**Food Hub Data Analysis Report**

**Project Overview**

The objective of this analysis is to gain insights into the demand for different restaurants and cuisines based on orders made by registered customers in the food aggregator company's online portal. By understanding the data, we aim to inform strategies to enhance customer experience and improve business operations.

**Data Description**

The dataset contains various details related to food orders, as described below:

* **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 (Weekday: Monday to Friday, Weekend: 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
* **delivery\_time**: Time (in minutes) taken by the delivery person to deliver the food package

**Basic Data Exploration and Cleaning Steps**

1. **Top 5 Rows**: Display the top 5 rows of the dataset to get an initial look at the data.
2. **Last 5 Rows**: Display the last 5 rows to understand the data's consistency and completeness.
3. **Shape of Dataset**: Check the number of rows and columns.
4. **Data Types**: Verify the datatypes of each feature to ensure they are appropriate for analysis.
5. **Statistical Summary**: Generate a statistical summary to get insights into the central tendency and dispersion of the data.
6. **Null Values**: Identify any missing values in the dataset.
7. **Duplicate Values**: Check for and handle any duplicate records.
8. **Anomalies**: Identify and correct any anomalies or incorrect entries.
9. **Outliers**: Detect and assess the authenticity of outliers.
10. **Data Cleaning**: Perform necessary data cleaning steps, including dropping duplicates, handling null values, and treating outliers.

**Analysis and Key Findings**

**1. Order Analysis**

* **Total Number of Orders**: The dataset contains [total number] orders.
* **Average Cost of an Order**: The average cost of an order is [average cost].
* **Unique Customers**: There are [unique customers] unique customers who have placed orders.
* **Restaurant with Highest Orders**: [Restaurant name] has received the highest number of orders.

**2. Customer Behavior**

* **Average Rating**: The average rating given by customers is [average rating].
* **Rating Variation**: The rating varies between weekdays and weekends as follows:
  + Weekdays: [weekday rating]
  + Weekends: [weekend rating]
* **Most Ordered Cuisine**: The most ordered cuisine type is [cuisine type].
* **Order Distribution**: The distribution of orders across different days of the week is as follows: [distribution details].

**3. Restaurant Performance**

* **Average Food Preparation Time**: The average food preparation time for each restaurant is [average preparation time].
* **Shortest Preparation Time**: [Restaurant name] has the shortest average food preparation time.
* **Delivery Time Comparison**: The average delivery time across different restaurants is [delivery time comparison].
* **Cost-Rating Correlation**: The correlation between the cost of the order and the rating given is [correlation details].

**4. Demand Patterns**

* **Cuisine Demand on Weekdays vs. Weekends**: The demand for different cuisine types varies as follows:
  + Weekdays: [weekday demand]
  + Weekends: [weekend demand]
* **Highest Average Order Cost**: [Day of the week] has the highest average order cost.
* **Most Common Order Day**: The most common day for orders to be placed is [most common day].
* **Rating by Cuisine Type**: The average rating by cuisine type is [rating details].

**5. Operational Efficiency**

* **Average Delivery Time**: The average delivery time for all orders is [average delivery time].
* **Longest Delivery Time**: [Restaurant name] has the longest average delivery time.
* **Preparation-Delivery Time Relationship**: The relationship between food preparation time and delivery time is [relationship details].
* **Delivery Time Impact on Ratings**: The impact of delivery time on customer ratings is [impact details].

**6. Customer Insights**

* **Repeat Order Rate**: The repeat order rate (number of customers who have placed more than one order) is [repeat order rate].
* **High Ratings**: [Percentage] of orders receive a rating of 4 or higher.

**Conclusion**

This analysis provides actionable insights and recommendations for the food aggregator company to improve their business operations and enhance customer experience. The key findings highlight the demand patterns, customer behavior, restaurant performance, and operational efficiency.

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For any questions or further information, please contact [Your Email].

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