Walmart Sales Data Analysis

I. Introduction

This project involves a comprehensive analysis of Walmart's sales data, focusing on different aspects such as product performance, sales trends, and customer behavior. The dataset includes sales records from three branches, featuring 17 columns and 1000 rows, sourced from Kaggle.

II. Dataset Description

The Walmart Kaggle sales dataset provides detailed sales information, including data points such as transaction date and time, branch identifier, product types, sales amount, and customer demographics.

- **Number of Branches:**3
- **Number of Columns:**17
- **Number of Rows:**1000

III. Project Objectives

The primary objectives of this analysis are:

- Analyze product performance across different branches.
- Investigate sales patterns over time.
- Understand customer preferences and behaviors.

A. Key Business Questions

- What products are performing best in each branch?
- How do sales fluctuate over different times of the day, weekdays, and months?
- What are the demographic trends among customers?

IV. Methods

The analysis employs various techniques and tools to ensure thorough exploration of the dataset:

- **SQL:**For data extraction and manipulation.
- **Data Wrangling:**Cleaning and preparing data for analysis.
- **Feature Engineering:**Creation of new features like time_of_day, day_name, and month_name.
- **Exploratory Data Analysis (EDA):**Identifying trends, patterns, and insights.

V. SQL Schema and Queries

The following schema outlines the structure of our data, offering a framework for our SQL queries:

- **Schema Design:**Table structures to support analysis needs.
- **Query Examples:**SQL queries used to derive insights.

VI. Analysis & Insights

A. Product Analysis
B. Sales Trends

Analysis of sales trends over time revealed the following:

C. Customer Analysis

The customer demographic breakdown shows distinct patterns related to sales and preferences.

VII. Timelines and Milestones

Milestone	Completion Date
Data Collection	2023-01-15
Data Cleaning	2023-01-30
Feature Engineering	2023-02-10
Exploratory Data Analysis	2023-02-20
Final Reporting	2023-03-01

VIII. Budget and KPIs

Item	Cost in USD

Data Acquisition	5000
Tools and Software	2000
Personnel	15000

Key Performance Indicators (KPIs) for measuring project success include:

- Increase in Sales by 15% within 6 months.
- Improvement in Customer Satisfaction Scores.

IX. Conclusion and Recommendations

This analysis provides actionable insights that Walmart can leverage to boost business performance. Key recommendations include emphasizing high-performing products, optimizing store operations based on peak sales times, and tailoring offerings to customer demographics.