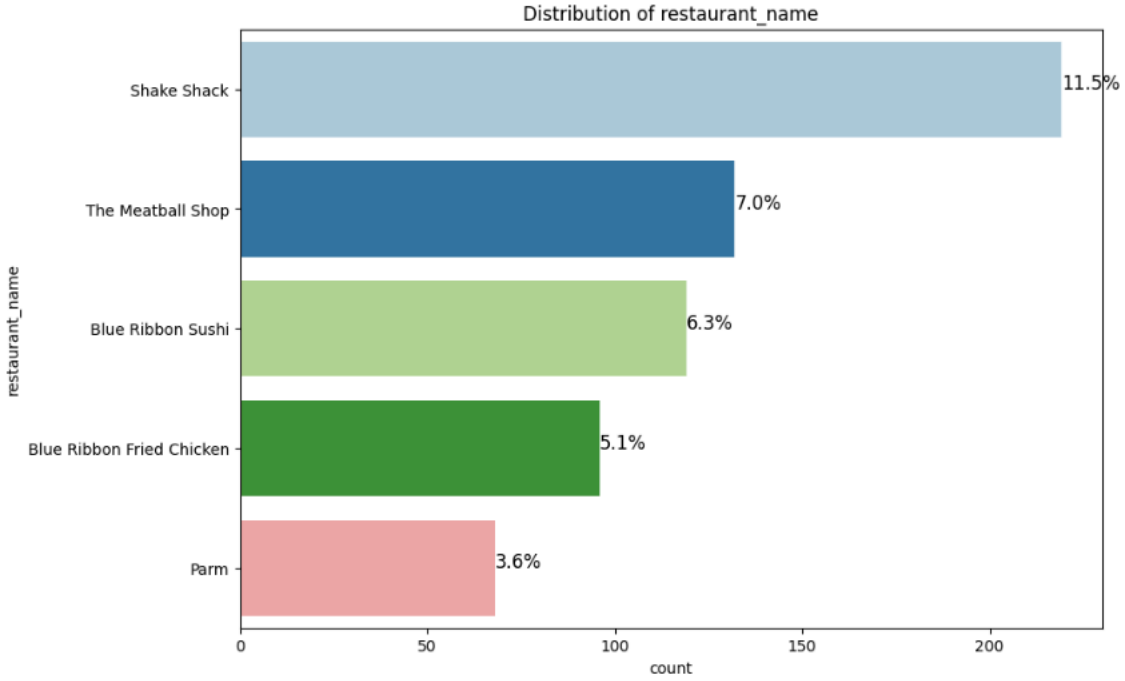
We have been able to conclude that:

- Most orders do not have an associated rating **(39%).** However, the rated orders have an average rating of **4.34 points**, which indicates a generally high level of satisfaction among customers.

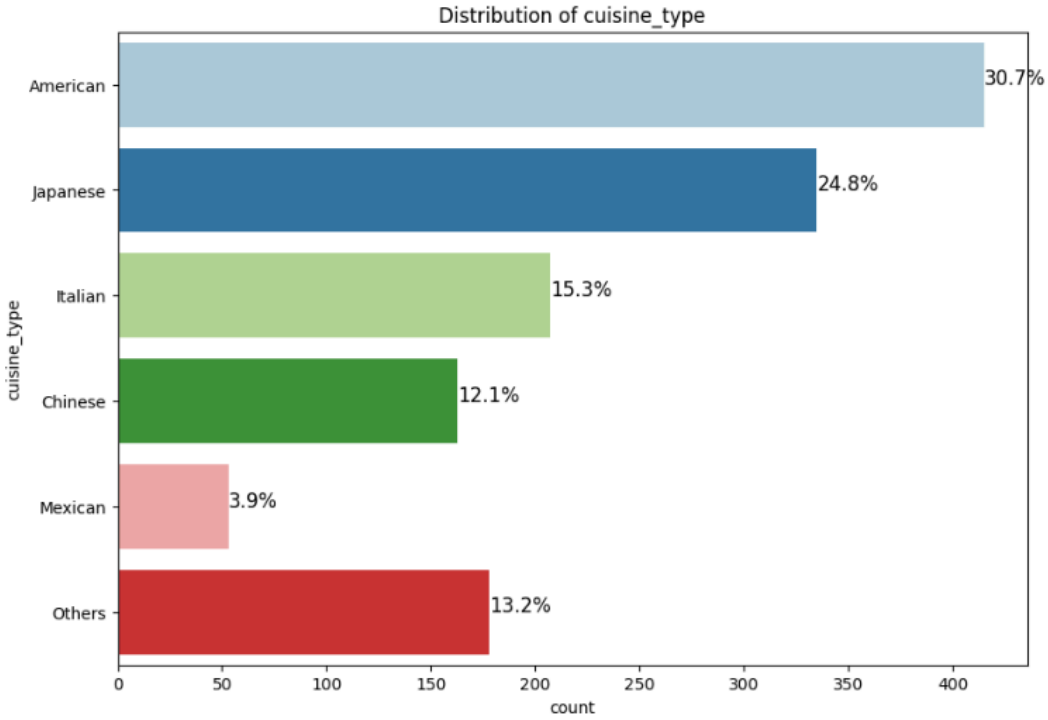


The major of the ratings are Not given or have a rating of 5 points. Only 9,9% of the orders have a rating of 3 points.

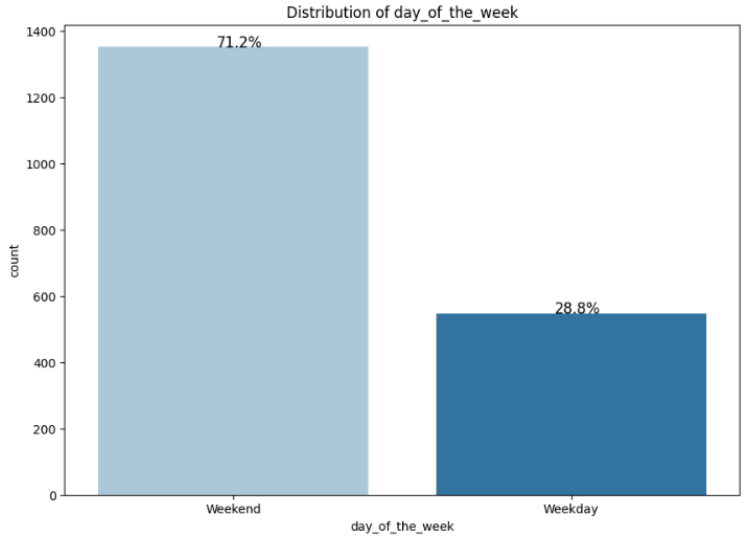
- The most popular restaurant with online orders through FoodHub in New York is **Shake Shack**.



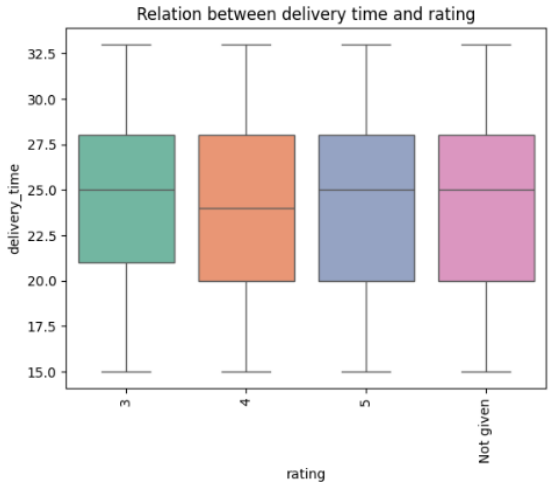
- The most popular cuisine types are **American** and **Japanese**.

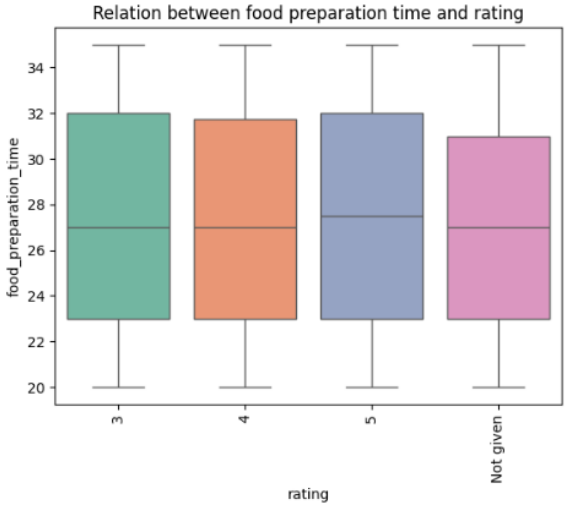


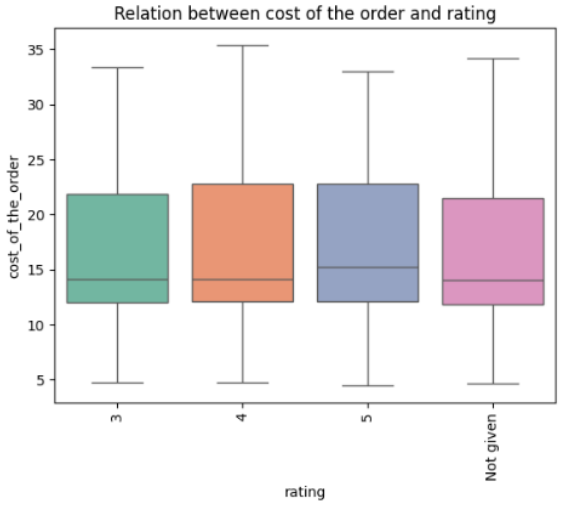
- There are more orders on weekends than on weekdays. Delivery time is significantly shorter on weekends compared to weekdays.



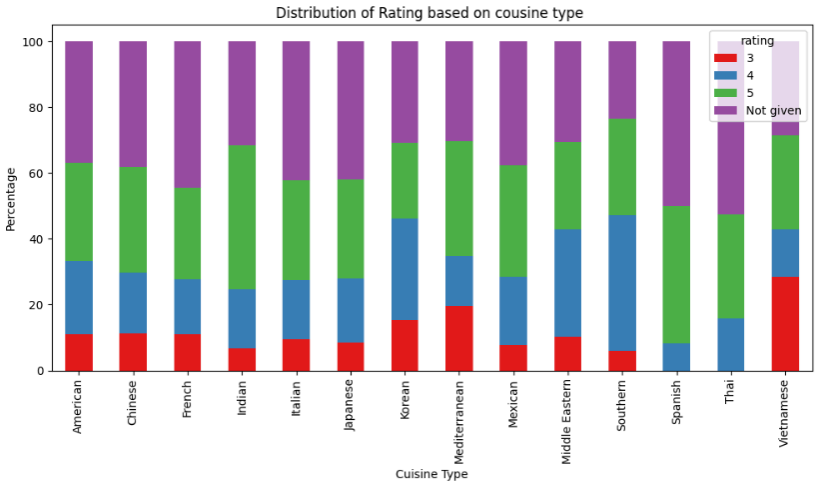
- Contrary to expectations, delivery time, food preparation time, and food cost do not seem to have much influence on the rating that the customer assigns to the order.

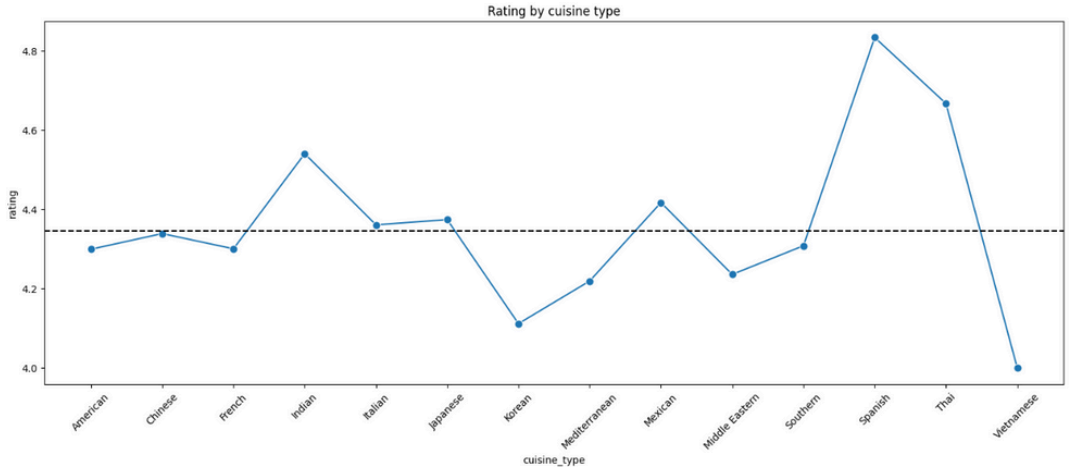


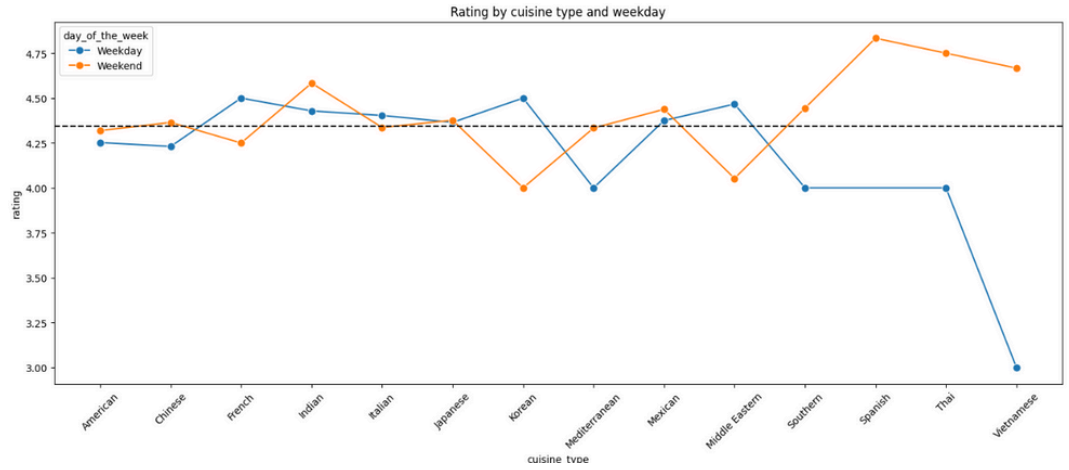


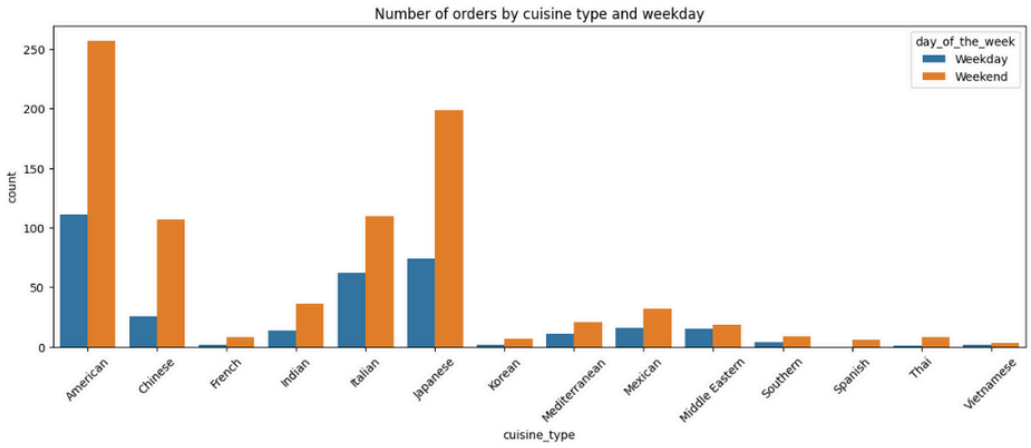


- The most relevant factor that impacts the rating of orders appears to be the **type of cuisine.**









Spanish, Thai, and Vietnamese cuisine have the highest average rating on weekends, but the l**owest average rating on weekdays**. However, the order volume for calculating these averages is very low, so caution should be taken with these conclusions.

Indian cuisine has a high average rating on weekends (approx. 4.6) compared to other types of cuisine. This could indicate that Indian restaurants tend to receive **better ratings** than others.

Korean and Middle Eastern restaurants have the lowest average ratings on weekends. However, the order volume for calculating this average is very low, so caution should be taken with these conclusions.

The same pattern occurs with the average rating in Southern, Thai, and Vietnamese cuisine restaurants on weekdays. They seem to have lower average ratings, but the number of

orders in these restaurants is also very low, so the rate may be distorted.

In Mediterranean food restaurants, something notable happens. The average rating on weekdays is lower compared to the weekend average (4 vs 4.30), which could suggest that **people tend to rate Mediterranean food better on weekends than on weekdays**.

In **French restaurants**, the average rating on weekends is lower compared to the average rating on weekdays, which could suggest that **people tend to rate this type of food better on weekdays than on weekends**.

Recommendations

Increase weekday orders	Develop strategies to encourage more orders during weekdays, such as offering discount coupons or exclusive promotions valid only on weekdays.
Enhance rating participation	Implement measures to encourage customers to complete ratings more effectively. For instance, redesign the way the app requests ratings or offer small incentives for completing a review. This would provide more comprehensive feedback on customer preferences.
Address lower-rated cuisines	Investigate why Vietnamese, Korean, and Middle Eastern cuisine restaurants receive lower ratings. Identify common issues and work with restaurants to address them.
Introduce rating-based fee structures	Consider implementing a fee structure where the app's charges depend not only on the cost of the food but also on the restaurant's average rating. A lower fee for higher-rated restaurants could incentivize maintaining high-quality standards.
Leverage geographic insights	Collect and analyze precise geographic data on orders to identify preferences for specific cuisines in different areas. This information could help tailor marketing strategies to local tastes.
Analyze supply vs. demand	Obtain data on the availability of restaurants by cuisine type and compare it with actual sales. Conduct a success rate analysis to determine the gap between supply and demand. This will provide insights into customer preferences and help optimize offerings on the platform.