ECGC-Training Work (20 August, 2025)

Q) Problem Statement – Product Management Module

You are required to design and implement a Product Management feature in the existing Spring Boot MVC project.

The feature should follow the layered architecture of Controller → Service → Model.

Requirements:

1. Model Class (Product)
- Attributes:
  - id (int)
  - name (String)
  - price (Double)
  - quantity (int)
- Provide getters, setters, constructors (parameterized &non-parameterized).

2. Service Layer

Create a ProductService interface and ProductServiceImplementation class.
- Methods:
  - addProduct(Product product)
  - getProductById(Long id)
  - getAllProducts()
  - updateProduct(Long id, Product product)
  - deleteProduct(Long id)
- Use in-memory List<Product> in ProductServiceImplementation class for record saving and processing (viewing, updating, deleting)

3. Controller Layer

Create Controller class with following endpoints.
- Endpoints:
  - POST /addproducts → Add a new product
  - GET /productbyid/{id} → Get product by ID
  - GET /getallproducts → List all products
  - POST /updateproduct/{id} → Update product
  - POST /deleteproduct/{id} → Delete product
- Handle cases where a product is not found.