Coding Challenge – Logistics & Supply Chain

A logistics company is facing challenges in ensuring **on-time deliveries** and controlling costs. Management wants to analyze **delivery performance across cities and regions**, identify **delayed shipments**, and monitor **average delivery times**.

As a **Data Analyst**, your role is to build a **Power BI dashboard** that gives insights into delivery trends, on-time percentages, and cost efficiency.

Objective

To analyze **delivery performance and costs** across regions, identify delays, and provide actionable insights to optimize the supply chain.

Dataset Description (Sample Fields)

The dataset provided (logistics_data.csv) contains shipment-level details:

Column Name	Description
ShipmentID	Unique ID for each shipment
OrderDate	Date order was placed
DeliveryDate	Actual delivery date
ExpectedDate	Expected delivery date
OriginCity	City where shipment originated
DestinationCity	City where shipment was delivered
Region	Delivery region (North, South, East, West)
Distance_km	Distance between origin and destination
Cost_USD	Delivery cost in USD
DeliveryStatus	Status of shipment (On-time, Delayed, Cancelled)
DeliveryTime_Days	Time taken to deliver (days)

Tasks to Perform

1. **KPIs – Key Performance Indictor**

- Total Shipments
- On-time Delivery %
- Avg Delivery Time (days)
- Total Delivery Cost

2. **DAX Measures**
    - On-time Delivery %
    - Avg Delivery Time per Region

3. **Visualizations**
    - **Heatmap:** Delivery Status by City
    - **Bar Chart:** Avg Delivery Time by Region
    - **Card Visuals:** KPIs (On-time %, Total Shipments, Avg Time, Cost)
    - **Conditional Formatting:** Highlight shipments delayed by more than 2 days

Deliverables

- **Power BI Dashboard (.pbix)** file with all visuals and KPIs
- **DAX measures** written clearly with comments
- **Insights report (Word/PDF)** (3–5 key findings, e.g., “East Region has the highest delays”)