

Business Data Management

**Sales Trends and Customer Behavior in a
Medical Shop: An Analytical Study**

DEY MEDICO(Chemist & Druggist)

About the Company

Overview: DEY MEDICO, established in 1995, is a reputable medical shop dedicated to providing a wide range of pharmaceutical products and healthcare supplies. As a B2C (Business-to-Consumer) enterprise, DEY MEDICO serves a diverse clientele, including individual customers, local clinics, and healthcare institutions.

Goals: This project enables DEY MEDICO to gain a deeper understanding of the challenges they face and to enhance their sales and inventory management practices. By leveraging data-driven insights, DEY MEDICO can identify key areas for improvement, optimize their operations, and ultimately increase their overall efficiency and profitability.



Business Problems

Sales Performance: The primary objective of this project is to understand customer behavior by identifying loyal customers, segmenting the customer base, and recognizing top customers. Through these insights, the project aims to enhance sales for the shop by tailoring strategies to meet the needs and preferences of different customer segments.

Inventory Management: Managing inventory effectively was another challenge. The shop experienced issues with both overstocking and stockouts, especially during peak and off-peak seasons. This led to potential lost sales and increased holding costs.

Customer Attrition: The shop faced issues with customer churn, where customers stopped making purchases after a certain period. This could be a result of dissatisfaction, better alternatives available nearby, or a lack of engagement strategies to retain customers.

Analysis Methods

RFM Analysis

RFM analysis helps to better understand customer behaviour and segment the customer based on their purchasing patterns

Churn Analysis

Churn analysis helps businesses identify why customers leave, allowing them to pinpoint at-risk customers and understand reasons for churn.

Correlation Matrix

I created a correlation matrix to examine the relationships between different variables in the dataset.

Customer Lifetime Value

Understanding CLV helps companies identify their most valuable customers, optimize marketing strategies, and allocate resources effectively to maximize long-term profitability and customer retention.

Monthly Analysis

Monthly analysis to identify the top-performing months and the least-performing ones. This analysis helps in understanding sales trends over time, allowing for strategic planning to improve sales during lower-performing periods.

RFM Analysis

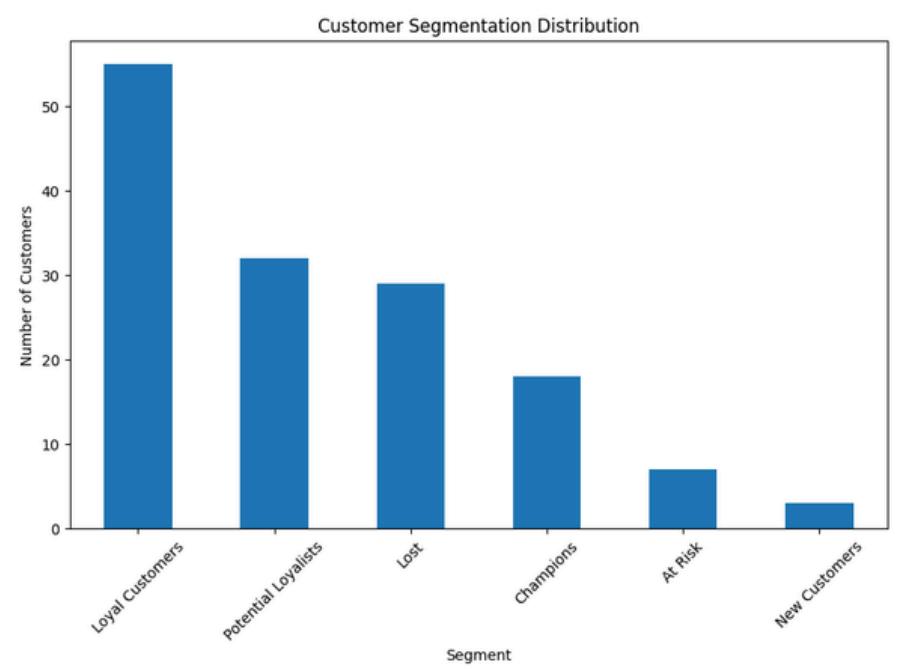


Figure 1

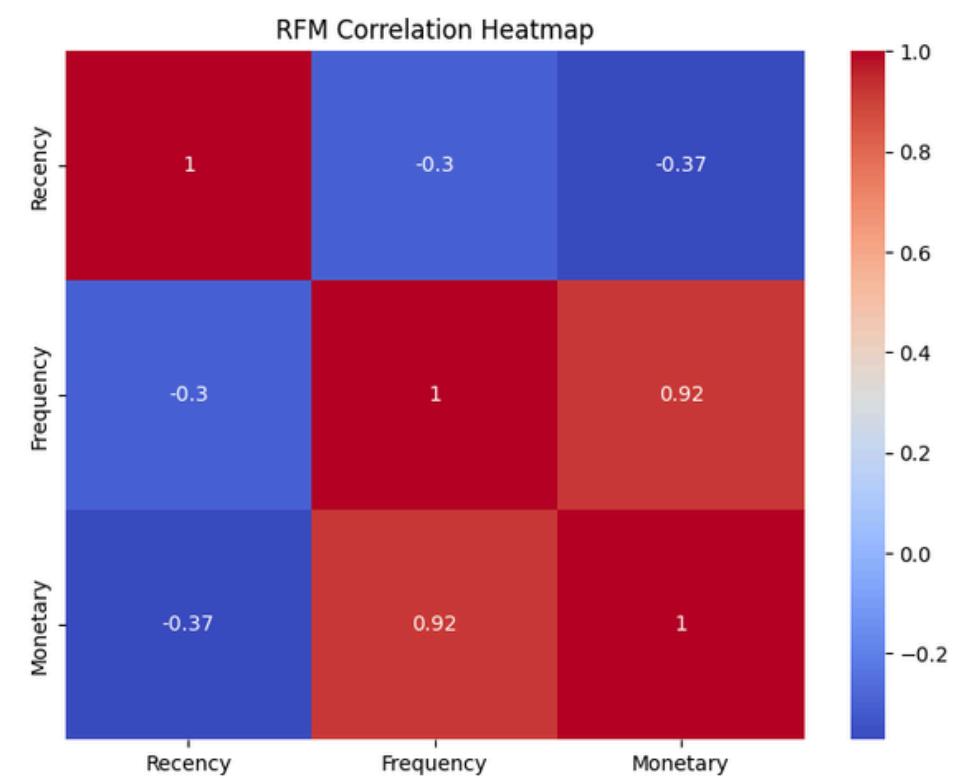


Figure 2

Figure 1: Observations

- Over 50 customers are categorized as "Loyal Customers," making it the largest group.
- Approximately 30 customers are identified as "Potential Loyalists."
- Around 25 customers fall under the "Lost" category.
- The "Champions" group consists of roughly 15 customers.
- Both "At Risk" and "New Customers" categories have fewer than 10 customers each.

Figure 2: Observations

- There is a strong positive correlation (0.92)** between Frequency and Monetary values, indicating that customers who purchase more frequently also tend to spend more.
- Recency has a moderate negative correlation with Frequency (-0.3) and Monetary (-0.37),** suggesting that customers who have purchased recently are more likely to buy frequently and spend more.

Churn Analysis

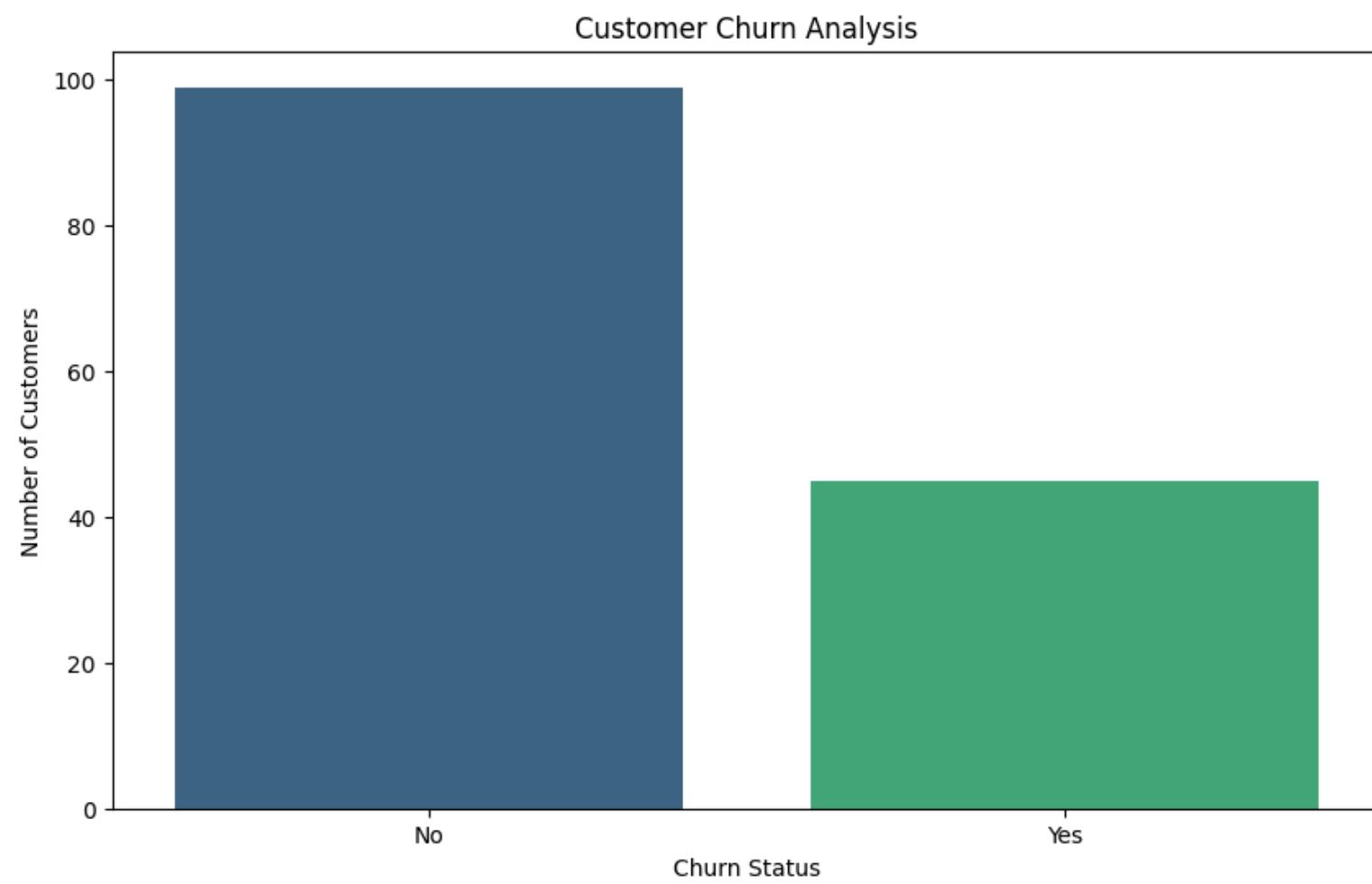


Figure 3

Figure 3: Observations

This bar chart represents the results of your customer churn analysis. Here's what it indicates:

- Churn Status (X-axis): Divides customers into two categories: those who did not churn ("No") and those who did ("Yes").
- Number of Customers (Y-axis): Shows the count of customers in each category.

Interpretation:

- "No" Bar: The taller bar indicates that most customers (around 100) did not churn, meaning they continued to make purchases.
- "Yes" Bar: The shorter bar shows that a smaller number of customers (around 40) churned, meaning they stopped making purchases during the last quarter.

Correlation Matrix

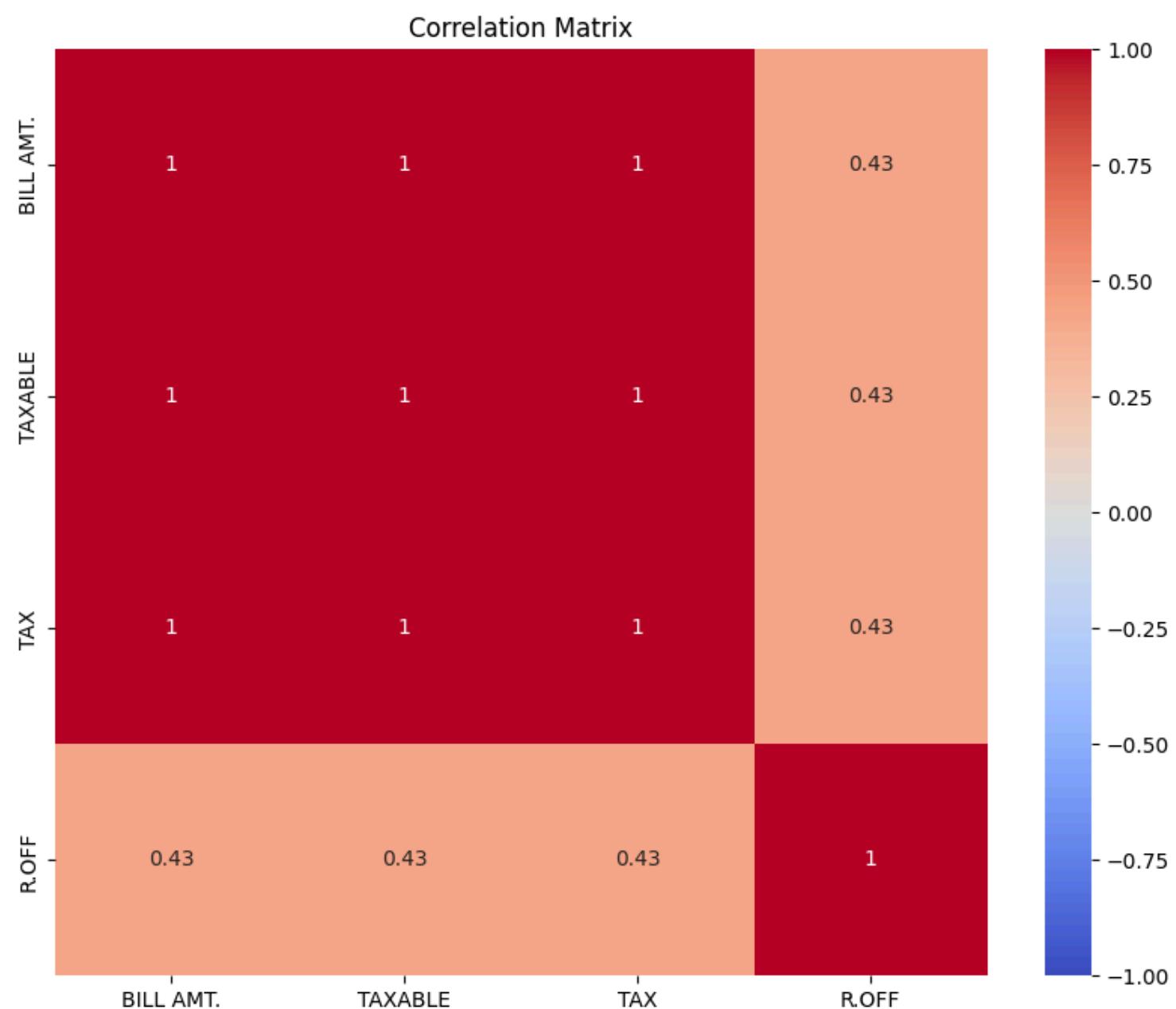


Figure 4

Figure 4: Observations

The heatmap provides insights into the relationships between the variables BILL AMT., TAXABLE, TAX, and R.OFF in your dataset. Here's what can be inferred:

1. Perfect Positive Correlation (1.0):

- BILL AMT., TAXABLE, and TAX are perfectly correlated.
- When BILL AMT. increases, both TAXABLE and TAX increase predictably.
- This is expected, as TAXABLE and TAX are likely derived from BILL AMT.

2. Moderate Positive Correlation (0.43):

- R.OFF has a moderate positive correlation with BILL AMT., TAXABLE, and TAX.

CLV (Customer Lifecycle Value)

Figure 5: Observations

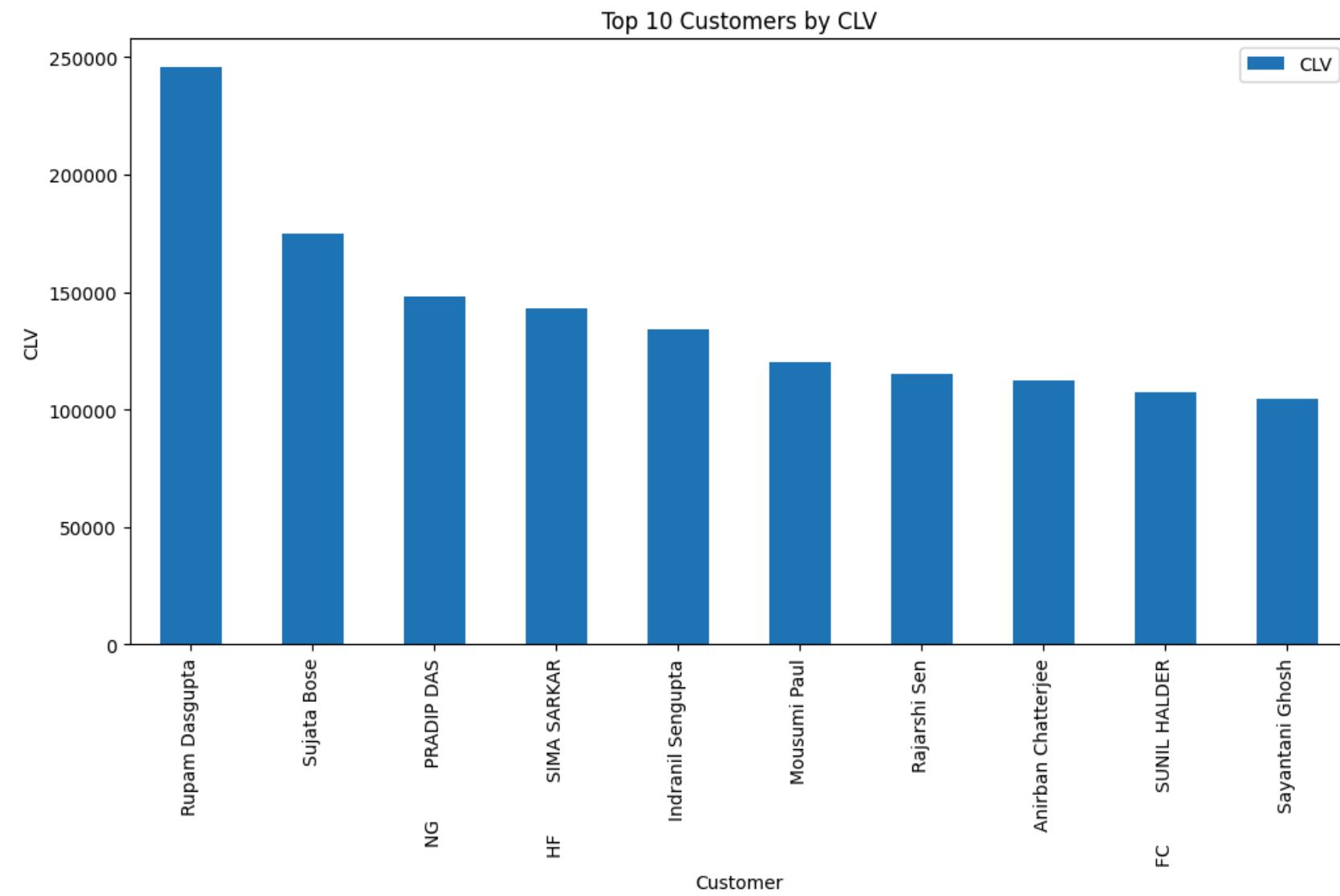


Figure 5

"Top 10 Customers by CLV" (Customer Lifetime Value) chart:

- 1. Top Contributors: Rupam Dasgupta and Sujata Bose** are the most valuable customers, with Rupam Dasgupta leading by a significant margin.
- 2. Revenue Concentration:** A small number of customers contribute a substantial portion of the revenue, indicating the importance of these top 10 customers.
- 3. Strategic Opportunities:** Targeted marketing and retention strategies should focus on these high-CLV customers to further boost their value and loyalty.
- 4. Risk Management:** The business's heavy reliance on a few key customers highlights the need for strong retention efforts to mitigate potential risks if these customers churn.

Recommendations

Sales Performance:

Enhance sales performance by implementing targeted retention programs for at-risk customers and engaging loyal customers with exclusive offers. Utilize personalized marketing campaigns based on RFM and CLV analysis to increase customer engagement and drive repeat purchases.

Inventory Management:

Optimize inventory by adjusting stock levels according to demand. Maintain high stock during peak months to avoid stockouts and reduce inventory in off-peak months to minimize carrying costs, using promotions and bundles to boost sales.

Customer Retention:

Focus on retaining high-value customers with personalized services and loyalty programs. Implement re-engagement campaigns for at-risk and lost customers with special offers. Regularly monitor customer behavior to adjust strategies for maintaining strong customer relationships.

Thank you!

**To Dr. Aaditya Chandel and Dr. Ashwin J. Baliga
Course Instructors, TAs and Proctors
DEY MEDICO(Chemist & Druggist)**