# Product Sales Analysis & Discontinuation Recommendation

This capstone project analyzes product-level sales performance using Python (Pandas) and Tableau. The goal is to identify underperforming products and provide data-driven recommendations on whether to \*\*keep\*\*, \*\*watch\*\*, or \*\*stop\*\* each product.

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## Project Goals

- Analyze total sales, quantity sold, and cancelled orders for each product

- Identify low-performing products

- Provide actionable recommendations to support product discontinuation or expansion

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## Dataset

- Source: [Sales Data Sample (Walmart-style)](https://www.kaggle.com/datasets/carrie1/ecommerce-data)

- Format: `.csv`

- Size: 2823 records, 25 columns

- Key fields: `ProductCode`, `ProductLine`, `Sales`, `QuantityOrdered`, `Status`

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## Tools Used

- \*\*Python\*\*: Pandas, Matplotlib

- \*\*Jupyter Notebook\*\*: For data cleaning & analysis

- \*\*Tableau\*\*: For dashboard creation

- \*\*GitHub\*\*: For version control and documentation

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## Key Analysis Questions

1. Which products have the \*\*lowest sales\*\*?

2. Which products have the \*\*highest cancellation rates\*\*?

3. Which products should be \*\*discontinued\*\*, \*\*watched\*\*, or \*\*kept\*\*?

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## Data Cleaning

Handled missing values in:

- `State`, `Territory` → Filled with "Unknown"

- `Postal Code` → Filled with 0

- Dropped unnecessary or fully null fields

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## Analysis Summary (Python)

Created a summary DataFrame grouped by `ProductCode`:

- Total Sales

- Total Quantity

- Number of Cancelled Orders

- Recommendation logic:

## python

def recommend(row):

if row["TotalSales"] < 5000 and row["TotalQuantity"] < 20:

return " stop"

elif row["TotalSales"] < 10000 or row["TotalQuantity"] < 50:

return "watch"

else:

return " keep"

## Tableau Dashboard

👉 [Click here to view the interactive Tableau Dashboard](https://public.tableau.com/views/sale\_data\_tableau/Dashboard1)

Dashboard Highlights:

- Top 10 Products by Sales

- Cancelled Orders by Product Line

- Product Advice Summary

- Recommendation Table

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## Project Files

- `product\_summary.ipynb` – Python notebook with full analysis

- `product\_summary\_for\_tableau.csv` – Cleaned data for Tableau

- `README.md` – Project documentation and Tableau dashboard link