Project Summary: Food Delivery Cost Analysis Using Python by Shaun Mia

In the **Food Delivery Cost Analysis** project, Shaun Mia conducted a comprehensive analysis of a food delivery service's costs, discounts, and profits using Python. This project involved data cleaning, transformation, and visualization to extract valuable insights on delivery costs and profitability. Below is a detailed breakdown of the process and findings:

1. Data Import and Exploration

- The project began with importing the dataset containing food delivery details and loading it into a DataFrame.
- Basic exploration, including displaying the first few rows, data shape, and data types, helped in understanding the structure of the data.

2. Data Cleaning and Preprocessing

- **Date Formatting:** Converted "Order Date and Time" and "Delivery Date and Time" columns to datetime format to ensure consistent data types for time-based analysis.
- **Discount Parsing:** Extracted and standardized values in the "Discounts and Offers" column by removing percentage signs and converting strings to numeric values.
- **Missing Values:** Filled any null values in the "Discounts and Offers" column with 0 to maintain dataset integrity.

3. New Feature Creation

- **Total Costs Calculation:** Calculated the total cost per order by combining "Delivery Fee," "Discounts and Offers," and "Payment Processing Fee" into a new "Costs" column.
- **Profit Calculation:** Determined profitability by subtracting total costs from the "Commission Fee," storing the result in a new "Profit" column.

4. Analysis and Visualization

- **Cost Distribution:** Summed up individual cost components to analyze their distribution and visualized this with a pie chart, showing the proportion of delivery fees, payment processing fees, and discounts in the overall costs.
- **Profitability Breakdown:** Aggregated and visualized the "Commission Fee," "Costs," and "Profit" using bar charts, providing a clear comparison between revenue and expenses.
- **Profit Distribution:** Created a histogram of profits to show the distribution and variation in profitability across orders.

5. Key Insights

- The analysis successfully quantified costs and profits, helping to identify areas where cost-saving measures could increase profitability.
- The project highlighted the impact of discounts and processing fees on total delivery costs and the influence of commission fees on net profit.

Tools and Libraries Used

- **Python Libraries:** Pandas for data manipulation, Matplotlib for visualizations.
- **Google Colab Integration:** Drive-mounted CSV data enabled efficient data handling and processing.

This project demonstrates Shaun Mia's ability to use Python for data analysis, particularly in cleaning, transforming, and visualizing large datasets to derive insights on cost and profitability in the food delivery sector.