A company approached me to help reduce its production costs by identifying products that met specific revenue or sales targets in the first three quarters of 2024. My task was to analyze their sales and revenue data to determine which products should continue production and which could be phased out to optimize costs.

📊 **Problem Statement:**
The company wanted to focus only on producing products that either:

- Met a revenue target of $1,500, or
- Achieved a sales quantity target of 65 units within the first three quarters of 2024.

How I Solved It:

- **Data Collection & Preprocessing:** I started by gathering datasets related to product information, payment records, orders, and customers. I ensured all date fields were properly converted into a datetime format for easy filtering.
- **Filtering Data for Q1–Q3 of 2024:** I narrowed the dataset to include only orders from the first three quarters of 2024, aligning with the company's objectives.
- **Merging Data for Insights:** I combined product and payment information with order records to calculate the total revenue generated by each product. This step was crucial in determining whether a product met the revenue target.
- **Identifying Profitable Products:** I analyzed sales and revenue data to identify products that met either the revenue or quantity target. These products were flagged as "profitable" and recommended for continued production.
- **Analyzing Customer Contributions:** I also identified the company's top customers who contributed the most to revenue. This helped them understand their most valuable customer segments.

Key Insights:

- I provided the company with a clear list of profitable products that should continue production, helping them focus on high-performing items.
- By eliminating products that did not meet sales or revenue targets, the company could optimize production and reduce unnecessary costs.

Why This is Important:

This analysis helped the company make data-driven decisions to minimize waste, optimize resources, and improve profitability. By leveraging Python for data analysis, I transformed raw sales data into actionable insights that directly impacted their bottom line.