**Question 7. Create a basic shopping cart system using JSP and Servlets.**

* + **Use JSP to display product list.**
  + **Servlet to manage cart (add/remove items).**
  + **Session tracking to maintain user’s cart.**

**Step1:**

**Create a new JSP file** products.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Product List</title>

</head>

<body>

<h1>Available Products</h1>

<form action=*"CartServlet"* method=*"post"*>

<table border=*"1"*>

<tr>

<th>Product</th>

<th>Price</th>

<th>Add to Cart</th>

</tr>

<tr>

<td>Product A</td>

<td>$10</td>

<td><button type=*"submit"* name=*"product"* value=*"Product A"*>Add</button></td>

</tr>

<tr>

<td>Product B</td>

<td>$20</td>

<td><button type=*"submit"* name=*"product"* value=*"Product B"*>Add</button></td>

</tr>

<tr>

<td>Product C</td>

<td>$30</td>

<td><button type=*"submit"* name=*"product"* value=*"Product C"*>Add</button></td>

</tr>

</table>

</form>

<p><a href=*"Viewcart.jsp"*>View Cart</a></p>

</body>

</html>

**Step2:**

**Create a new servlet package name** cartServlet **class name** CartServlet

package cartServlet;

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import jakarta.servlet.http.HttpSession;

import java.io.IOException;

import java.util.ArrayList;

import java.util.List;

*@WebServlet*("/CartServlet")

public class CartServlet extends HttpServlet {

private static final long *serialVersionUID* = 1L;

*@Override*

protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

String product = request.getParameter("product");

HttpSession session = request.getSession();

*@SuppressWarnings*("unchecked")

List<String> cart = (List<String>) session.getAttribute("cart");

if (cart == null) {

cart = new ArrayList<>();

}

if (product != null) {

cart.add(product);

}

session.setAttribute("cart", cart);

response.sendRedirect("products.jsp");

}

}

**Step3:**

**Create a new servlet package name** cartServlet **class name** RemoveItemServlet

package cartServlet;

import jakarta.servlet.ServletException;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import jakarta.servlet.http.HttpSession;

import java.io.IOException;

import java.util.List;

*@WebServlet*("/RemoveItemServlet")

public class RemoveItemServlet extends HttpServlet {

private static final long *serialVersionUID* = 1L;

*@Override*

protected void doPost(HttpServletRequest request, HttpServletResponse response) throws ServletException, IOException {

String product = request.getParameter("product");

HttpSession session = request.getSession();

*@SuppressWarnings*("unchecked")

List<String> cart = (List<String>) session.getAttribute("cart");

if (cart != null && product != null) {

cart.remove(product);

}

session.setAttribute("cart", cart);

response.sendRedirect("Viewcart.jsp");

}

}

**Step4:**

**Create a new JSP file** Viewcart.jsp

<%@ page language=*"java"* contentType=*"text/html; charset=UTF-8"*

pageEncoding=*"UTF-8"*%>

<%@ page import=*"java.util.List"* %>

<%@ page import=*"java.util.ArrayList"* %>

<!DOCTYPE html>

<html>

<head>

<meta charset=*"UTF-8"*>

<title>Your Cart</title>

</head>

<body>

<h1>Your Cart</h1>

<form action=*"RemoveItemServlet"* method=*"post"*>

<table border=*"1"*>

<tr>

<th>Product</th>

<th>Remove</th>

</tr>

<%

// Retrieve the cart from the session

Object cartObj = session.getAttribute("cart");

List<String> cart = new ArrayList<>();

if (cartObj != null && cartObj instanceof List<?>) {

cart = (List<String>) cartObj; // Safe casting to List<String>

}

if (cart.isEmpty()) {

%>

<tr>

<td colspan=*"2"*>Your cart is empty.</td>

</tr>

<% } else {

for (String product : cart) {

%>

<tr>

<td><%= product %></td>

<td><button type=*"submit"* name=*"product"* value=*"*<%= product %>*"*>Remove</button></td>

</tr>

<% }

}

%>

</table>

</form>

<p><a href=*"products.jsp"*>Continue Shopping</a></p>

</body>

</html>

**Step5:Run products.jsp file on server**