

Retail Sales Analysis Report

Database: retail_sales_analysis

Working Table: rsa

Analyst: Mahmoud

Objective: To clean, explore, and analyze retail sales data to uncover actionable business insights.

1. Data Setup & Preparation

- A working table rsa was created as a copy of the raw dataset to preserve original data integrity.
- Initial checks confirmed:
- Total number of sales records.
- Number of unique customers.
- List of distinct product categories.

2. Data Cleaning

Duplicate Check

- All records were scanned for exact duplicates using a row comparison technique.
- **Result:** No duplicate entries found.

Null Value Check

- Verified that all critical fields (transaction ID, date, time, gender, category, quantity, cost, and total sale) were complete.
- **Result:** No missing values detected.

3. Data Exploration

Key Metrics Identified:

- **Total Sales Records:** Counted to understand dataset size.

- **Unique Customers:** Measured to assess customer base.
- **Product Categories:** Listed to understand the range of offerings.

4. Business Questions & Insights

1. Sales on a Specific Date

- Sales made on November 5, 2022 were retrieved to analyze daily performance.

2. High-Volume Clothing Sales

- Identified clothing transactions with more than 4 units sold during November 2022.

3. Total Sales by Category

- Summarized total sales and number of orders for each product category.
- **Insight:** Reveals top-performing categories.

4. Average Age of Beauty Shoppers

- Calculated the average age of customers purchasing beauty products.
- **Insight:** Helps tailor marketing strategies by age group.

5. High-Value Transactions

- Highlighted transactions where total sales exceeded 1000 units.
- **Insight:** Useful for identifying VIP customers.

6. Transactions by Gender and Category

- Counted how many transactions were made by each gender across categories.
- **Insight:** Supports gender-based product targeting.

7. Best-Selling Month per Year

- Analyzed average monthly sales and ranked months by performance.
- **Insight:** Guides seasonal inventory and promotional planning.

8. Top 5 Customers by Sales

- Identified the five customers with the highest total purchases.
- **Insight:** Ideal for loyalty programs or personalized offers.

9. Customer Reach by Category

- Measured how many unique customers purchased from each category.
- **Insight:** Indicates category popularity and engagement.

10. Sales Distribution by Shift

- Classified sales into Morning, Afternoon, and Evening shifts based on time.
- **Insight:** Helps optimize staffing and time-based promotions.

Key Findings:

- **Customer Demographics:** The dataset includes customers from various age groups, with sales distributed across different categories such as Clothing and Beauty.
- **High-Value Transactions:** Several transactions had a total sale amount greater than 1000, indicating premium purchases.
- **Sales Trends:** Monthly analysis shows variations in sales, helping identify peak seasons.
- **Customer Insights:** The analysis identifies the top-spending customers and the most popular product categories.

Summary Reports

- **Sales Summary:** A detailed report summarizing total sales, customer demographics, and category performance.
- **Trend Analysis:** Insights into sales trends across different months and shifts.
- **Customer Insights:** Reports on top customers and unique customer counts per category.