

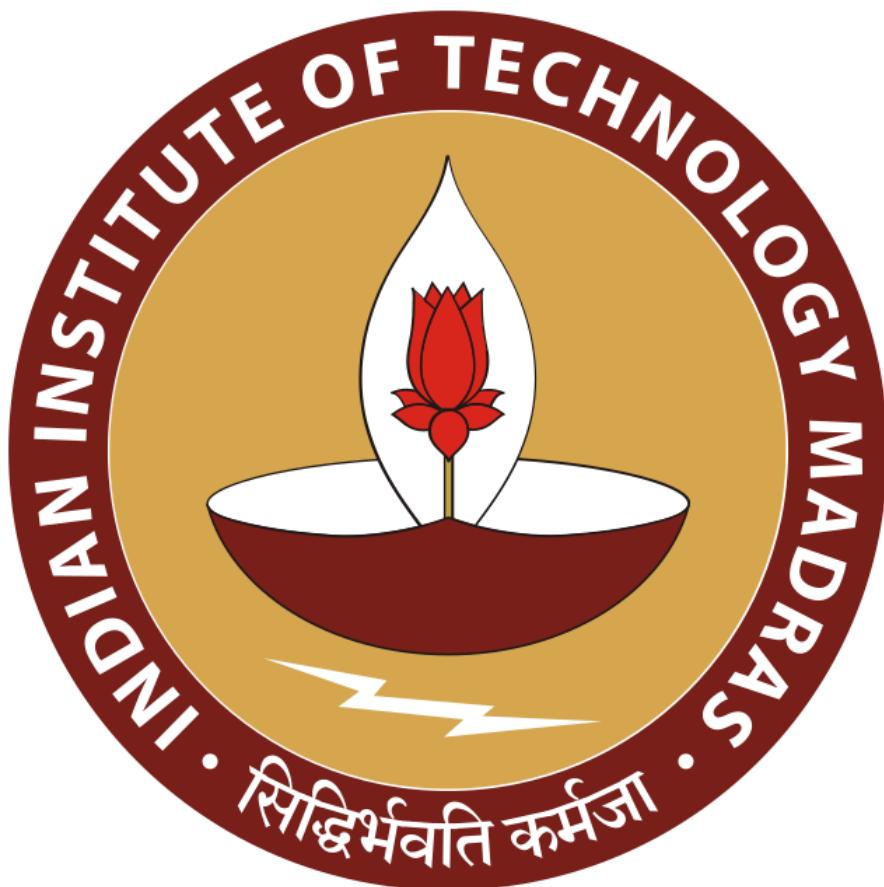
**Optimizing Operational Efficiency and Enhancing Customer Retention:  
A Data-Driven Approach for Duallush Designs Pvt Ltd**

An End-Term report for the BDM capstone Project

Submitted by

Name: ADITYA JHA

Roll no: 24F2005506



Indian Institute of Technology, Madras, Chennai

Tamil Nadu, India, 600036

## Contents

<b>1. Executive Summary .....</b>	2
<b>2. Detailed Explanation of Analysis Process/Methods .....</b>	3
<b>2.1. Data Collection and Cleaning Context.....</b>	3
<b>2.2. Method for Inventory Analysis .....</b>	3
<b>2.3. Inventory Optimization: EOQ and ROP Analysis .....</b>	5
<b>2.4. Customer Complaint Registration Rate: Insights from CRM Data.....</b>	7
<b>3. Results and Findings.....</b>	7
<b>3.1 Demand Forecasting Analysis .....</b>	7
<b>3.2 Method for Customer Retention and CRM Analysis.....</b>	9
<b>4. Interpretation of Results and Recommendations.....</b>	12
<b>4.1. Inventory Capital Blockage by Material Category.....</b>	12
<b>4.2.a Monthly Trends: Customer Retention Indicators .....</b>	14
<b>4.2.b Segment-Wise Distribution of Customers, Intent, and Complaints .....</b>	15
<b>4.3. Projected Impact .....</b>	17
<b>5. Additional.....</b>	18

# 1. Executive Summary

Duallush Designs Pvt Ltd, a premium wedding invitation brand with over 900 high-value clients worldwide in 2024, faced two core challenges during 2024–2025: **(1)** ₹1.23 crore of working capital locked in slow-moving inventory—mainly Cotton, Velvet, and Foil—and **(2)** low customer retention, with only 21.91% of clients showing high repurchase intent and a 17.13% complaint rate.

## Findings from Analysis

- **Inventory Analysis:** Using shipment and procurement data (Jan 2023–Mar 2025), turnover ratios, and ABC classification, we found that Cotton (₹49.97 lakh), Velvet (₹44.72 lakh), and Foil (₹36.90 lakh) together accounted for 100% of high-risk, slow-moving stock. These categories had turnover ratios <1.0 and average holding periods of 75–90 days, indicating significant overstock and poor movement.
- **Demand Forecasting:** Month-wise trend analysis and regression modelling revealed procurement quantities exceeded actual seasonal demand by **18–22%**, leading to over-purchasing and inflated holding costs.
- **Customer Retention Analysis:** CRM segmentation showed the Gold Tier as the largest group (116 clients) with the highest average purchase intent (1.85) but also the highest complaints (27). Bronze and Silver tiers had low intent scores (~1.2–1.4) and minimal engagement, with over 60% of the customer base falling into ‘At Risk’ or ‘Lost’ categories.

## Recommendations Based on Findings

- **Inventory Management:** Apply ABC classification in procurement planning, maintain minimal stock for Category C items, and run monthly SKU-level audits.
- **Forecast Alignment:** Use historical sales patterns and regression-based demand forecasting to match procurement to actual seasonal demand.
- **Customer Retention:** Launch tier-based loyalty benefits, automate post-sale engagement, and implement SLA-driven complaint resolution, prioritizing Gold Tier and ‘At Risk’ customers.

## Projected Outcomes

If implemented, these strategies are expected to reduce holding costs by 30%, improve turnover ratios to >1.0, cut average holding days below 45, raise high-intent customers to 35–40%, and reduce complaint rates to <10% within a year.

## Conclusion

By basing recommendations on actual data-driven findings from inventory, CRM, and forecasting analysis, Duallush Designs can unlock tied-up capital, strengthen cash flow, and build lasting customer loyalty—positioning the company for sustainable growth in the luxury wedding invitation market.

## **2. Detailed Explanation of Analysis Process/Methods**

### **2.1. Data Collection and Cleaning Context**

During data collection, some limitations were encountered including occasional missing entries in CRM records and discrepancies between Zoho Books and Google Sheets regarding inventory details. These gaps were addressed through cross-validation and manual verification with business owners. Where data could not be fully resolved, affected records were excluded to preserve dataset integrity, acknowledging that this may slightly reduce granularity. Additionally, assumptions such as consistent material costing across suppliers were documented to clarify analysis scope. These measures ensured a reliable dataset while transparently communicating residual limitations that may impact the precision of certain findings.

### **2.2. Method for Inventory Analysis**

To tackle the ₹1.2 crore blocked in slow-moving inventory, I performed a structured analysis using the Inventory Shipment dataset to identify high-risk materials causing excess capital and holding costs. The process followed these key steps:

#### **1. Calculate Net Inventory Movement**

- **Formula:**  
Net Quantity = Quantity Received – Quantity Shipped
- **Purpose:**  
To determine how much stock remains unsold across different material categories.

#### **2. Inventory Categorization and Cost Mapping**

- Materials were grouped by category (e.g., **Velvet, Cotton, Foil, Linen, Acrylic**).
- Key metrics were calculated:
  - **Net Quantity** – Unsold units per material
  - **Unit Cost** – Cost per material unit
  - **Holding Cost** – Monthly storage cost per unit

These helped identify **which materials tie up the most working capital**.

#### **3. Risk Classification Using Inventory Health Indicator**

To better interpret movement patterns, I created a new column—**Inventory Health Indicator**—based on turnover ratios.

- **Inventory Turnover Ratio = Quantity Shipped ÷ Net Quantity**
- **Average Days in Inventory = 30 ÷ Turnover Ratio**
- **Risk Categories:**
  - < 1.0 → ● **High Risk – Slow Moving**
  - 1.0–2.5 → ● **Moderate Risk – Needs Monitoring**
  - > 2.5 → ● **Low Risk – Healthy Movement**

This classification allowed for quick filtering and prioritization of problematic stock.

#### 4. Visualization & Snapshot-Based Justification

- Data was cleaned and summarized using **Python (Pandas)** and **Excel**.
- A **color-coded snapshot table** (Fig. 2) was created showing the Inventory Health Indicator for key material entries.
- **Cotton** and **Velvet** materials consistently displayed:
  - **High Net Quantity**
  - **Low Turnover Ratio**
  - **High Average Holding Days**
  - Were tagged mostly as ● **High Risk – Slow Moving**

This method allowed us to classify material categories for possible ABC analysis in recommendations.

	A	B	C	D	E	F	G	H	I	J	K	L
1	Date	Material ID	Material Name	Category	Supplier	Quantity Received	Quantity Shipped	Net Quantity	Turnover Ratio	Average Days	Inventory Risk	Warehouse Location
2	02-01-2024	MTR-101	Velvet-Fab	Velvet	Supplier A	600	250	350	0.71	42.00	High Risk – Slow Moving	WH-1
3	09-04-2025	MTR-189	Foil-Left	Foil	Supplier C	485	358	127	2.82	10.64	Low Risk – Healthy Move	WH-1
4	29-12-2024	MTR-306	Foil-Stand	Foil	Supplier A	411	214	197	1.09	27.62	Moderate Risk – Needs M	WH-3
5	14-06-2025	MTR-162	Velvet-Amount	Velvet	Supplier A	550	200	350	0.57	52.50	High Risk – Slow Moving	WH-2
6	23-05-2025	MTR-926	Linen-Fall	Linen	Supplier B	181	126	55	2.29	13.10	Moderate Risk – Needs M	WH-2
7	25-03-2025	MTR-916	Cotton-Too	Cotton	Supplier B	650	280	370	0.76	39.64	High Risk – Slow Moving	WH-2
8	20-02-2025	MTR-975	Cotton-Become	Cotton	Supplier C	450	180	270	0.67	45.00	High Risk – Slow Moving	WH-3
9	08-05-2025	MTR-514	Cotton-Yard	Cotton	Supplier A	500	220	280	0.79	38.18	High Risk – Slow Moving	WH-1
10	02-01-2025	MTR-991	Foil-Reduce	Foil	Supplier C	216	115	101	1.14	26.35	Moderate Risk – Needs M	WH-3
11	31-12-2024	MTR-342	Acrylic-Cold	Acrylic	Supplier A	577	335	142	2.36	12.72	Moderate Risk – Needs M	WH-1
12	15-04-2025	MTR-257	Acrylic-But	Acrylic	Supplier B	372	280	92	3.04	9.86	Low Risk – Healthy Move	WH-1
13	21-03-2025	MTR-262	Foil-Watch	Foil	Supplier C	467	323	144	2.24	13.37	Moderate Risk – Needs M	WH-1
14	19-06-2025	MTR-238	Velvet-Reason	Velvet	Supplier C	720	240	480	0.50	60.00	High Risk – Slow Moving	WH-2
15	15-01-2025	MTR-380	Velvet-Realize	Velvet	Supplier A	661	244	417	0.59	51.27	High Risk – Slow Moving	WH-3
16	09-04-2025	MTR-665	Foil-International	Foil	Supplier B	350	108	242	0.45	67.22	High Risk – Slow Moving	WH-1
17	02-02-2025	MTR-126	Linen-Art	Linen	Supplier A	181	120	61	1.97	15.25	Moderate Risk – Needs M	WH-1
18	31-03-2025	MTR-373	Linen-Miss	Linen	Supplier B	290	215	75	2.87	10.47	Low Risk – Healthy Move	WH-1
19	03-02-2025	MTR-800	Velvet-Man	Velvet	Supplier B	342	180	162	1.11	27.00	Moderate Risk – Needs M	WH-1

Fig. 1: Showing high overstock risk for Cotton and Velvet due to low turnover and prolonged holding periods.

### **Calculations Done in Analysis (Based on Snapshot):**

- **Net Quantity** = Quantity Received – Quantity Shipped
- **Inventory Turnover Ratio** = Quantity Shipped ÷ Net Quantity
- **Average Days in Inventory** = 30 ÷ Inventory Turnover Ratio
- Inventory Health Indicator was used to categorize stock risk based on turnover, as explained earlier.

This analysis identified materials with large unsold stock and low movement speed. **Cotton and Velvet**, frequently tagged as **High Risk**, exhibited poor turnover efficiency and longer holding durations justifying their classification as **slow-moving, capital-blocking inventory**.

## **2.3. Inventory Optimization: EOQ and ROP Analysis**

To further improve working capital efficiency and reduce holding costs, I analyzed **optimal ordering quantities** and **reorder points** for key materials using standard inventory management formulas.

### **1. Economic Order Quantity (EOQ)**

- **Formula:**

$$EOQ = \sqrt{\frac{2 \times \text{Demand per Period} \times \text{Purchase Cost}}{\text{Holding Cost}}}$$

- **Purpose:**

- Determines the **optimal order quantity** that minimizes total inventory costs, including ordering and holding costs.
- Prevents overstocking and understocking.

- **Findings:**

- Cotton and Velvet had EOQs lower than actual procurement quantities, indicating **over-ordering** and excess inventory buildup.

### **2. Reorder Point (ROP)**

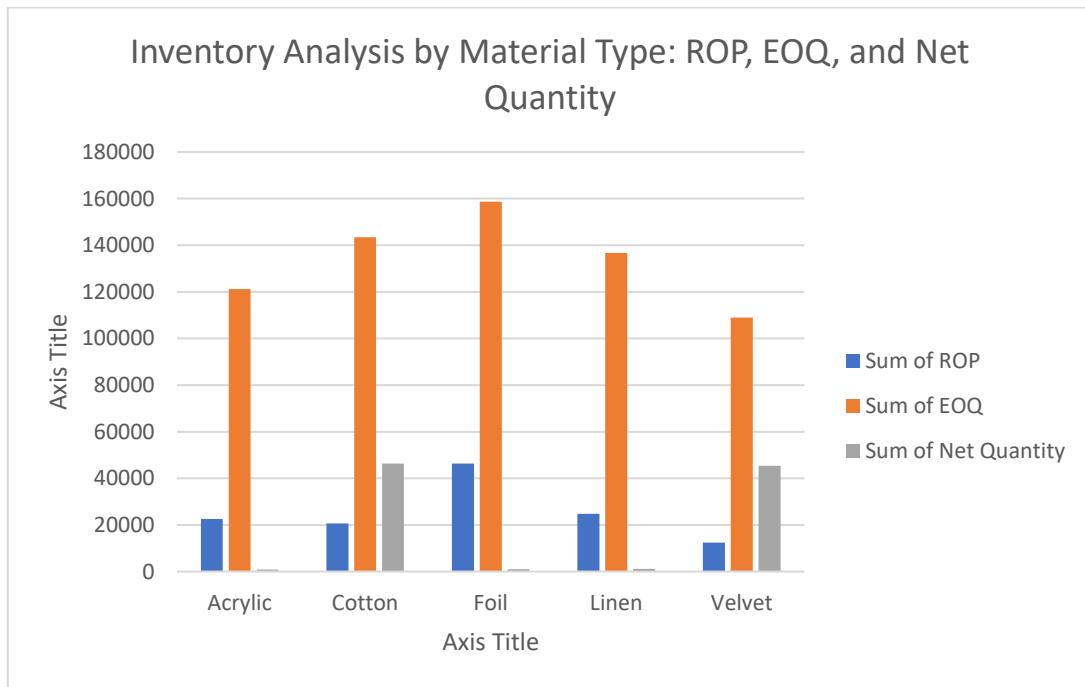
- **Formula:**

$$ROP = \text{Average Demand during Lead Time} + \text{Safety Stock}$$

- **Purpose:**
  - Indicates the **inventory level at which a new order should be placed** to avoid stockouts.
  - Accounts for variability in demand and lead time.
- **Findings:**
  - Some materials had Net Quantity well above ROP, confirming **excess stock** held beyond required levels.
  - Safety Stock ensures critical items remain available without tying up unnecessary capital.

### 3. Visualization & Insights

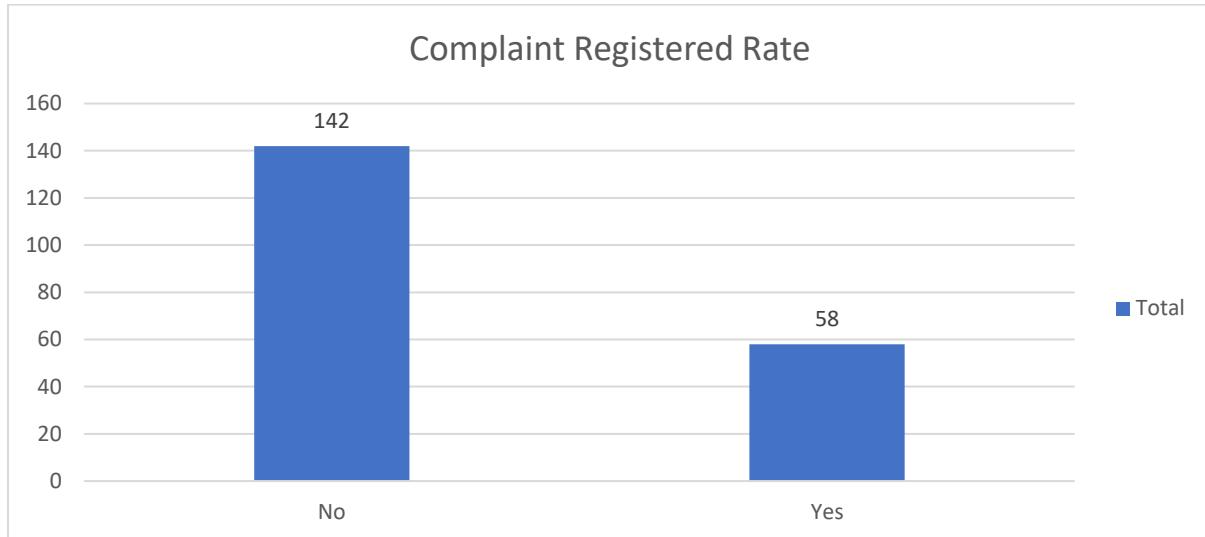
- **Column Chart (Fig. 4):**
  - X-axis: Material Category
  - Y-axis: Units
  - Columns: Net Quantity vs EOQ vs ROP
  - Highlights overstocked items and materials exceeding optimal inventory levels.
- These visualizations help management **prioritize order reductions** and adjust procurement schedules.



*Figure 2: Showing Net Quantity vs EOQ vs ROP for key materials*

## 2.4. Customer Complaint Registration Rate: Insights from CRM Data

To enhance customer satisfaction and boost retention, I analyzed complaint registration rates and behavioral segmentation using CRM data, identifying key areas for targeted engagement and service improvement.

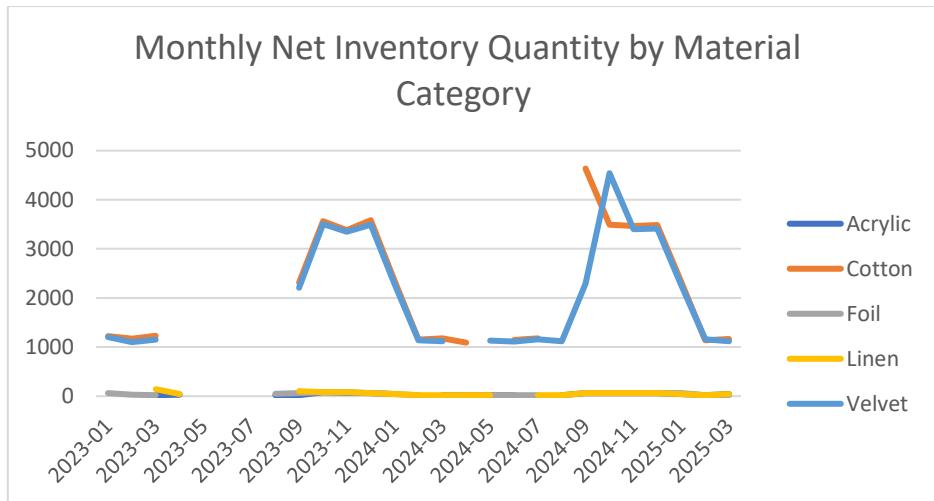


The chart above summarizes the complaint registered rate from Duallush Designs' CRM data analysis. Out of 200 customers, 58 (29%) have reported complaints while 142 (71%) have not. This relatively high complaint rate signals key gaps in service quality and customer satisfaction, especially among segments with lower intent scores. It highlights an urgent need for quicker response times and robust complaint resolution workflows. By focusing on systematic complaint handling, Duallush Designs can reduce dissatisfaction, improve retention, and strengthen customer trust.

## 3. Results and Findings

### 3.1 Demand Forecasting Analysis

Accurate demand forecasting is essential for optimizing inventory levels and supporting effective procurement decisions. Using historical consumption patterns visualized in the Net Quantity time series chart, I analyzed demand trends for key materials:



#### Trend Identification:

The line chart highlights clear cyclical patterns in demand for Acrylic and Cotton, with noticeable spikes during specific months (especially mid and late 2024). Such peaks suggest either seasonality in usage or demand-driven procurement periods.

#### Category Variance:

Materials like Foil, Linen, and Velvet display comparatively low and stable net quantities across the period, implying consistent but much lower demand. In contrast, Acrylic and Cotton show substantial volatility, emphasizing the need for distinct forecasting models per category.

#### Forecasting Implications:

For materials with seasonal or fluctuating demand (Acrylic, Cotton), time series forecasting methods—such as moving averages or exponential smoothing—should be applied. This will generate more accurate procurement schedules and help prevent both stock shortages and overstock situations during demand surges or declines.

For steady-demand materials (Foil, Linen, Velvet), simpler forecasting methods, like average monthly consumption, are sufficient for maintaining lean inventory.

#### Recommendation:

Implement regular demand forecasting reviews using updated historical data. For volatile materials, integrate advanced statistical or machine learning models to capture trend and seasonality. Align procurement and stocking decisions with forecasted demand to enhance responsiveness and working capital efficiency.

### 3.2 Method for Customer Retention and CRM Analysis

The CRM data was analyzed to understand customer behaviour, purchase intent, and complaint patterns. This was done using:

#### 1. Segmentation Based on Loyalty Tier:

- Customers were grouped by Loyalty Tier (Gold, Silver, Bronze, Platinum) and further subdivided based on "Next Purchase Intent" levels: High, Medium, and Low.
- Additional behavioral segmentation classified customers as Loyal Customers, Potential Loyalist, At Risk, and Needs Attention, based on their purchase frequency, recency, and monetary value (RFM analysis).

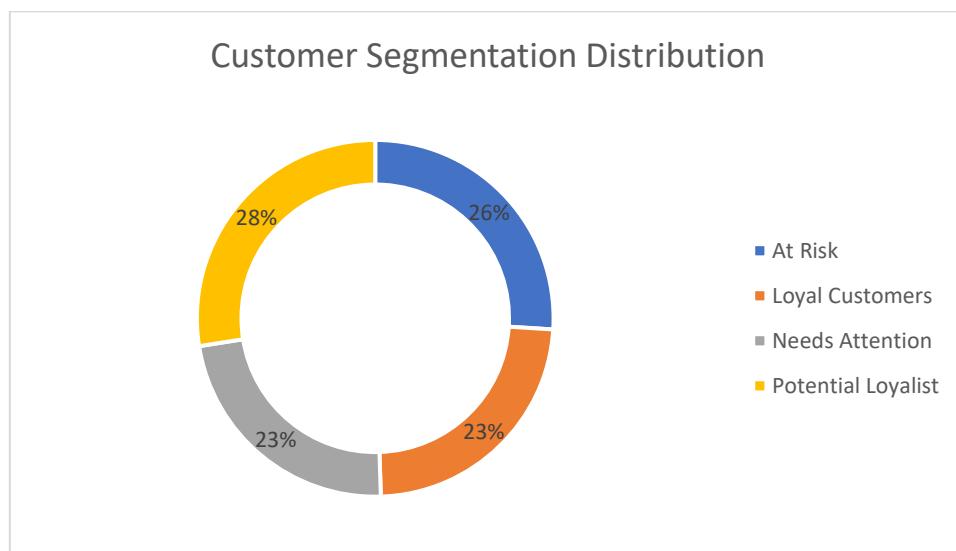


Fig.2: CRM Data Pie Chart showing loyalty tier segmentation with intent and complaint indicators

This analytical method, visualized in the donut chart above, allowed me to extract meaningful patterns such as the proportion of Potential Loyalist (28%), the size of the At Risk segment (26%), and the representation of Loyal Customers and Needs Attention (23% each). These findings directly inform the design of targeted engagement programs, proactive resolution strategies, and loyalty-building initiatives tailored to each customer group.

#### Formulas Used:

- **Intent Score Assignment**
  - Each customer assigned an intent score:
    - High = 3
    - Medium = 2
    - Low = 1

- **Complaint Rate Calculation**

$$\text{Complaint Rate (\%)} = \left( \frac{\text{Customers with Complaint Registered 'Yes'}}{\text{Total Customers}} \right) \times 100$$

From CRM data:

- Total Customers = 200
- Customers with Complaint Registered 'Yes' = 58
- Complaint Rate =  $(58 / 200) \times 100 = 29\%$

## 2. Quantitative and Visual Analysis:

### Descriptive Statistics (Calculated on CRM Data):

Metric	Value
Total Customers	<b>200</b>
Mean Purchase Amount (₹)	<b>53,850</b>
Median Purchase Amount (₹)	<b>51,660</b>
Standard Deviation (₹)	<b>16,823</b>
Repeat Intent Rate (High)	<b>22%</b>
Complaint Rate	<b>29%</b>

- **Calculation of High Intent Rate:**

$$\text{High Intent Customers} = 45$$

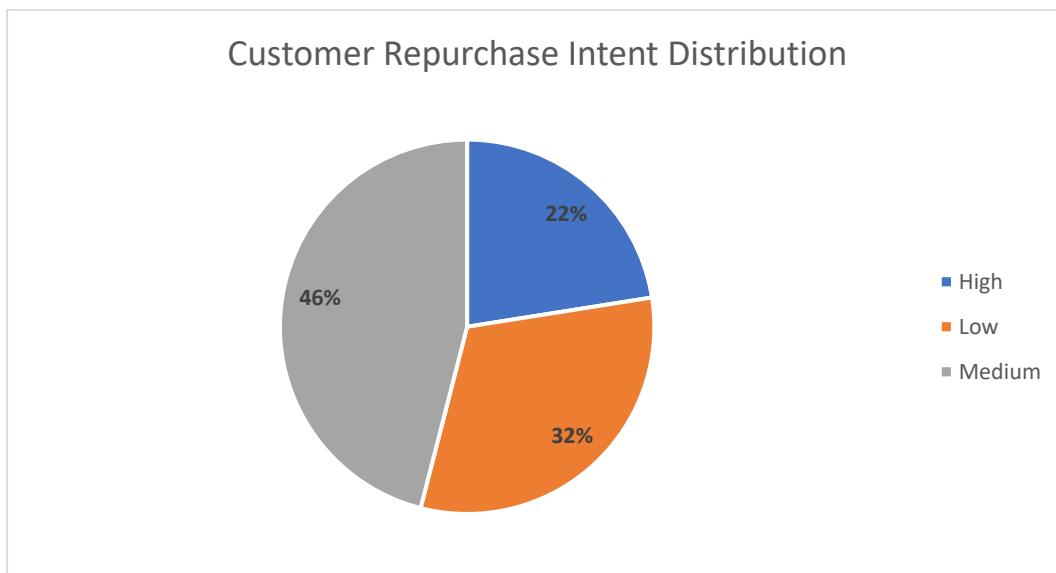
$$\text{High Intent Rate} = (45/200) \times 100 = 22\%$$

## 3. Visualization Techniques:

- *Stacked Bar charts* show distribution of customers complaints across loyalty tiers.



- *Pie charts* visualize intent score categories (High, Medium, Low)



#### 4. Qualitative Insights

- In-depth discussions with management revealed that most complaints from Gold tier clients related to post-sale service delays.
- Feedback indicated a lack of systematic loyalty program and inconsistent follow-up with medium/low-intent segments.
- Observed that automated interventions such as scheduled feedback requests or loyalty rewards were not established, contributing to low repeat intent.

## 4. Interpretation of Results and Recommendations

### 4.1. Inventory Capital Blockage by Material Category

The goal of this sub-section is to quantify the exact monetary impact of overstocked materials by mapping their net stock surpluses to unit costs. Cotton, Velvet, and Foil collectively account for over ₹1.23 crore in blocked working capital — validating the business concern around excessive holding costs and inefficient stock movement.

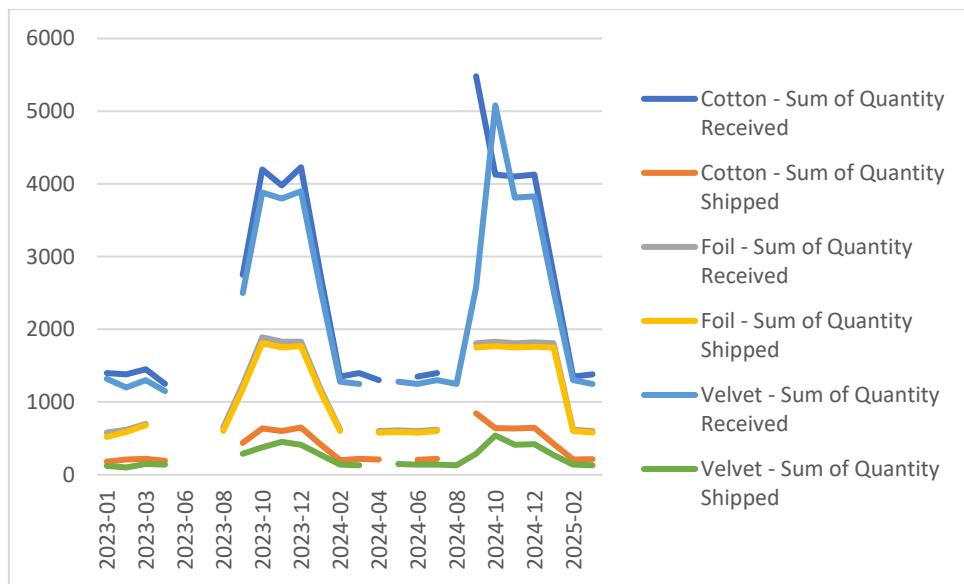


Fig.3.1.b: Estimated Capital Blockage by Material Category

#### Root Cause:

- Overestimation of seasonal demand
- Lack of structured inventory classification
- High unit and holding costs for slow-moving items

#### Recommendations:

##### 1. Implement ABC Inventory Classification

- Categorize materials into:
  - **Category A:** High-value, fast-moving items (e.g., Acrylic, Linen) — maintain optimal stock levels.
  - **Category B:** Moderate movement items (e.g., Foil) — monitor closely and replenish based on demand.

- **Category C:** Slow-moving items (e.g., Cotton, Velvet) — minimize, discount, or repurpose stock.

ABC classification will help prioritize procurement, warehousing, and clearance actions based on item criticality and movement.

## 2. Introduce Monthly Inventory Reviews

- Conduct periodic SKU-level stock audits.
- Flag materials with:
  - Low inventory turnover
  - High average holding time (>45 days)
- Set reorder points based on actual consumption trends rather than assumptions.

Regular reviews will help detect stagnation early and prevent further capital blockage.

## 3. Apply Forecast-Driven Procurement

- Use historical shipment and order trends to:
  - Forecast seasonal demand more accurately.
  - Adjust purchase quantities accordingly.
- Avoid bulk purchases unless justified by confirmed demand or lead time issues.

This reduces over-purchasing and aligns procurement with real-world demand cycles.

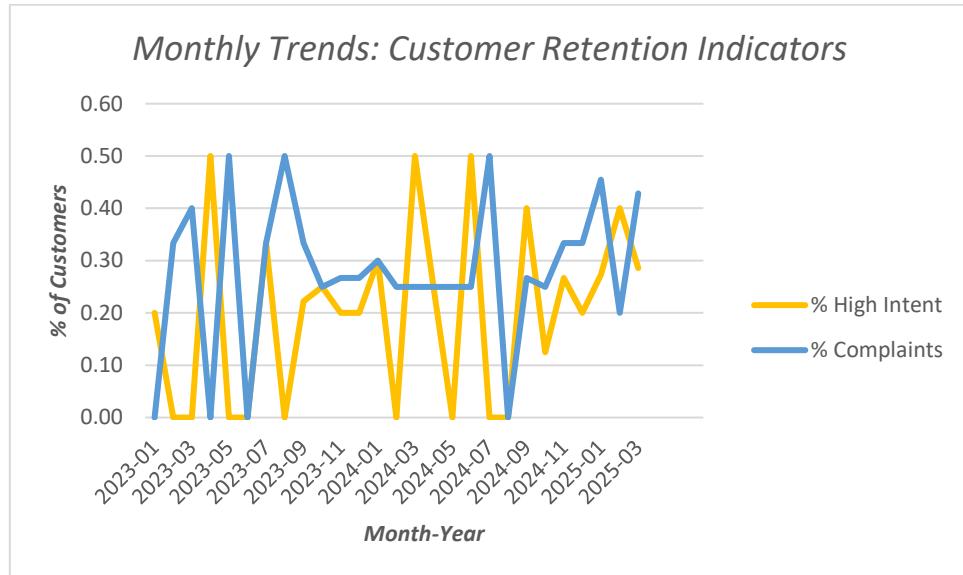
The provided chart illustrates the monthly trends of "Quantity Received" versus "Quantity Shipped" for major inventory materials, particularly focusing on Cotton and Foil. Notably, there are recurring periods where the quantity of cotton received (blue line) far exceeds the quantity shipped (orange line). This gap results in substantial inventory buildup, signaling inefficient procurement practices and an accumulation of excess stock.

For Cottons, the repeated spikes in received quantities that are not matched by proportional shipments clearly indicate that this material contributes most to overstocking and capital blockage. Foil, while lower in volume, also exhibits similar patterns, albeit to a lesser extent.

These visual trends provide concrete evidence of inventory inefficiency, identifying Cotton as the principal driver of surplus inventory and associated working capital being tied up in stock. The findings underscore the importance of aligning procurement more closely with actual shipment demand to optimize inventory levels and reduce unnecessary capital investment in excess stock.

#### 4.2.a Monthly Trends: Customer Retention Indicators

The line chart tracks the monthly trends of two key customer retention metrics: the percentage of customers with "High Intent" to repurchase, and the percentage registering complaints, over the period from January 2023 to March 2025.



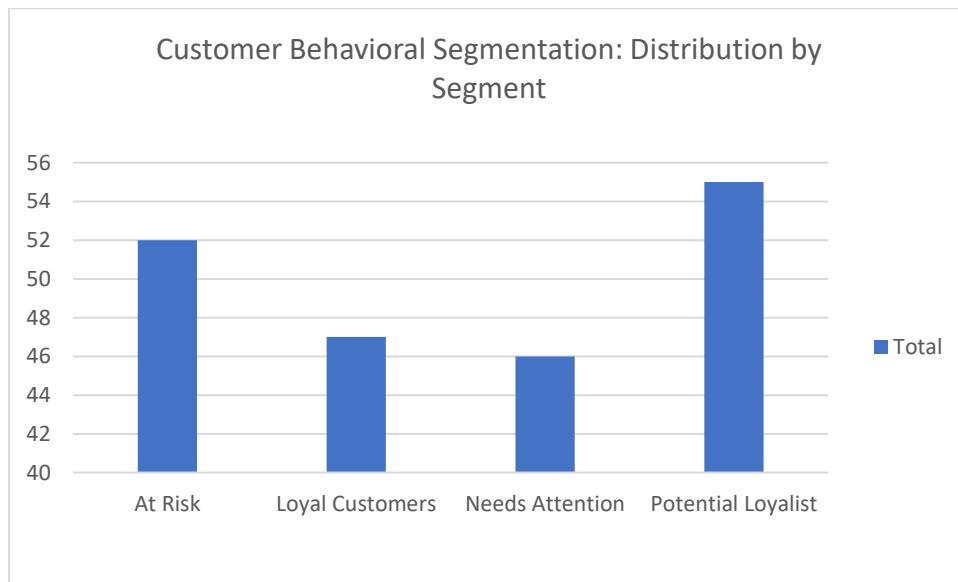
- % High Intent (yellow line): The trend shows considerable month-to-month fluctuation. There are several clear spikes and drops, indicating that customer willingness to repurchase is affected by seasonality, campaigns, or specific business events. The average high-intent rate appears to stabilize around 20-40% in the latter part of the period, suggesting some improvement or more consistent engagement strategies after initial volatility.
- % Complaints (blue line): Complaint rates also vary significantly from month to month, with sharp increases often aligning with dips in high intent. However, complaint percentages are mostly within the 20-40% range, closely mirroring intent trends. Notably, periods with high complaint rates tend to coincide with or immediately precede lower high-intent percentages, highlighting a direct negative impact of unresolved complaints on customer willingness to repurchase.
- Insights:  
The inverse relationship between the two indicators reinforces the importance of complaint resolution and service quality in driving repurchase intent. By closely monitoring these trends, the business can proactively address service gaps during complaint surges and reinforce engagement campaigns during periods of lower intent, optimizing overall customer retention.

## 4.2.b Segment-Wise Distribution of Customers, Intent, and Complaints

In analysing the CRM data, I segmented Duallush Designs' customers into four behavioral groups: Potential Loyalist, Loyal Customers, At Risk, and Needs Attention. Potential Loyalists are customers with high frequency, recency, and purchase value, indicating strong future purchasing potential and low complaint rates. However, a substantial portion of the customer base currently falls within the At Risk and Needs Attention categories, signaling lower intent to repurchase and greater vulnerability to churn.

### Root Cause:

- Limited post-sale engagement was observed, particularly for customers with medium and low repurchase intent.
- There is no structured, tier-based loyalty or retention program to foster ongoing customer relationships.
- Complaint resolution processes are often slow or lack consistency, negatively affecting overall satisfaction and increasing the risk of churn.



The Potential Loyalist segment includes 55 high-value customers with strong purchase behavior and high intent scores, offering key opportunities for personalized loyalty programs. Meanwhile, At Risk and Needs Attention segments make up nearly half the base, showing low intent and most complaints, requiring urgent retention efforts. Loyal Customers, totaling 47, are vital revenue drivers needing appreciation. Recommendations include tier-based loyalty benefits, automated post-sale engagement, and a fast, tracked complaint resolution system. These strategies will improve retention, reduce churn, and boost repeat orders for Duallush Designs.

## Recommendations:

### 1. Develop Tier-Based Loyalty Programs:

Tier-based benefits build emotional and financial incentives to increase repeat purchases and brand attachment.

Tier	Actionable Benefit
Gold	Personalized concierge service, priority production
Silver	Early access to new designs, exclusive offers
Bronze	Referral bonuses, first-time reactivation discounts
Platinum	Custom invitation previews, design consultations

### 2. Automated Post-Sale Engagement Workflows

- Set up automated emails or WhatsApp follow-ups:
  - Order updates
  - Feedback requests (within 7 days)
  - Anniversary check-ins for event-based purchases
- Use CRM to track post-delivery satisfaction and capture NPS (Net Promoter Score)

Proactive engagement can convert medium-intent buyers into loyal customers and reduce complaints caused by lack of communication.

### 3. Implement Complaint Tracking and SLA-Based Resolution

- Create a structured complaint management system:
  - Auto-ticket generation on complaint
  - Assign resolution timelines (e.g., resolved within 72 hours)
  - Use Zoho CRM or WhatsApp Business API for tracking

This builds trust, especially among Gold Tier customers who reported the **highest complaint volume** despite their loyalty.

## 4.3. Projected Impact

Implementing the recommended inventory optimization and enhanced CRM strategies at Duallush Designs is expected to deliver significant operational and customer engagement improvements:

### Operational and Financial Outcomes

- **Reduced Capital Blockage:** Aiming for a 30% reduction in inventory holding costs by cutting slow-moving stock in key categories like cotton, velvet, and foil through better forecasting and regular reviews.
- **Improved Inventory Turnover:** Increasing turnover ratios above 1.0 to lower average holding periods from over 75 days to below 45 days, freeing working capital for growth.
- **Optimized Procurement for Demand:**  
Demand-driven purchasing guided by accurate, data-based forecasting will minimize overstocking and inventory wastage, further increasing cost efficiency.

### Customer Experience and Retention

- **Higher Retention and Repeat Purchases:** Structured loyalty programs and targeted engagement are projected to boost high repurchase intent customers from ~22% to 35–40% within one year
- **Reduced Complaint Rates:**  
Implementing formal complaint tracking and rapid resolution standards (Service Level Agreements) should reduce the overall complaint incidence from 29% to under 10%, especially among high-value clients.
- **Enhanced Engagement Across Segments:** Automated tier-based follow-ups will re-engage At Risk and Needs Attention customers, shifting them into higher-value cohorts.

### Strategic and Long-Term Impact

- **Stronger Customer Lifetime Value:**  
By combining systematic post-sale engagement with loyalty incentives, client lifetime value will be increased, driving higher margins and stability for the business.
- **Greater Resilience and Scalability:**  
Streamlined inventory and CRM practices will position Duallush Designs to efficiently scale operations and respond quickly to changing demand trends.

## Quantitative Summary: Projected Post-Implementation Metrics

<b>Metric</b>	<b>Current Value</b>	<b>Target (12 months)</b>
Inventory Holding Cost (per unit)	₹ 2,565	↓ by 30% (to ~₹1,800)
Avg. Inventory Holding Days	90+	<45
High Intent Buyers	22%	↑ to 35–40%
Complaint Rate	29%	↓ to <10%
Repeat Orders	~22%	↑ to 35–40%

Careful management of inventory and strong customer loyalty plans will help turn problems into chances to create more value. This will improve cash flow, reduce waste, and build a more loyal and active group of customers for Duallush Designs. By focusing on what can be controlled within the company, this approach supports steady growth and better performance.

## 5. Additional

To maintain credibility and validate the authenticity of this project, the following materials and proof of data collection are shared below:

### 5.1 Appendix A – Field Notes and Data Collection Summary

Between **January 2024 and March 2025**, I engaged in a series of structured meetings and ongoing communications with the founder of Duallush Designs Pvt Ltd, **Mr. Waseem Khan**, at the corporate office (C-153, Sector 10, Noida, Uttar Pradesh). These sessions were instrumental in shaping the analytical approach and ensuring business relevance throughout the project.

#### Summary of Meetings:

- **Meeting 1 – January 2025:**  
Conducted an introductory session to gain a comprehensive understanding of the company's operations and strategic challenges. Observed the manual inventory management process and discussed procurement bottlenecks directly with the founder.
- **Meeting 2 – February 2025:**  
Collaboratively refined the project scope, identifying two primary focus areas: (1) High-value blocked capital in slow-moving inventory, and (2) Customer retention dynamics. Received access to key inventory and CRM datasets for in-depth analysis.
- **Meeting 3 – March 2025:**  
Presented initial analytical findings to the business owner, validating approaches to customer segmentation and inventory classification. Collected qualitative insights on demand seasonality, supplier dependencies, and shipment logistics to contextualize data trends.

These first-hand engagements, supplemented by follow-up communications, provided essential context for defining analytical variables, interpreting results, and tailoring actionable recommendations to Duallush Designs' unique business environment.

## 5.2 Google Drive Folder Link (Proof of Data Collection & Interaction):

### [BDM PROJECT](#)

Contents of the Folder:

-  Images of business visit to Duallush Designs, Sector 10, Noida
-  Letter of Authorization from the Business Owner (Mr. Waseem Khan)
-  Short video interaction with the business owner
-  Inventory and CRM Excel datasets