

# Title : Automotive Inventory Management System

**Description :** Build a comprehensive inventory management system for an automotive company that allows tracking and managing vehicle inventory, sales, and customer data. The system should include features for data ingestion, data transformation-ETL, data loading, and seamless integration with various tools and technologies.

**Duration of the Interview :** 2 hours

## Subtasks:

### Data Ingestion Process

- -Design: Design a data ingestion process that imports vehicle inventory data from CSV files. Include columns for vehicle make, model, year, VIN, price, and quantity.
- -Instructions: Write a script in Java to read CSV files, extract relevant data, and store it in a database.
- -Features: Error handling for data validation, mapping CSV columns to database fields, and efficient data import.
- Examples with related information: Vehicle inventory CSV file with columns: make, model, year, VIN, price, quantity.
- Tools: Java, SQL, Eclipse, Oracle.

### Data Transformation-ETL

- -Design: Develop an ETL process to transform vehicle sales data for reporting purposes. Include aggregating total sales, calculating revenue, and generating sales reports.
- -Instructions: Implement data transformation logic in Java to process sales data from the database and create summary reports.
- -Features: Data aggregation, revenue calculation, report generation with filters and sorting options.
- Examples with related information: Sales data table schema with columns: sale\_id, vehicle\_id, customer\_id, sale\_date, price.
- Tools: Java, SQL, Eclipse, Oracle.

### Data Loading

- -Design: Create a data loading mechanism to update vehicle inventory based on sales transactions.
- -Instructions: Write a Java program to deduct sold vehicles from the inventory and update quantity in the database.
- -Features: Real-time inventory updates, transaction logging, and inventory reconciliation.
- Examples with related information: Inventory table structure with columns: vehicle\_id, make, model, quantity.
- Tools: Java, SQL, Eclipse, Oracle.

### Dashboard Development

- -Design: Implement a dashboard for monitoring real-time sales and inventory performance.
- -Instructions: Develop a web application using React.js to display sales charts, inventory status, and customer insights.
- -Features: Interactive data visualization, real-time updates, user-friendly interface with filters and search functionality.

- Examples with related information: Dashboard components for sales chart, inventory grid, customer demographics.
- Tools: React.js, Node.js, CSS, HTML.