

E-commerce Sales Performance Analysis Project

Project Objective

Conducted comprehensive sales performance analysis of an e-commerce business by analyzing customer behavior, product performance, regional trends, and return patterns to identify growth opportunities and optimize business strategy.

Key Analysis Areas & SQL Queries Developed

General Sales Insights

- Calculated total revenue across all periods and segmented by year/month
- Analyzed revenue by product categories and individual products
- Computed Average Order Value (AOV) with temporal and regional breakdowns

Customer Analytics

- Identified top 10 high-value customers by total spend
- Calculated repeat customer rate and customer lifetime value (CLV)
- Implemented RFM segmentation (Platinum/Gold/Silver/Bronze tiers)
- Analyzed purchasing frequency and inter-purchase time by region

Product & Order Performance

- Identified top-selling products by quantity and revenue
- Calculated product return rates and category-wise return analysis
- Tracked sales trends and seasonality patterns across categories
- Analyzed regional price variations and demand patterns

Regional & Temporal Analysis

- Compared order volumes and revenue across different regions
- Identified high/low performing geographic markets
- Analyzed monthly/weekly sales trends and AOV fluctuations
- Mapped regional return rates to identify problematic markets

Return & Refund Analytics

- Quantified overall and category-specific return rates
- Identified customers with frequent return patterns
- Analyzed regional return patterns for supply chain optimization

Power BI Dashboard

- **Interactive visualizations** for executive decision-making
- **Key dashboard pages:**
 - **Executive Summary:** Overall KPIs and performance metrics
 - **Customer Insights:** Segmentation, repeat rates, lifetime value
 - **Product Analytics:** Top performers, return analysis, category trends
 - **Regional Performance:** Geographic distribution, market comparison
 - **Temporal Trends:** Monthly/weekly patterns, seasonality analysis
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Technical Skills Demonstrated

- **SQL Expertise:** Complex joins, CTEs, window functions, aggregations
- **Data Analysis:** Revenue calculations, customer segmentation, trend analysis
- **Business Intelligence:** AOV, CLV, return rate metrics, performance KPIs
- **Data Modeling:** Working with 5-table relational database schema

Business Impact

- Enabled data-driven decision making for inventory and marketing strategies
- Identified high-value customer segments for targeted retention campaigns
- Pinpointed regional opportunities for market expansion
- Reduced return rates by identifying problematic products/categories