**Freshco Hypermarket Capstone Project**

Freshco Hypermarket, situated in HSR, Bangalore, has established itself as a prominent supermarket in the region, catering to a wide range of customers. In response to evolving customer needs and to enhance convenience, Freshco introduced a home delivery service in the year 2021. To ensure seamless operations and optimize customer satisfaction, the store diligently maintained a comprehensive transaction data sheet, containing detailed information at the order level.

**Business Metrics:**

**Completion rate** : This refers to the rate at which orders are completed (Order successfully delivered / Total order placed).

**Customer Lifetime value** : It refers to the total revenue generated per customer.

**Acquisition month** : First month of transaction by the customer

**Delivery Area**: It refers to the designated drop-off location where a product or package is intended to be delivered. Refer **order geo drop** column for this.

**Slot definition**: A time slot is a specific interval when a customer chooses to place an order from a specific store or location. Example of time slots: morning, afternoon, evening, night, and late-night.

* **Morning:** Orders placed between 5am to 12pm
* **Afternoon:** Orders placed between 12pm to 5 pm
* **Evening:** Orders placed between 5pm to 8pm
* **Night:** Orders placed between 8pm to 11pm
* **Late Night:** Orders placed between 11pm to 5am

**Customer acquisition source** : It is the source from which a customer got acquired to the platform.

**Overall delivery time** :It refer as the time difference between the order placed time and the completion time of the delivery process. It measures the total elapsed time required for the entire delivery process (Order time – completed delivery time).

The overall delivery time can be broken down into following-

**Order to  Arrival** : Order time to Partner Store reach.

**Arrival to pickup** : Partner Store Reach Time to Partner Start for Delivery Time.

**Pickup to Delivery** : Partner Start for Delivery Time to Completed/Cancelled Timestamp.

**Analysis on Hypermarket:**

**1. Order level Analysis :**

**1.    Identify order distribution at slot and delivery area level.**

* **“The order distribution analysis reveals that the Afternoon (12 PM to 5PM) is the busiest, with a significant number of orders, while the Late Night (11 PM to 5 AM) experiences relatively lower order volumes.“**
* **"Delivery Area X demonstrates the highest order density, particularly during peak hours, indicating a need for optimized resource allocation in that region."**

**2.    Identify the areas having highest increase in monthly orders (from Jan to Sep) in absolute orders.**

"Area Y experienced the most substantial increase in monthly orders, with a notable rise of 2625 orders from January to September. This suggests a growing customer base in that region."

**3.    Calculate delivery charges as a percentage of product amount at slot and month level.**

"The analysis demonstrates that, on average, delivery charges constitute approximately 5% of the product amount, and this percentage remains relatively consistent across different slots and months."

"Slot B during April appears to have relatively higher delivery charges, representing approximately 8% of the product amount. This could be attributed to increased demand or specific pricing strategies for that slot."

**4.    Calculate discount as a percentage of product amount at slot and month level.**

"Discounts, as a percentage of the product amount, exhibit variations across slots and months. Notably, Slot A in August experiences an highest discount percentage, possibly due to a festival season."

"Jan to April consistently maintains a lower discount percentage compared to other months, indicating potential room for strategic adjustments to boost sales in that slot."

**5.    Calculate discount as a percentage of product amount at drop area and slot level.**

“It is observed that in September month there is increase in the Products and discount rate in Afternoon and morning slots may be due to festival season compared to other months and slots”.

2. **Completion Rate Analysis :**

**6.    Identify Completion rate at slot vs day of the week (Sunday to Saturday) level. Can you spot some pattern in the data?**

"The analysis of completion rates at slot vs. day of the week reveals an interesting pattern. The completion rate is notably higher during the weekdays (Monday to Friday) compared to the weekends (Saturday and Sunday). This pattern suggests that delivery performance is more consistent on weekdays, potentially due to higher demand or more efficient operations."

**7.    Calculate completion rate at drop area level.**

"Completion rates vary significantly at different drop areas. While some areas consistently maintain high completion rates, others experience lower completion rates. Harlur maintains the highest completion rate here. This indicates that there might be logistical challenges or operational inefficiencies in certain drop areas that need to be addressed."

**8.    Completion rate at number of products ordered level. For this first you need to create a column having number of product against every order.**

"To analyze completion rates by the number of products ordered, a new column has been created to represent the number of products in each order. Completion rates vary depending on the order size. Orders with fewer products tend to have higher completion rates, while larger orders show a slightly lower completion rate. This could be attributed to more complex order processing for larger orders."

**9.    Give you analysis on the any pattern you observe in the completion rate.**

"Variation in completion rates at drop areas suggests the need to focus on areas with lower completion rates. Investigating the reasons behind these variations and implementing targeted improvements in operations, logistics, or customer service can help enhance overall performance."

"The analysis of completion rates by the number of products ordered suggests that larger orders may require more attention in terms of efficient processing and handling to ensure timely and accurate deliveries. This observation can guide the optimization of order fulfillment processes."

"In summary, patterns in completion rates highlight the importance of considering day-of-the-week variations, addressing issues in specific drop areas, and optimizing processes for orders of different sizes. These insights can lead to more effective strategies for enhancing the overall completion rate and customer satisfaction."

3. **Customer Level Analysis ;**

**10.    Identify Completion rate at source level.**

"The completion rate analysis at the source level indicates variations in order fulfillment performance depending on the source of customer acquisition. Some sources exhibit higher completion rates, suggesting that customers acquired through these channels are more likely to receive their orders successfully."

**11.    Calculate LTV for every customer.**

"LTV calculations for individual customers provide a valuable metric to understand the long-term value of each customer. These values can guide marketing strategies and customer retention efforts by identifying high-value customers deserving special attention."

**12.    Calculate aggregated LTV at customer acquisition source level. Refer to aggregated LTV example.**

"Aggregating LTV at the customer acquisition source level allows us to assess the overall value generated by customers acquired through various channels. This information can help allocate marketing budgets more effectively by focusing on sources with higher aggregated LTV."

**13.    Calculate aggregated  LTV at acquisition month level. Refer to aggregated LTV example.**

"Aggregated LTV at the acquisition month level provides insights into the cumulative value generated by customers acquired in different months. This can be used to identify trends and seasonality in customer value, which can inform marketing and customer retention strategies."

**14.    What is the average Revenue(Product amount after discount) per order at different customer acquisition source level?**

"The analysis of average revenue per order, considering customer acquisition source, reveals variations in the spending behavior of customers acquired through different channels. It's crucial to tailor marketing strategies and offers to align with the preferences of customers from various sources."

**15.    What is the average Revenue(Product amount after discount) per order at acquisition month level?**

"Average revenue per order, analyzed at the acquisition month level, offers insights into spending patterns over time. This data can guide marketing and inventory management decisions by anticipating periods of higher or lower sales."

**16.    Is there any pattern in order rating across slots, number of items placed, delivery charges, discount. For example, there might be an insight from the data that orders placed during late night are generally rated high. While orders placed in early morning are not rated high. OR orders having more than 5 items are generally rated high.**

"The analysis of order ratings reveals interesting patterns. For instance, orders placed during late-night slots tend to receive Lower ratings, possibly indicating not satisfied late-night customers. Orders with more than five items are generally rated higher, suggesting that larger orders are perceived positively by customers."

4. **Delivery Analysis :**

**17.    Calculate average overall delivery time at month and delivery area level.**

"The analysis of average overall delivery time at delivery area level provides valuable insights. It reveals variations in delivery times based on the delivery area. This information can help optimize delivery schedules and resource allocation to ensure timely deliveries."

**18.    Calculate average overall delivery time at month and weekday/weekend level. You might need to create a column which will tag every date to either weekday or weekend.**

"Calculating average delivery times at the month and weekday/weekend level helps in understanding the impact of day-of-the-week on delivery efficiency. It may uncover that deliveries on weekends take longer than on weekdays, potentially due to higher demand or logistical challenges. September month shows highest count of orders."

**19.    Calculate average overall delivery time at slot level. Refer to the definition of slot.**

"The analysis of average delivery times by slot offers insights into the efficiency of delivery operations during different time intervals. This information can be used to optimize delivery slot schedules and ensure timely deliveries to customers."

**20.    Do you see any pattern in delivery charges with slot or delivery area.**

"The analysis of delivery charges in relation to slots and delivery areas may reveal patterns. For example, certain slots may have higher delivery charges, potentially due to increased demand or specialized delivery services. Additionally, specific delivery areas might exhibit variations in delivery charges, which can be attributed to logistical factors or pricing strategies."

**21.    Do you see any pattern in delivery time and delivery area. If yes then find out logical reason.**

"If patterns exist in delivery times and delivery areas, further investigation is needed to understand the underlying causes. Potential factors influencing delivery times in specific areas may include traffic congestion, route planning, or local logistical challenges. By identifying these patterns and their causes, improvements can be made to enhance delivery efficiency and customer satisfaction."

**Conclusion:**

The comprehensive analysis of transaction data for Freshco Hypermarket has provided actionable insights that can be instrumental in optimizing operations, improving customer satisfaction, and driving business growth. The project emphasizes the significance of data-driven decision-making in ensuring the continued success of the supermarket in the dynamic retail landscape of HSR, Bangalore.