BI & Data Analyst Internship Assessment

Business Scenario

You are a Junior BI Analyst at *AutoSmart Group*, a company that manages a network of vehicle dealerships.
Management wants a dashboard showing:

- Sales performance
- Stock levels
- Regional insights
- Weekly trends

You are provided with three datasets that originate from different systems (ERP, CRM, Inventory). Your task is to transform, model, and visualize the data.

Assessment Tasks

Part 1 — ETL & Data Preparation (SQL / Power Query / Python allowed)

1. **Clean the datasets**
2. **Perform transformations**
    - Create a Calendar table with fields
    - Enrich Sales data with:
        - Profit
        - DaysInStock
3. **Create a cleaned, analysis-ready dataset**
   Deliver as:
    - A SQL script or
    - A Power Query M script or
    - A CSV export of transformed tables

Part 2 — SQL Skills

Using the cleaned dataset, write SQL queries for:

1. Top 5 dealerships by total sales value in 2025
2. Month-over-month sales growth (percentage)
3. Average Days in Stock per region
4. Identify vehicles sold at a loss (CostAmount > SaleAmount)
5. Total profit per vehicle make and model

Part 3 — Data Modelling (Power BI)

Create a star schema model with the following minimum requirements:

Required tables

- FactSales
- DimDealership
- DimVehicle
- DimCalendar

Required relationships

- One-to-many from dimension tables to fact tables
- Appropriate granularity (VehicleID, DealershipID, DateKey)

Model Checks

- No circular relationships
- No bi-directional filtering unless justified
- Surrogate keys if natural keys are messy

You may create additional tables if needed.

Part 4 — Power BI Reporting

Create a Power BI report with at least 3 pages:

Page 1 — Executive Summary

- Total Sales
- Total Profit
- Total Units Sold
- Profit Margin %
- Top 5 Dealerships

Page 2 — Regional Performance

- Sales & Profit by Region
- Units Sold & Average Days in Stock
- Map visual (if comfortable)

Page 3 — Inventory Insights

- Vehicles sold at a loss
- Make/Model profitability
- Days in Stock distribution

Minimum DAX Requirements

- YTD Sales
- Profit Margin
- Sales Growth %
- Rank of Dealerships based on sales

Part 5 — Candidate Deliverables

Candidates must submit:

1. Power BI file (.pbix)
2. Cleaned dataset or SQL transformation script
3. SQL queries (as .sql file or PDF)
4. 1-page summary explaining approach, assumptions, and decisions