

SALES DATA ANALYSIS REPORT

Professional Summary

This report delivers an in-depth analysis of sales performance using the **cleaned_book_sales dataset** and an interactive **Power BI dashboard**. It applies structured data cleaning, column profiling, and visualization to uncover sales trends, customer behavior, and profitability drivers. By aligning descriptive, diagnostic, and predictive insights, the analysis provides decision-makers with a comprehensive view of sales dynamics. The findings highlight opportunities for **revenue growth, customer retention, regional expansion, and discount optimization**—all critical levers for achieving sustainable business performance.

Column Analysis

A review was conducted across the sales dataset. The following were identified as critical for insights:

Data Key Columns	Significance
Order ID, Order Date	Transaction Tracking, time-series trend analysis
Customer ID, Segment	Enables Segmentation and retention analysis
Product Category, Sub-Category	Product – level Performance, inventory decisions
Quantity, Sales	Revenue and volumes drivers
Discount, Profit	Key to margin and pricing Strategy

Data Cleaning Summary

- Missing Values:** Discount nulls were replaced with 0; blank Customer IDs were flagged for review.
- Standardization:** Date formats converted to YYYY-MM-DD; categorical values normalized (e.g., category naming).
- Outlier Treatment:** Extreme Sales values identified and capped for accurate visualization.
- Consistency Checks:** Profit validated against Sales–Discount relationship.
- Duplicates:** Duplicate Order IDs removed to ensure unique transaction records.

Visualizations & Insights

Sales Trends

- Monthly and yearly sales trends reveal **peak periods in November–December**, strongly linked to seasonal promotions.

- YOY comparison shows steady growth of ~X%.

Product Performance

- **Top categories** (Books & Stationery) contribute disproportionately to revenue.
- Sub-categories like **Notebooks** and **Study Guides** dominate sales, highlighting a dependency on limited SKUs.

Customer & Regional Insights

- **Repeat customers** account for ~Y% of sales revenue, indicating retention is a major growth driver.
- Regional analysis shows strong sales in [Region A], while [Region B] remains underpenetrated.

Profitability Analysis

- High-discount items recorded **lower margins despite high sales volume**.
- Premium products, sold with minimal discounts, drive **highest profitability**.

Key Takeaways

- **Revenue Concentration:** A few categories and sub-categories drive most sales — business is at risk if demand shifts.
- **Discount Impact:** Aggressive discounting boosts short-term sales but erodes margins significantly.
- **Customer Loyalty:** Repeat buyers generate the highest lifetime value; loyalty programs could amplify retention.
- **Regional Potential:** Underperforming regions provide immediate opportunities for targeted campaigns.
- **Strategic Focus:** Balancing high-volume, low-margin products with premium, high-profit items is key for sustainable growth.