eCommerce Sales Analysis

By Using SQL and Python

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Project Overview

This e-commerce project involves a comprehensive analysis of transactional data using SQL queries. The project aims to extract meaningful insights into customer behavior, sales trends, and overall business performance. By leveraging data, the business can identify opportunities for growth, optimize operations, and enhance customer satisfaction.

Business Problem

The e-commerce business faces challenges in understanding customer behavior, optimizing sales performance, and managing operational efficiency. Specifically, the company needs insights into:

- Customer demographics and geographic distribution.

- Trends in sales and order patterns.

- Revenue contributions from product categories and sellers.

- Customer retention rates and purchasing behavior.

- Pricing sensitivities and payment preferences.

Objective

The primary objective of this project is to utilize data-driven insights to inform business strategies. The specific goals include:

1. Analyzing customer distribution and identifying target markets.

2. Tracking sales trends and revenue growth over time.

3. Understanding customer purchasing behavior and retention rates.

4. Optimizing product pricing and inventory management.

5. Evaluating seller performance to strengthen partnerships.

Customer Demographics and Distribution

1. Unique Cities of Customers: The analysis revealed the diverse geographic distribution of customers, identifying all unique cities where the business has a presence.

2. Customer Distribution by State: A breakdown of customers by state provides a granular view of geographic performance.

Sales Performance Metrics

1. Order Trends: Insights into seasonal patterns and peak demand periods.

2. Cumulative Monthly Sales: Tracking growth trajectory over time.

3. Year-over-Year Sales Growth: Measuring the effectiveness of strategic initiatives.

4. Total Sales Per Category: Prioritizing high-revenue categories and addressing gaps in underperforming ones.

Customer Behavior Insights

1. Average Products Per Order by City: Location-specific purchasing patterns.

2. Retention Rate: Percentage of customers making repeat purchases within six months.

Revenue Analysis

1. Percentage of Revenue by Product Category: Clear understanding of the revenue structure.

2. Revenue by Seller: Ranking sellers by total revenue generated.

Product and Pricing Insights

1. Correlation Between Product Price and Purchase Volume: Pricing sensitivities and customer preferences.

2. Top-Spending Customers: Nurturing high-value customer relationships.

Business Implications and Recommendations

1. Geographic Expansion: Target untapped markets.

2. Product and Inventory Management: Optimize inventory and pricing.

3. Customer Retention and Loyalty: Enhance loyalty programs.

4. Seller Performance Optimization: Strengthen relationships with top-performing sellers.

5. Financial Planning and Growth: Support long-term financial planning.

Conclusion

This e-commerce project analysis provides a comprehensive overview of customer behavior, sales performance, and revenue generation. By leveraging these insights, the business can improve operational efficiency, enhance customer satisfaction, and drive sustained growth in revenue and market growth.

THE END