

Retail Sales SQL Workflow Analysis

Unveiling insights from sales data to drive strategic business decisions. This presentation outlines the SQL workflow for retail sales analysis, focusing on data cleaning, exploration, and key business problem-solving.



Understanding Our Data Foundation

Before diving into analysis, a robust and clean dataset is essential. Our initial steps involved setting up the database and ensuring data integrity.



Database Setup

Created `Retail_Sales_Analysis` database and designated it for use.



Initial Data Overview

Selected all data from the `Retail_Sales` table to get a full view of the dataset.



Record Count

Confirmed a total of 2000 rows in the dataset, providing a solid analytical base.

Phase 1: Data Cleaning

Accurate data is the bedrock of reliable analysis. Our first phase focused on refining column names and identifying any missing values.



Column Renaming

Standardized column names for clarity and consistency:

- `quantiy` corrected to `quantity`
- `total_sale` corrected to `total_sales`

Ensuring uniformity for smoother queries.

NULL Value Check

Thoroughly scanned for `NULL` values across all critical columns (`transactions_id`, `sale_date`, `customer_id`, etc.) to prevent data integrity issues.



Phase 2: Data Exploration - Initial Insights

Our exploration revealed foundational statistics about our sales operations and customer base.

2000

Total Sales Records

Representing individual sales transactions.

155

Unique Customers

Insights into our customer reach and loyalty.

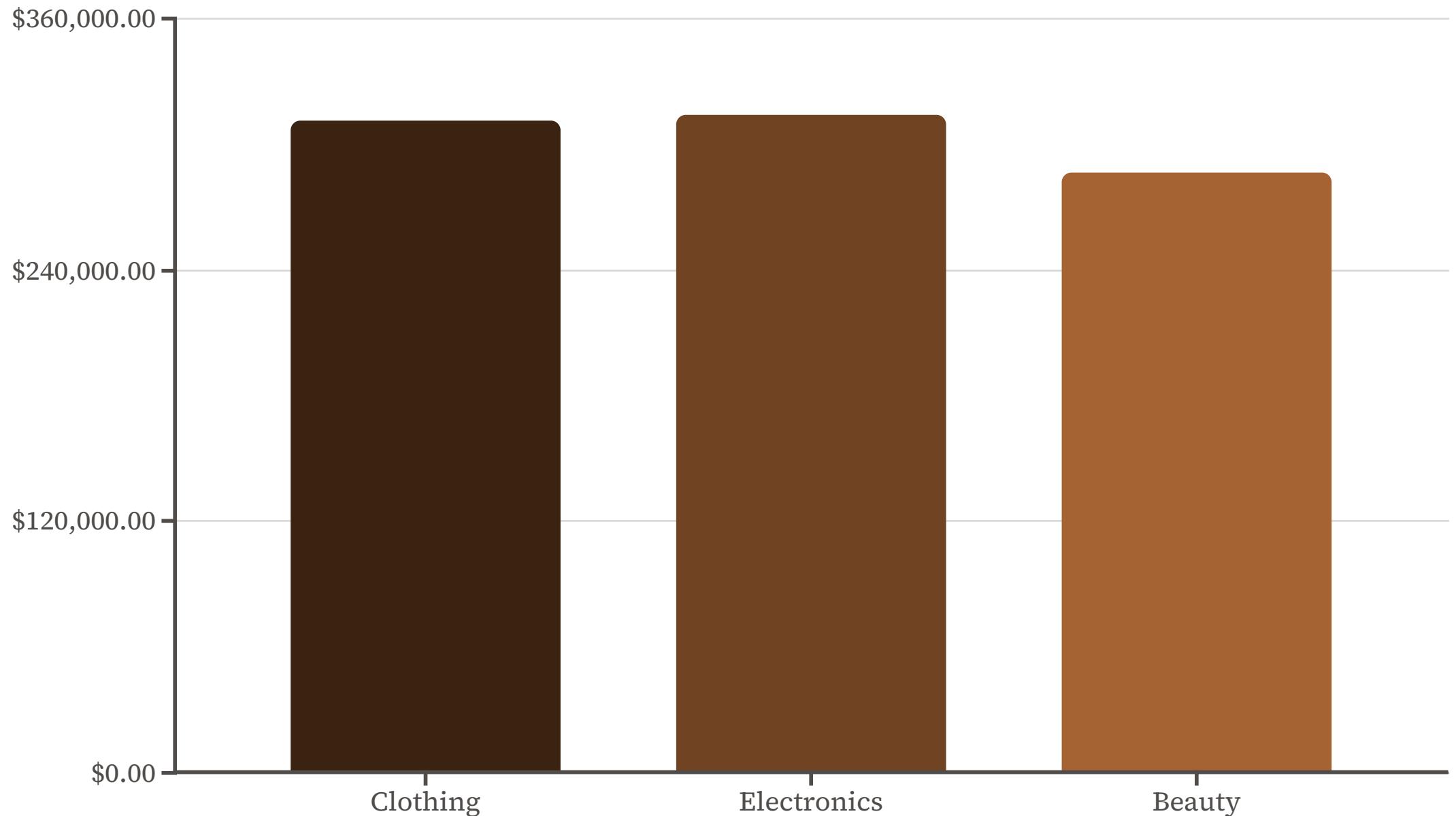
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Product Categories

Our core offerings: Clothing, Electronics, Beauty.

Category Sales Performance

A breakdown of total sales by product category provides insight into revenue generation across our offerings.



Electronics emerged as the top-performing category, closely followed by Clothing, while Beauty maintains a strong third position.



Customer Demographics & Purchasing Patterns

Understanding who buys what and when is crucial for targeted marketing and inventory management.



Beauty Category - Average Customer Age

Customers purchasing from the Beauty category have an average age of **40**. This demographic insight helps tailor marketing strategies.



High-Value Transactions

Identified all transactions with total sales exceeding **\$1000**, highlighting significant purchases and potential premium customer segments.



Gender & Category Transactions

Analyzed transaction counts by gender across categories to reveal distinct purchasing behaviors and preferences.

Optimizing Sales: Best Selling Months

Identifying peak sales periods helps optimize inventory and staffing.

Our analysis pinpointed the months with the highest average sales for each year, providing a clear roadmap for future planning.

- July 2022 saw the highest average sales of **\$528**.
- February 2023 emerged as the best-selling month with an average of **\$535** in sales.

These insights are crucial for seasonal promotions and resource allocation.



Customer Loyalty & Top Spenders

Recognizing our most valuable customers is key to fostering loyalty and driving repeat business.



Unique Customers Per Category

- Beauty: **141** unique customers
- Clothing: **149** unique customers
- Electronics: **144** unique customers



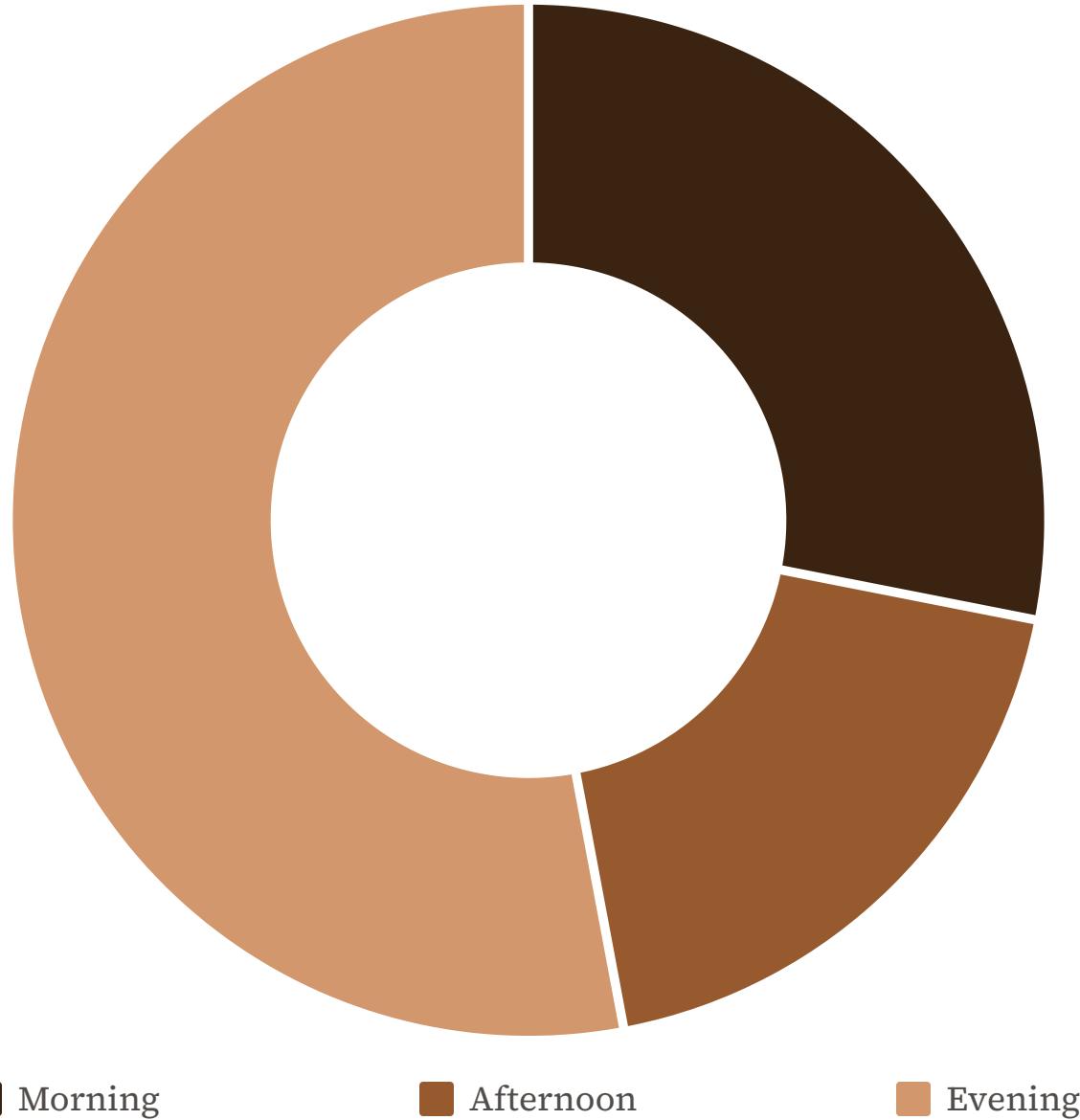
Top 5 Customers by Total Sales

- Customer 3: **\$38,440**
- Customer 1: **\$30,750**
- Customer 5: **\$30,405**
- Customer 2: **\$25,295**
- Customer 4: **\$23,580**

Focusing on these high-value customers through loyalty programs and personalized offers can significantly boost revenue.

Operational Efficiency: Sales by Shift

Analyzing transaction patterns across different shifts can inform staffing and operational adjustments.



The Evening shift accounts for the highest number of orders, followed by Morning, indicating peak business hours.

Key Takeaways & Next Steps

Our SQL workflow has illuminated critical areas for business growth and operational improvement.

Targeted Promotions

Leverage category-specific and age-based insights for more effective campaigns.

Continuous Analysis

Regularly monitor sales trends and customer behavior for ongoing insights.



Customer Retention

Develop programs for top customers to enhance loyalty and repeat purchases.

Operational Optimization

Align staffing and inventory with peak sales periods, especially evening shifts.