Requirements:

Business Problem

The goal is to identify the root causes behind product returns by analyzing return rates across product categories, customer behavior, geographic regions, and shipping methods. By understanding these factors, the business can take action to reduce unnecessary returns, improve customer satisfaction, and optimize logistics.

Primary Users

- Business Analysts
- Operations Managers
- Fulfillment and Logistics Teams
- Customer Experience Team Leads

Key Metrics (KPIs)

- **Return Rate** = SUM(Returned) / COUNTD(Order ID)
- **Total Returns** = SUM(Returned)
- **Total Sales** = SUM(Sales)
- **Order Count** = COUNTD(Order ID)
  Customer Return Frequency = AVG(Returned) per customer (excluding one-order customers)

Data Strucure

- **Primary Tables**:
  - Orders: includes Order ID, Customer Info, Sales, Ship Mode, State, etc.
  - Returns: LEFT JOINED on Order ID

- **Calculated Field**: Returned (Yes|No)→ 1 if yes, 0 if null

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Dashboard Layout

The dashboard is divided into a 2-row grid:

- **Top Row**:
    - Sales vs. Returns (scatterplot)
    - Return Rate by Category (bar chart)

- **Bottom Row**:
    - Return Rate by State (map)
    - Monthly Return Trend (line chart)
    - Sub-Category × Region Analysis (composite bar chart)

Additional visualizations include:

- Return Rate by Customer
- Return Rate by Ship Mode per State

Filters

- **State** (Toggle by map)
- **Ship Mode**
- **Customer Order Count Filter** (Exclude 1-order customers by default)
- **Date / Month Selector**
- **Category** (Toggle from worksheet Return Rate By Category)
- **Customer** (Toggle from Return Rate by Customer worksheet)

Visuals & Interpretation Order

1. **Sales vs. Returns**
2. **Category**
3. **Customer**
4. **Geography**
5. **Time**
6. **Composite factors**

Controls

- Interactivity via filters and direct worksheet toggles(Ship Mode, State)
- Tooltips for detail on hover