

# Walmart Sales & Customer Insights Dashboard

## Project Overview

Developed an interactive dashboard using Streamlit to analyze Walmart sales data. Provides insights into revenue trends, customer behavior, and product category performance.

Designed for retail stakeholders to enable data-driven decisions.

Successfully deployed on Hugging Face Spaces for public access.

## Tools & Technologies Used

Python

Streamlit – For building interactive web apps

Pandas – For data cleaning and transformation

Plotly Express – For interactive visualizations

Docker – Containerization support (optional)

Hugging Face Spaces – For app deployment

## Dataset Used

File: walmart\_clean\_data.csv

Key Columns: date, time, branch, category, unit\_price, quantity, total, payment\_method, rating

## Features & Functionalities

### Sidebar Filters

Filter by Branch, Product Category, and Date Range

Dynamic filtering updates all visualizations in real-time

### Sales Summary Metrics

Total Revenue (calculated as  $\text{unit\_price} \times \text{quantity}$ )

Average Customer Rating

Total Number of Transactions

### Data Visualizations

Bar Chart: Revenue by Category

Line Chart: Daily Sales Trend

Heatmap: Hourly Sales by Weekday

Pie Chart: Sales by Payment Method

Violin Plot: Ratings Distribution by Branch

## Insights Derived

Identified peak sales hours and top-performing days  
Observed variation in preferred payment methods  
Discovered high-performing categories and branches  
Analyzed customer satisfaction trends through ratings

## Docker Integration (Optional)

Dockerized the app for easy deployment across environments  
Dockerfile included in the project root

## Project Structure

```
.
├── streamlit_app.py      -----# Main app script
├── walmart_clean_data.csv -----# Cleaned dataset
├── requirements.txt ----- # Python dependencies
├── Dockerfile ----- --# Docker setup for deployment
└── README.md ----- - - - - - # Project description for Streamlit Space
```

## Deployment & Usage

Deployed on Hugging Face Spaces  
Run locally using:

```
pip install -r requirements.txt
streamlit run streamlit_app.py
```

## Developer

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Tech Stack: Python, Streamlit, Pandas, Plotly, Docker