Advanced Excel Project Documentation: Sales Dataset Analysis

# 1. Project Overview & Objectives

The purpose of this project was to analyze a retail sales dataset using advanced Excel techniques. The dataset contained ~10,000 sales transactions across multiple years (2014–2017). Each record included order details, shipping information, customer details, product attributes, and financial metrics (Sales, Quantity, Discount, Profit, Loss).

Objectives achieved:

* Cleaned and structured the raw dataset by adding derived columns such as Day, Month, Year, Delivery Time, Loss, Invalid Sales, Adjusted Sales, and Discount Amount.
* Performed sales analysis by Region, Segment, Category, and Ship Mode.
* Identified most profitable and loss-making products,
* Created PivotTables, PivotCharts, and an interactive Dashboard for insights.
* Applied What-If Analysis, Goal Seek, and Macros to simulate business scenarios and automate tasks.
* Built a Power Pivot Data Model connecting Products and Customers for advanced relational analysis.

# 2. Data Preparation

The raw dataset was processed with the following steps:

* Applied proper date formatting to Order Date and Ship Date.
* Added new columns: Day, Month, Year, End of Month, Delivery Time.
* Checked for duplicates and missing entries, ensuring consistency.
* Created 'Loss' column for transactions with negative profit values.
* Introduced 'Invalid Sales' column to flag records with erroneous entries.
* Added 'Adjusted Sales' column to account for discounts.
* Created 'dis\_amt' column (Discount Amount = Sales × Discount).

# 3. Key Metrics & Calculations

Key calculations performed:

* Adjusted Sales = Sales – (Sales × Discount).
* Total Revenue = ₹19,74,618.73.
* Total Profit = ₹4,42,528.31.
* Total Loss = ₹1,56,131.29.
* Average Adjusted Sales per Order = ₹197.58.
* Total Orders = 9,994.

# 4. Sales & Time-Based Analysis

Yearly sales performance:

* 2014: ₹4,06,690.70
* 2015: ₹4,07,671.32
* 2016: ₹5,28,294.03
* 2017: ₹6,31,962.66

Insights:

* Sales grew steadily each.
* Peak sales periods observed in year-end quarters.
* Standard Class shipping dominated order volume with 5,968 orders 59%.

# 5. Regional & Segment Analysis

Segment Performance:

* Consumer: ₹9,95,133.99 revenue, ₹2,19,064.92 profit.
* Corporate: ₹6,14,756.96 revenue, ₹1,36,766.34 profit.
* Home Office: ₹3,64,727.78 revenue, ₹86,697.05 profit.

Regional Performance:

* West: ₹6,32,051.15 revenue, ₹67,345.96 profit.
* East: ₹5,84,172.61 revenue, ₹69,142.63 profit.
* Central: ₹4,23,452.23 revenue, ₹43,194.50 profit.
* South: ₹3,34,942.74 revenue, ₹39,381.83 profit.

Insights:

* Consumer segment drives highest volume.
* East and West regions lead in revenue; South underperforms.

# 6. Product & Category Analysis

Most Sold Products:

* Staples: 215 qty (₹755.47 revenue).
* Staple Envelope: 170 qty (₹1,686.81 revenue).
* Easy-staple Paper: 150 qty (₹2,504.19 revenue).

High-Value Products:

* Canon imageCLASS Copier: ₹61,599.82 revenue.
* Cisco TelePresence Unit: ₹22,638.48 revenue.  
    
  Category Contribution (Adjusted Sales):
* Technology: ₹7,13,493.38
* Furniture: ₹6,18,483.25
* Office Supplies: ₹5,87,420.76

# 7. Advanced Excel Features Applied

What-If Analysis: Modeled 10% sales increase and 5% discount reduction.

* Goal Seek: Determined units required to hit ₹5 lakh profit target.
* Macros: Automated formatting, PivotTable refresh, and report generation.
* Power Pivot: Connected Product and Customer tables with Sales table for advanced modeling.
* Calculated additional KPIs like Profit Margin = Profit ÷ Sales.

# 8. Interactive Dashboard

The dashboard showcased key KPIs:

* Total Adjusted Sales, Average Sales per Order, Total Discounts, and Profit.
* PivotCharts to show yearly growth, product contribution, and segment-wise profits.
* Slicers for dynamic filtering by Region, Category, and Ship Mode.

# 9. Insights & Recommendations

Key Insights:

* Consumers are the largest customer base; Corporate ensures steady profits.
* South is underperforming both in revenue and profits.
* Staples and consumables drive order count but contribute little to revenue.
* Losses concentrated in 3D Printers and Binding Machines.
* Discounts heavily affect First Class and Same Day deliveries.

Recommendations:

* Reassess discounting policies for fast shipping.
* Focus on East and West best practices to improve South performance.
* Promote high-margin categories like Accessories and Chairs.
* Limit inventory of risky high-ticket products.

# 10. Deliverables

Deliverables Completed:

* Cleaned dataset with derived columns.
* Adjusted Sales, Discount Amount, and Profit calculations.
* PivotTables & PivotCharts.
* Interactive Dashboard with KPIs and slicers.
* What-If Analysis, Goal Seek, and Macros.
* Power Pivot model connecting Products and Customers.
* Written documentation and presentation slides.