



Sales Data Analysis Project

Project Overview

This project demonstrates a **complete data analytics workflow** starting from raw sales data to generating actionable business insights through **SQL data cleaning, transformation, and visualization in Tableau**.

The goal of this project was to:

1. Import and explore raw sales data.
2. Perform systematic **data cleaning and preprocessing using SQL**.
3. Build a **clean, analysis-ready dataset** for downstream reporting.
4. Conduct exploratory data analysis (EDA) with SQL queries.
5. Create **interactive dashboards in Tableau** for business decision-making.

This end-to-end pipeline reflects how real-world company data can be transformed into meaningful insights for stakeholders.

? Project Structure

- **sales_data_sample.csv** → Original raw dataset.
- **Sales Analysis.sql** → SQL script for data cleaning, transformation, and analysis queries.
- **Clean_Sales.csv** → Final cleaned dataset ready for visualization.
- **Tableau Work.twbx** → Tableau workbook with dashboards and visualizations.

Data Cleaning & Transformation (SQL)

Key steps performed in the SQL script:

- **Data Quality Checks**
 - Counted total records.
 - Checked for **missing values** and **duplicates**.
- **Cleaning Rules Applied**
 - Removed rows with negative/zero prices or quantities.
 - Kept only **completed (Shipped) orders**.
 - Standardized categorical values (e.g., “SHIPPED” → “Shipped”).
 - Trimmed extra spaces in text fields.
- **Data Standardization**
 - Renamed columns to a consistent format.
 - Converted order dates into proper SQL DATE format.
 - Truncated numeric values to 2 decimal places.
- **Feature Engineering**
 - Created a new field `line_total_revenue = quantity × unit_price`.
 - Added KPIs for **total revenue**, **average order value**, **top customers**, and **best-selling product lines**.

Analysis Queries (SQL)

Some key business questions addressed:

- **Total Company Revenue.**
- **Best-Selling Product Lines.**
- **Top 5 Customers by Revenue Contribution.**
- **Key Performance Indicators (KPIs):**
 - Total Orders
 - Total Customers
 - Total Revenue
 - Average Order Value
- **Monthly Sales Trends** over time (Year & Month).

Visualization (Tableau)

The cleaned dataset was imported into Tableau to create **interactive dashboards** that showcase:

- **Sales Overview Dashboard:** Revenue, Orders, Customers, AOV.
- **Product Line Performance:** Best-selling categories by revenue.
- **Customer Insights:** Top customers ranked by sales.
- **Time-Series Analysis:** Monthly revenue trends across years.

These dashboards allow decision-makers to **track company performance, identify growth areas, and understand customer behavior**.

Skills Demonstrated

- **SQL (MySQL):** Data cleaning, transformation, EDA queries.
- **Data Preprocessing:** Handling duplicates, missing values, inconsistent formats.
- **Tableau:** Building dashboards, visual storytelling, KPIs, and trend analysis.
- **Data Analytics Workflow:** End-to-end pipeline from raw data → cleaned dataset → insights.