

Advanced Java Final Project Problem Statement

Online Shopping Cart System using JSP, Servlets, and JDBC

1. Objective

To design and develop a Dynamic Web Application using Advanced Java (JSP, Servlets, JDBC) that enables customers to browse and purchase products online with integrated payment functionality, while providing administrative controls for managing products, users, and orders.

2. Problem Description

In the modern digital world, online shopping systems provide convenience, speed, and accessibility for customers and businesses alike. This project focuses on developing a Shopping Cart Web Application that allows users to select and buy products online through a simple and secure interface.

The application has two types of users — Customer and Admin — with distinct roles and permissions:

- **Customer Capabilities:**

1. Register and log in.
2. View available products.
3. Add desired products to the shopping cart.
4. View and remove items from the cart.
5. Proceed to checkout.
6. Enter payment details (card number, CVV, expiry date, cardholder name) to complete purchase.
7. Receive confirmation after successful payment.

- **Admin Capabilities:**

8. Secure login for admin access.
9. Add new products with details such as name, description, price, category, quantity, and image.
10. Update or delete existing products.
11. View all registered users.
12. View and manage all customer orders.

3. Proposed System

The application will be developed as a Dynamic Web Project in Eclipse IDE using Java EE technologies and follows the MVC (Model–View–Controller) architecture for separation of concerns and maintainability.

Technologies Used:

- Frontend: HTML, JSP (for UI pages)
- Backend: Java Servlets, JDBC
- Database: MySQL
- Server: Apache Tomcat
- Architecture: MVC (Controller → Service → DAO → JSP)
- Security: Session management and input validation

4. System Modules

- **A. Customer Module**

13. Registration – New users can create accounts.
14. Login / Logout – Secure user authentication.
15. View Products – Display available products dynamically.
16. Add to Cart – Add selected products to cart.
17. View Cart – Check items and total cost.
18. Remove from Cart – Remove unwanted items.
19. Checkout – Proceed to payment.
20. Payment – Enter card details (Card No., Expiry, CVV, Name) and confirm transaction.
21. Order Confirmation – Generate order summary after payment.

- **B. Admin Module**

22. Admin Login – Secure admin authentication.
23. Add Product – Add new products into the system.
24. Update Product – Modify product details.
25. Delete Product – Remove product from inventory.
26. View Users – Display all registered users.
27. View Orders – View all customer orders and payment details.

5. Key Features

- Role-based authentication (Admin/User).
- Dynamic product and cart management.
- Secure payment entry and order confirmation.
- Database-driven using JDBC with MySQL.



- Proper use of Servlets for control logic.
- Session tracking via HttpSession.
- MVC layered design: Controller Layer, Service Layer, DAO Layer, Presentation Layer.

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