# FoodHub

## Exploratory Data Analysis

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# Project Overview

As the number of restaurants in New York continues to grow, busy students and professionals increasingly rely on food delivery services. **FoodHub, a food aggregator app, connects customers with multiple restaurants, streamlining the ordering and delivery process.**

The app facilitates direct orders from customers, assigns delivery personnel, and allows for real-time tracking and feedback. FoodHub collects data on these orders, which can provide insights into restaurant demand and enhance customer experience. **This project aims to analyze this data to address key questions that will help FoodHub improve its services and business strategy**.

# Data Overview

- 1898 rows and 9 columns
  - **Integer:** order_id, customer_id, food_preparation_time, delivery_time.
  - **Float:** cost_of_the_order.
  - **Object:** restaurant_name, cuisine_type, day_of_the_week, rating.
- There were 736 values missing in the column ‘rating’.
- Ratings were converted to float and the missing values were filled with the mean of the column.

# Questions for Analysis

- Which are the top 5 restaurants in terms of the number of orders received?
- The company wants to provide a promotional offer in the advertisement of the restaurants. The condition to get the offer is that the restaurants must have a rating count of more than 50 and the average rating should be greater than 4. What are the restaurants fulfilling the criteria to get the promotional offer?
- What is the net revenue generated by the company across all orders?
- What percentage of orders take more than 60 minutes to get delivered from the time the order is placed?
- How does the mean delivery time vary during weekdays and weekends?

# Univariate Analysis

- Shake Shack is the restaurant with the highest number of orders received, with approximately 90 more orders than The Meatball Shop, which is in second place.
- American is the cuisine type with highest number of orders. It is also the cuisine type of the top restaurant (Shake Shack).
- More than 50% of the orders received are for the top 2 cuisine types (American and Japanese).
- The number of orders received is higher on weekends. The orders received on weekends is more than double the orders received on weekdays.
- The mean order delivery time is 24.16 minutes.

# Multivariate Analysis

- Korean cuisine tends to have shorter preparation times.
- The distributions of the food preparation times for the top 10 restaurants are very similar.
- More than 50% of the orders received are for the top 2 cuisine types (American and Japanese).
- The number of orders received is higher on weekends. The orders received on weekends is more than double the orders received on weekdays.

# Conclusions

- The top 5 restaurants in terms of the number of orders received are **Shake Shack, The Meatball Shop, Blue Ribbon Sushi, Blue Ribbon Fried Chicken, and Parm**.

- There are 4 restaurants that have a rating count of more than 50 and an average rating greater than 4: **Blue Ribbon Fried Chicken, Blue Ribbon Sushi, Shake Shack, and The Meatball Shop.**

- **The net revenue generated by the company is 6,166.3 dollars**. There are orders that are not generating revenue for the company because their cost is below 5 dollars and the company doesn't charge restaurants for these orders.

- **10.54% of orders take more than 60 minutes** to get delivered from the time the order is placed.

# Conclusions

- The average delivery time on weekdays is approximately 6 minutes longer than that on weekends.
- **More than 700 orders didn't receive ratings in the app**. However, we can say there are no bad reviews given that there were no ratings below 3 out of 5.
- The time to prepare the food ranges between 20 and 35 minutes with an average time of approximately 27 minutes.
- Over 50% of the orders are for the top 2 cuisine types, American and Japanese.
- **Korean cuisine tends to have shorter preparation times** and has the narrowest range of cost of order, indicating more consistency in their costs.
- Orders received on weekends are more than double those received on weekdays.

# Recommendations

- The company should implement a campaign to **encourage customers to rate their orders**, as ratings are crucial for understanding customer satisfaction.
- Create a section in the app **displaying the top 5 restaurants** and collaborate with those restaurants to offer exclusive deals.
- Since customers tend to place more orders on weekends, consider sending a message via the app on weekends to encourage customers to order their food from the app.
- Implement a small service charge for orders that cost less than 5 dollars to get some revenue from those orders.

# Recommendations

- **Including the order dates in the dataset** would help the company understand how frequently customers use the app. Currently, we know that the most frequent customer has placed 13 orders, but we lack information on the time period during which these orders occurred.