Day 3 Coding Challenge:

Quality Control Dashboard

Scenario:

You're a junior data analyst at a manufacturing company. The production manager has asked you to create a **Quality Control Dashboard** to monitor and identify key areas of concern. They want a clear, interactive way to track product defects.

Your Task:

Using a dataset that contains production and quality inspection data, you need to create a one-page Power BI report that answers the following questions:

1. **What is our overall defect rate?** This needs to be a prominent metric on the dashboard.
2. **Which products have the highest number of defects?** The manager wants to easily see the top 5 most problematic products.
3. **Is the defect rate improving or worsening over time?** You need to show a trend of the defect rate over the last year.
4. **Are certain inspection batches performing worse than others?** You need a way to analyze defects by production batch.

Data Provided: You will be given a file (e.g., Excel or CSV) with two tables:

- Production: Contains ProductID, BatchID, Date, and Status (Pass or Fail).
- Batches: Contains BatchID, ProductionLine, and InspectorName.

What You Need to Do:

1. **Data Modeling:** Import the data into Power BI and create the necessary relationships between the tables.
2. **DAX Measures:**
    - Create a measure for the **Overall Defect Rate** as a percentage.
    - Create a measure to count the number of **Defective Items**.
    - Create a measure to calculate the **Daily Defect Rate**.
3. **Visualizations:**
    - Use a **Card** visual for the overall defect rate.

- Create a **Clustered Bar Chart** showing the top 5 products by defect count. Use a filter to show only the top 5.
- Create a **Line Chart** to display the trend of the daily defect rate over time.
- Use a **Table** or **Matrix** visual to show defect counts by ProductionLine and InspectorName.

4. **Interactivity:** Add a slicer for Date to allow the user to filter all visuals by a specific time period.

Submission: Submit the completed .pbix file. This task tests your ability to go from raw data to a complete, insightful report that meets a business need.