Business Report

Author: Santosh J. Gitte

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Executive Summary

A. Purpose of this Report

The purpose of this report is to showcase analytical and problem-solving skills through the use of SQL and business intelligence methods. By analyzing sales and operational data, the report provides insights into revenue trends, customer behavior, and regional performance, with recommendations for improving efficiency and profitability.

B. Key Findings

- CAMERA generate the highest revenue of rs.2225.78.
- Category GADGETS has the most amount of revenue that is rs.12643.03.
- Sales are decreasing quarter by quarter.
- SOUTH region has the most customer count of 61.
- Focus on WEST, EAST & CENTRAL regions.
- MOUSE has the most sales by months.

C. Main Recommendations

- Boost *Camera* sales with bundles and promotions.
- Strengthen *Gadgets* category with more inventory and offers.
- Counter falling sales with seasonal discounts and loyalty schemes.
- Expand in *West, East & Central* regions; retain *South* customers.
- Upsell with *Mouse* (most monthly sales) via combo deals

1. Introduction

Retail Sales Database project simulating real-world sales analytics. Designed with customers, products, orders, and regions to track sales, revenue, and product performance. Enables insights into top products, customer trends, and profit margins using SQL queries.

Objectives:

- Design a normalized Retail Sales Database Schema
- Perform data cleaning & loading from CSV into MySQL
- Write SQL queries to answer real business questions
- Use window functions, joins, indexing, and subqueries for advanced analytics
- Generate business insights & KPIs (Revenue, Profit, Customer Segments, Trends) Scope (timeframe, dataset, regions, etc.).

Scope of the Report:

- **Timeframe:** Sales data analyzed across multiple quarters.
- **Dataset:** Customers record, products, order details, order items and region.
- **Regions:** South, West, East, North and Central regions.
- **Focus Areas:** Revenue trends, product/category performance, regional analysis, and customer distribution.

Methodology

- ➢ **Data Sources:** Raw sales data containing product, category, region, and customer details.
- ➢ **Tools Used:** SQL for data extraction and analysis, Excel for visualization, and basic statistics for trend identification.
- ➢ **SQL Queries:**

  - Data cleaning (removing NULLs, duplicates).
  - Aggregations (SUM, AVG, COUNT) for revenue, sales, and customer counts.
  - Window functions for ranking products and calculating revenue share.
  - Joins across tables (customers, orders, order_items, products, regions) for consolidated insights.

2. Data Overview

Dataset Description

- ➢ **Tables**:

  - o **Customers** – customer_id, proper_name, email, phone, region_id
  - o **Orders** – order_id, order_date, ship_date, status
  - o **Order_Items** – order_item_id, order_id, product_id, quantity, total_price
  - o **Products** – product_id, product_name, category, price
  - o **Regions** – region_id, region_name

- ➢ **Columns**: Include identifiers (IDs), categorical fields (region, category), numerical fields (quantity, price, total_price), and date fields.

- ➢ **Volume**: Dataset contains ~200+ records with realistic imperfections such as NULLs, duplicates, and inconsistent text formatting.

Data Cleaning & Processing

- Removed NULL values from product_id, quantity, and total_price.
- Filtered duplicate rows in orders and order_items.
- Standardized text formatting for product and category names.
- Validated data types (numeric for quantity/price/revenue, date for order_date/ship_date).
- Ensured referential integrity across tables (orders ↔ order_items, products ↔ categories, regions).
- Created derived fields such as total revenue per order and average order value.

Limitations of the Data

- **Incomplete data**: Some records contained NULL values that may affect accuracy.
- Data quality issues: Presence of duplicates and inconsistent formatting required corrections.
- **Sample size**: Dataset volume (~200 records) is relatively small compared to real-world business data.
- **Timeframe**: Analysis is based on limited quarters, so seasonal patterns may not be fully captured.
- **Assumptions**: Certain derived metrics (e.g., average order value) are based on cleaned data and may differ from actual business figures.
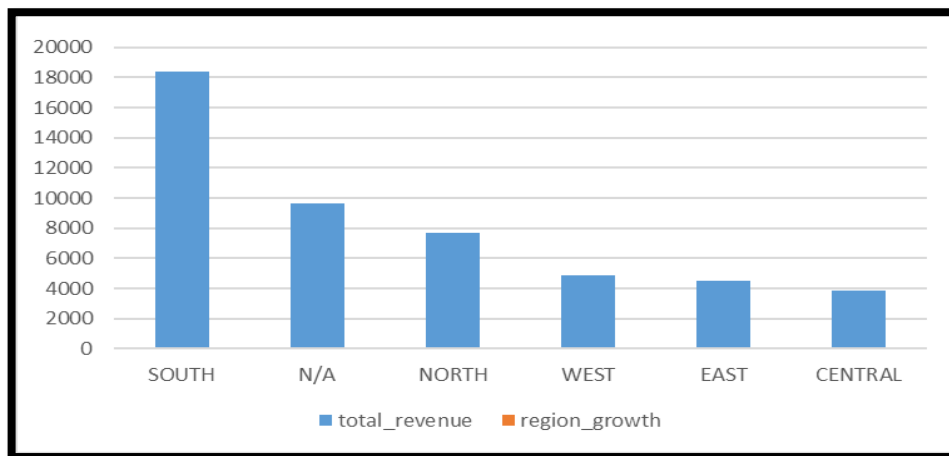
3. Analysis & Findings

- **Revenue Analysis:** The top 10% of orders contribute 27.14% of revenue, showing strong revenue dependence on a small group of high-value transactions.
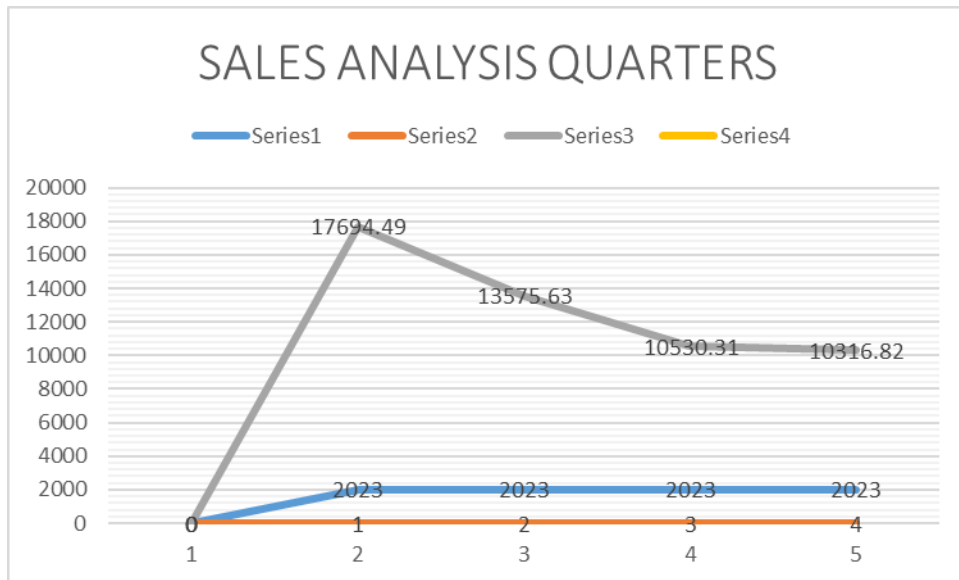
- **Top Products:** Mouse, Charger, Tablet, Monitor, Keyboard

- **Customer Insights:** Customer percent per region
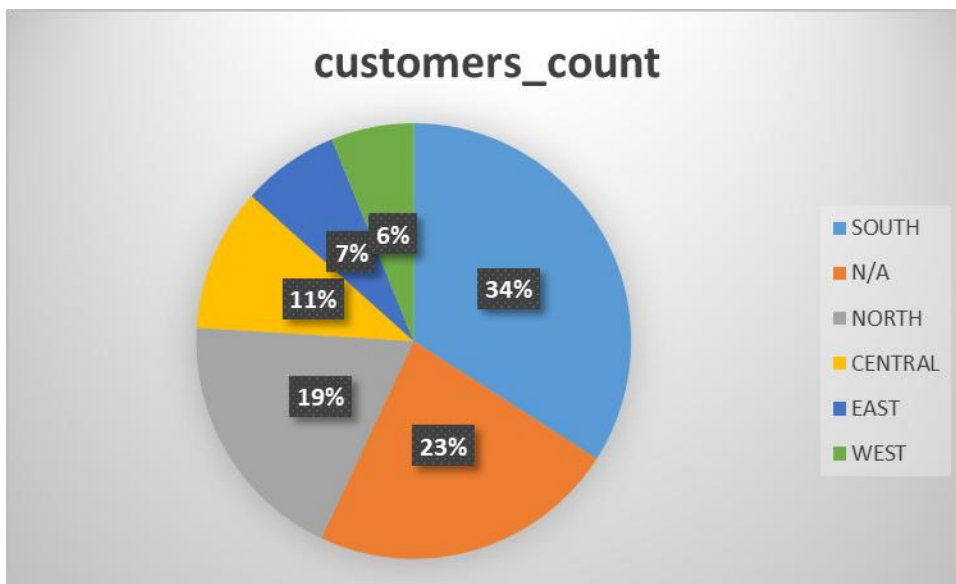
- **Regional Performance**

4. Key Business Insights

- Insight 1 → CAMERA generate the highest revenue of rs.2225.78.
- Insight 2 → Category GADGETS has the most amount of revenue that is rs.12643.03.
- Insight 3→ Sales are decreasing quarter by quarter.
- Insight 4 → SOUTH region has the most customer count of 61.
- Insight 5 → MOUSE has the most sales by months.

5. Recommendations

- Focus on WEST, EAST & CENTRAL regions.
- Promote *Camera* with bundles and targeted campaigns to boost already strong revenue.
- Expand inventory and marketing for *Gadgets* to maintain dominance and capture more market share.
- Introduce quarterly discounts, festive offers, and loyalty programs to counter the downward sales trend.
- Retain strong *South region* customer base through continued engagement.
- Invest in *West, East, and Central* with region-specific promotions to drive growth.

6. Conclusion

The analysis highlights that **Cameras** generate the highest revenue, while the **Gadgets** category dominates overall sales. However, sales are declining quarter by quarter, requiring timely interventions. Regionally, the **South** leads in customer count, but there is significant growth potential in the **West, East, and Central** regions. Additionally, **Mouse** products show consistent monthly sales, presenting opportunities for cross-selling.

Moving forward, the focus should be on **expanding high-performing categories**, **stabilizing quarterly sales trends**, and **balancing regional performance** through targeted strategies. By leveraging these insights, the business can improve revenue sustainability and strengthen its competitive position.

Appendices

A. SQL Queries Used

- Queries for data cleaning (removing NULLs, duplicates, standardizing text).
- Aggregation queries (SUM, AVG, COUNT) for revenue, orders, and customers.
- Window functions for ranking top products and calculating revenue contribution.
- Joins across Customers, Orders, Order_Items, Products, and Regions tables for consolidated insights.

B. Detailed Tables and Charts

- Revenue by product, category, and region.
- Quarterly sales trends.
- Customer counts by region.
- Top 10% of orders contribution to total revenue.

C. Glossary of Terms

- **Revenue:** Total sales value generated from orders.
- **Order Value:** The monetary value of a single order (sum of item prices).
- **Customer Count:** Number of unique customers placing orders.
- **Region:** Geographic area (South, East, West, North Central) used for business segmentation.
- **Category:** Product classification such as Gadgets or Accessories.