

Final Project Report: Data Intelligence Dashboard Analysis

Executive Summary

The total revenue generated from the analyzed transactions is **\$229,192.47**.

The core of the business success is heavily dependent on the **Electronics** category, which dominates sales. The **East** region is the top performer, and **January** is the highest revenue month, suggesting targeted promotional efforts around the new year are effective. Customer loyalty is a significant predictor of sales, with a strong, statistically significant positive correlation between a customer's tenure and their total spending.

Key Performance Indicators (KPIs) & Sales Analysis

KPI	Value	Insight
Total Revenue	\$229,192.47	Overall business performance.
Top Category	Electronics	Represents the overwhelming majority of total sales.
Top Product	Laptop / Smartphone	Both high-value Electronics items are the primary revenue drivers.
Top Customer	Mark Carter	The highest-value customer, demonstrating significant individual contribution.
Top Region	East	The most profitable geographical segment.
Best Month	January	Highest performing month for sales volume.

1. Sales by Category

Category	Total_Amount (\$)
Electronics	\$171,756.05
Furniture	\$49,097.68
Appliances	\$8,338.74

**Insight:** Sales are highly concentrated in the **Electronics** category, which accounts for approximately 75% of the total revenue. This concentration is a key risk factor; diversifying product offerings or increasing promotional spend on **Furniture** and **Appliances** could mitigate this.

## 2. Top Products

Product_Name	Total Amount (\$)
Laptop	\$67,499.25
Smartphone	\$67,199.04
Desk	\$23,399.22
Monitor	\$21,999.12
Bookshelf	\$15,298.98

**Insight:** **Laptops** and **Smartphones** are the two primary drivers of the entire business, generating almost identical revenue. This suggests these high-ticket items are critical to the sales model.

## 3. Regional Sales Performance

Region	Total_Amount (\$)
East	\$59,288.39
North	\$50,808.31
West	\$41,408.68
Central	\$41,288.34
South	\$36,398.75

**Insight:** The **East** region is the clear market leader, while the **South** region significantly lags behind. Resources could be focused on understanding the success factors in the **East** and replicating strategies in the underperforming **South** region.

## 4. Top Customers

Customer_Name	Total_Revenue (\$)
Mark Carter	\$15,659.65
Edward Mitchell	\$11,919.77
Barbara Young	\$10,649.80
Patricia Moore	\$9,799.73

Customer_Name	Total_Revenue (\$)
Dorothy Nelson	\$8,269.79

**Insight:** The top customer, **Mark Carter**, contributes more than 1.3 times the revenue of the 5th ranked customer, **Dorothy Nelson**. Identifying the purchasing behaviors and common characteristics of these high-value customers is essential for developing a targeted retention and loyalty program.

## 5. Monthly Sales Trend

The highest sales month is **January** \$25,799.15, suggesting a significant post-holiday or new year purchasing cycle. The lowest performing month is **November** \$12,309.44, potentially due to holiday shopping deferral until December.

## Advanced Analysis

### A. Linear Regression: Customer Loyalty and Spend

A linear regression was performed to determine the relationship between **Customer Tenure (Customer Since in Years)** and **Total Amount Spent (Total\_Amount)**.

Statistic	Coefficients	P-value
Intercept	-148.188563	0.4194
Customer Since (Years)	1087.051939	2.539e-14

**Insight:** The **Customer\_Since (Years)** coefficient of \$1087.05 is statistically significant (P-value), indicating that for every additional year a customer has been with the company, their **Total Amount** spent increases by approximately **\$1,087.05**. This highlights the paramount importance of **customer retention and loyalty programs** as the single most significant predictor of high customer lifetime value.

### B. What-If Analysis: Scenario Planning

The Scenario Manager was used to test the impact of setting different sales targets.

| Current Values | High Sales | Low Sales |

| Projected Sales Target | 40,000 | 60,000 | 40,000 |

**Insight:** The scenario summary shows a tested **High Sales** target of **60,000** compared to the current and low target of 40,000. This suggests management is interested in the feasibility and impact of achieving a 50% increase over the current target, which is critical for quarterly planning.

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## Conclusion and Recommendations

1. **Double Down on Electronics and Loyalty:** Continue to invest heavily in the **Electronics** category while simultaneously developing a robust, tiered loyalty program to capitalize on the strong correlation between customer tenure and spending.
2. **Regional Investment:** Investigate marketing strategies and product mixes in the **East** region and apply successful elements to the **South** region to increase revenue parity.
3. **Capitalize on January:** Plan major marketing campaigns and inventory stocking in December/January to maximize the high-performance window identified in the monthly trend analysis.
4. **High-Value Customer Profiling:** Conduct a deeper analysis of the Top 5 customers to build predictive models for identifying and converting new customers into high-value accounts.