**📝 Problem Statement – Enhanced Superstore Analytics Dashboard**

The Superstore dataset contains sales, profit, and discount details across multiple categories, regions, and products. To simulate real-world complexity, additional columns such as **Order Date, Ship Date, Returns, Coupons, Payment Mode, Delivery Status, Ratings, and Customer Feedback** have been added.

The business needs a **data analytics solution** that:

1. **Cleans messy data** (missing values, inconsistent categories, random text).
2. **Analyzes customer, product, and regional performance**.
3. **Identifies operational inefficiencies** (shipping delays, complaints, returns).
4. **Supports decision-making** with an interactive **Power BI Dashboard** and **predictive modeling**.

**🎯 Expected Outcomes**

**1. Sales & Profitability Insights**

* KPI metrics: Total Sales, Total Profit, Profit Margin %, Orders.
* Profitability comparison across **Category, Sub-Category, Region, Segment**.
* Identify **loss-making categories/products** (e.g., Tables, Binders).

**2. Discount & Promotion Analysis**

* Impact of **Discount Band** on Profit.
* Effectiveness of **Coupons / Promotions** (e.g., SAVE10 vs FREESHIP).
* Which discounts drive **sales vs losses**.

**3. Customer & Feedback Insights**

* Customer segmentation: Most valuable customers (CLV).
* Ratings & feedback analysis → correlation with returns/complaints.
* Identify unhappy customers (Bad/Average feedback + Complaints = churn risk).

**4. Operational Insights**

* **Ship Duration Analysis** (Order Date → Ship Date).
* Which **ship modes** are most delayed.
* **Returns & Complaints** analysis → product categories or agents causing issues.
* Warehouse performance comparison (WH1, WH2, WH3).

**5. Predictive Modeling**

* Classification model: Predict whether an order will be **Profitable vs Not Profitable**.
* Regression (optional): Estimate delivery delay based on Ship Mode, Region, Warehouse.

**6. Power BI Dashboard**

* One-page executive summary: KPIs + Trends + Discounts + Regional Map.
* Drill-down analysis: Category → Sub-Category → Product.
* Filters: Year, Region, Segment, Warehouse, Delivery Status.
* Funnel view: Sales → Discounts → Profit.

**✅ Final Deliverables**

1. **Cleaned Dataset** (ready for analytics).
2. **EDA Report** (data cleaning, insights, correlations).
3. **SQL Queries** (to answer key business questions).
4. **Power BI Dashboard** (interactive business view).
5. **Predictive ML Model** (classification of profitable orders).