E-commerce Sales Analysis Report

Date: April 22, 2025

1. Project Overview

This report presents a data analysis of an e-commerce business focused on understanding sales trends, customer behavior, product performance, and marketing campaign effectiveness. The dataset simulates transactions from January to June 2024.

2. Business Questions

- How have monthly sales trended over the past 6 months?

- Who are our most valuable customers?

- Which products are top performers?

- What campaigns drive the most revenue?

3. Data Cleaning Queries

The following SQL queries were used to clean and transform the dataset:

```
-- Remove null values from critical fields
SELECT * FROM sales_data WHERE order_id IS NOT NULL AND product_id IS NOT NULL;
```

```
-- Convert dates and extract month
SELECT order_date, EXTRACT(MONTH FROM order_date) AS month, sales_amount FROM sales_data;
```

```
-- Join with customer data for segmentation
SELECT s.*, c.customer_type FROM sales_data s JOIN customers c ON s.customer_id = c.id;
```
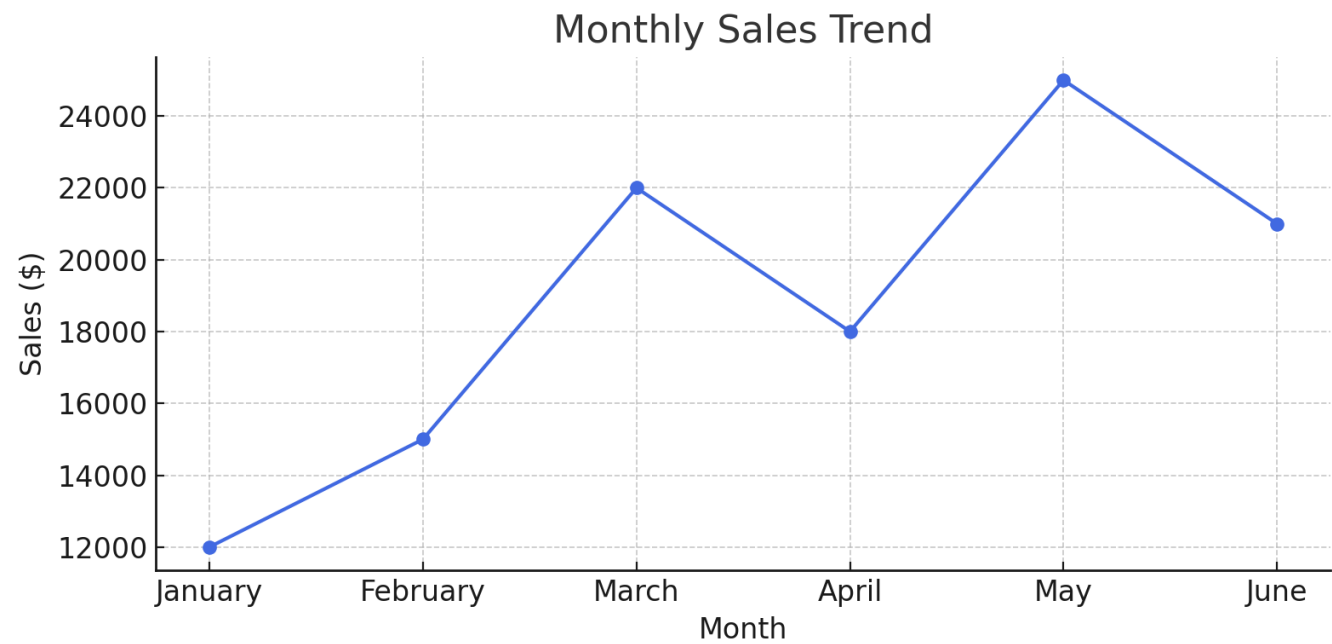
4. Visual Insights

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Sales Overview:

- Sales peaked in March and May.

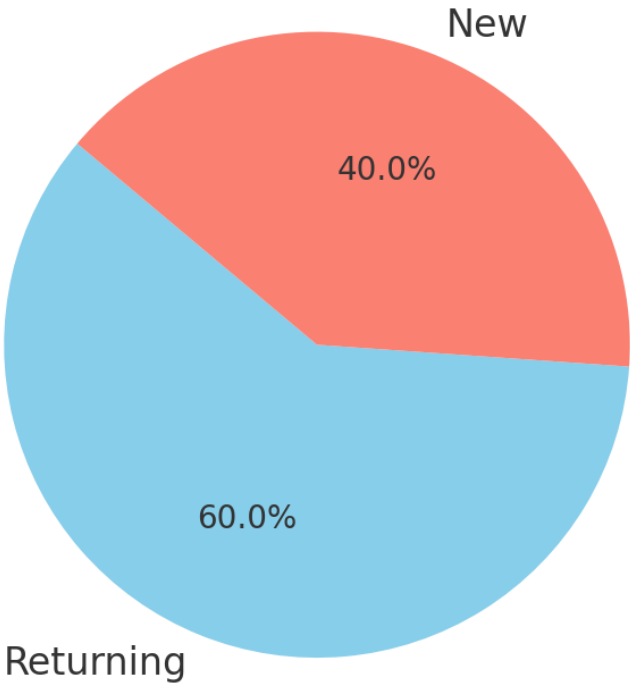- Positive growth trend observed across Q1.

Monthly Sales Trend

Customer Insights:

- Returning customers make up the majority.

- High-LTV customers are mainly from Tier 1 locations.

New vs Returning Customers
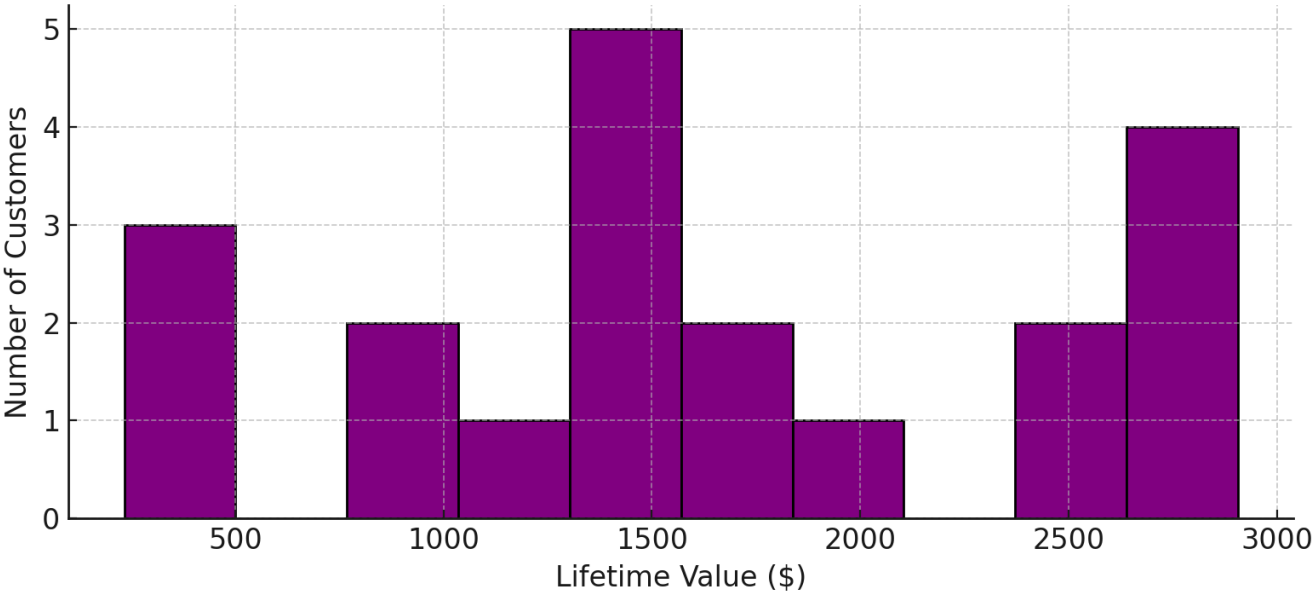
New

40.0%

60.0%

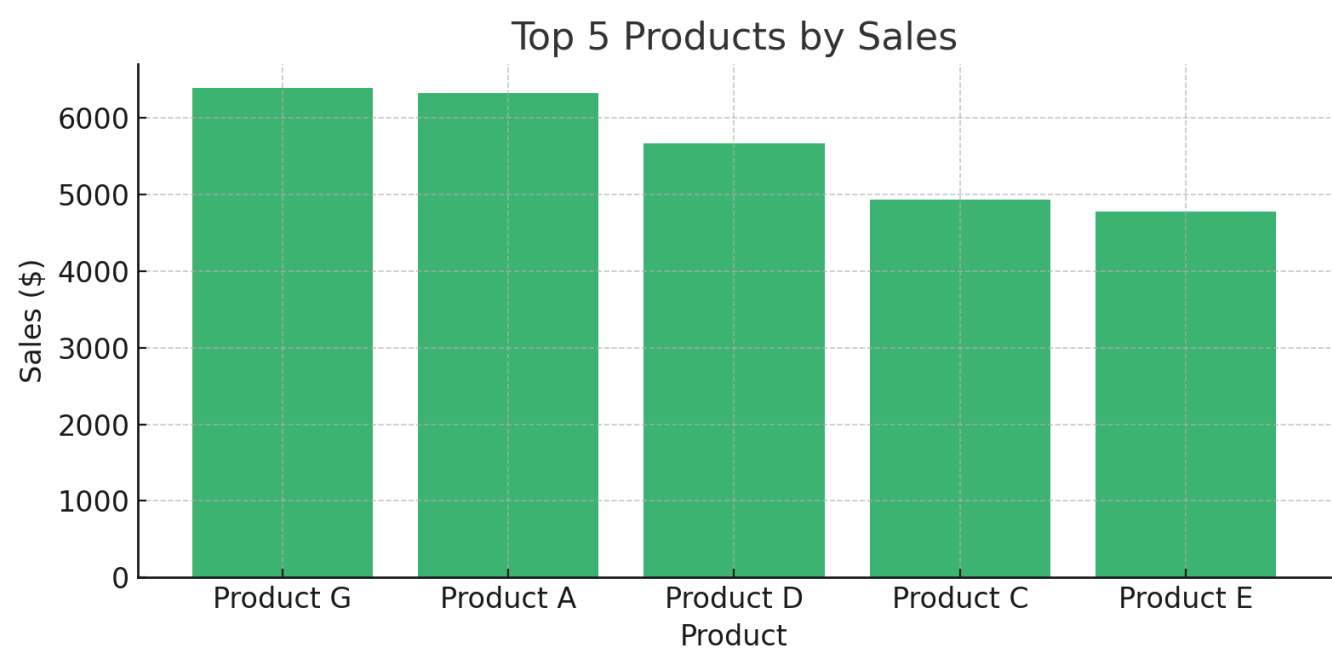Returning

Customer Lifetime Value Distribution

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Product Performance:

- Product A and B are top performers.

- Health and Apparel categories perform well seasonally.
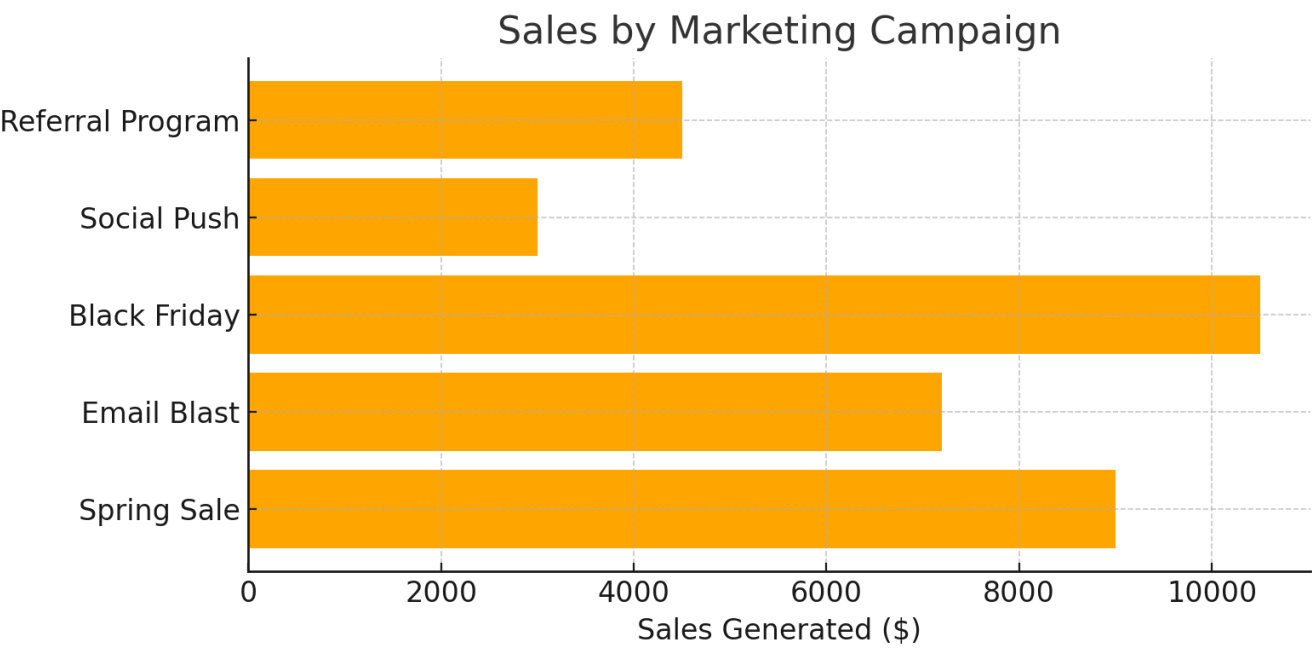
Top 5 Products by Sales

Marketing Effectiveness:

- Spring Sale campaign generated the most revenue.

- Email marketing shows strong ROI.

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Sales by Marketing Campaign

5. Conclusion & Recommendations

The analysis reveals strong sales performance in spring, loyal returning customers, and effective product and campaign strategies. Recommendations include:

- Focus marketing on high-LTV customers in Tier 1 cities.

- Expand inventory of top-performing products.

- Replicate Spring Sale strategy for future promotions.