

CIS485 Web Programming II

Create a JSP Session Shopping Cart:

1. Create a package cis475 on the Source Packages folder.
2. Create a class CartBean in the cis475 package:

```
package cis485;

import java.util.ArrayList;

public class CartBean {

    private ArrayList alCartItems = new ArrayList();
    private double dblOrderTotal;

    public int getLineItemCount() {
        return alCartItems.size();
    }

    public void deleteCartItem(String strItemIndex) {
        int iItemIndex = 0;
        try {
            iItemIndex = Integer.parseInt(strItemIndex);
            alCartItems.remove(iItemIndex - 1);
            calculateOrderTotal();
        } catch (NumberFormatException nfe) {
            System.out.println("Error while deleting cart item: " + nfe.getMessage());
        }
    }

    public void updateCartItem(String strItemIndex, String strQuantity) {
        double dblTotalCost = 0.0;
        double dblUnitCost = 0.0;
        int iQuantity = 0;
        int iItemIndex = 0;
        CartItemBean cartItem = null;
        try {
            iItemIndex = Integer.parseInt(strItemIndex);
            iQuantity = Integer.parseInt(strQuantity);
            if (iQuantity > 0) {
                cartItem = (CartItemBean) alCartItems.get(iItemIndex - 1);
                dblUnitCost = cartItem.getUnitCost();
                dblTotalCost = dblUnitCost * iQuantity;
                cartItem.setQuantity(iQuantity);
                cartItem.setTotalCost(dblTotalCost);
                calculateOrderTotal();
            }
        } catch (NumberFormatException nfe) {
```

```

        System.out.println("Error while updating cart: " + nfe.getMessage());
    }

}

public void addCartItem(String strModelNo, String strDescription,
    String strUnitCost, String strQuantity) {
    double dblTotalCost = 0.0;
    double dblUnitCost = 0.0;
    int iQuantity = 0;
    CartItemBean cartItem = new CartItemBean();
    try {
        dblUnitCost = Double.parseDouble(strUnitCost);
        iQuantity = Integer.parseInt(strQuantity);
        if (iQuantity > 0) {
            dblTotalCost = dblUnitCost * iQuantity;
            cartItem.setPartNumber(strModelNo);
            cartItem.setModelDescription(strDescription);
            cartItem.setUnitCost(dblUnitCost);
            cartItem.setQuantity(iQuantity);
            cartItem.setTotalCost(dblTotalCost);
            alCartItems.add(cartItem);
            calculateOrderTotal();
        }

    } catch (NumberFormatException nfe) {
        System.out.println("Error while parsing from String to primitive types: " +
nfe.getMessage());
    }
}

public void addCartItem(CartItemBean cartItem) {
    alCartItems.add(cartItem);
}

public CartItemBean getCartItem(int iItemIndex) {
    CartItemBean cartItem = null;
    if (alCartItems.size() > iItemIndex) {
        cartItem = (CartItemBean) alCartItems.get(iItemIndex);
    }
    return cartItem;
}

public ArrayList getCartItems() {
    return alCartItems;
}

public void setCartItems(ArrayList alCartItems) {
    this.alCartItems = alCartItems;
}

public double getOrderTotal() {
    return dblOrderTotal;
}

public void setOrderTotal(double dblOrderTotal) {

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        this.dblOrderTotal = dblOrderTotal;
    }

    protected void calculateOrderTotal() {
        double dblTotal = 0;
        for (int counter = 0; counter < alCartItems.size(); counter++) {
            CartItemBean cartItem = (CartItemBean) alCartItems.get(counter);
            dblTotal += cartItem.getTotalCost();
        }
        setOrderTotal(dblTotal);
    }
}

```

3. Create a class CartItemBean in the cis485 package:

```

package cis485;

public class CartItemBean {

    private String strPartNumber;
    private String strModelDescription;
    private double dblUnitCost;
    private int iQuantity;
    private double dblTotalCost;

    public String getPartNumber() {
        return strPartNumber;
    }

    public void setPartNumber(String strPartNumber) {
        this.strPartNumber = strPartNumber;
    }

    public String getModelDescription() {
        return strModelDescription;
    }

    public void setModelDescription(String strModelDescription) {
        this.strModelDescription = strModelDescription;
    }

    public double getUnitCost() {
        return dblUnitCost;
    }

    public void setUnitCost(double dblUnitCost) {
        this.dblUnitCost = dblUnitCost;
    }

    public int getQuantity() {
        return iQuantity;
    }
}

```

```

    public void setQuantity(int quantity) {
        iQuantity = quantity;
    }

    public double getTotalCost() {
        return dblTotalCost;
    }

    public void setTotalCost(double dblTotalCost) {
        this.dblTotalCost = dblTotalCost;
    }
}

```

4. Create a CartController Servlet in the cis485 package:

```

package cis485;

import java.io.IOException;

import javax.servlet.ServletException;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;
import javax.servlet.http.HttpSession;

public class CartController extends HttpServlet {

    @Override
    public void doPost(HttpServletRequest request, HttpServletResponse response)
        throws ServletException, IOException {

        String strAction = request.getParameter("action");

        if (strAction != null && !strAction.equals("")) {
            switch (strAction) {
                case "add":
                    addToCart(request);
                    break;
                case "Update":
                    updateCart(request);
                    break;
                case "Delete":
                    deleteCart(request);
                    break;
                default:
                    break;
            }
        }
        response.sendRedirect("../ShoppingCart.jsp");
    }
}

```

```

protected void deleteCart(HttpServletRequest request) {
    HttpSession session = request.getSession();
    String strItemIndex = request.getParameter("itemIndex");
    CartBean cartBean = null;

    Object objCartBean = session.getAttribute("cart");
    if (objCartBean != null) {
        cartBean = (CartBean) objCartBean;
    } else {
        cartBean = new CartBean();
    }
    cartBean.deleteCartItem(strItemIndex);
}

protected void updateCart(HttpServletRequest request) {
    HttpSession session = request.getSession();
    String strQuantity = request.getParameter("quantity");
    String strItemIndex = request.getParameter("itemIndex");

    CartBean cartBean = null;

    Object objCartBean = session.getAttribute("cart");
    if (objCartBean != null) {
        cartBean = (CartBean) objCartBean;
    } else {
        cartBean = new CartBean();
    }
    cartBean.updateCartItem(strItemIndex, strQuantity);
}

protected void addToCart(HttpServletRequest request) {
    HttpSession session = request.getSession();
    String strModelNo = request.getParameter("modelNo");
    String strDescription = request.getParameter("description");
    String strPrice = request.getParameter("price");
    String strQuantity = request.getParameter("quantity");

    CartBean cartBean = null;

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

    if (objCartBean != null) {
        cartBean = (CartBean) objCartBean;
    } else {
        cartBean = new CartBean();
        session.setAttribute("cart", cartBean);
    }

    cartBean.addCartItem(strModelNo, strDescription, strPrice, strQuantity);
}
}

```

5. Create the Products .jsp page:

```
6. <%@page contentType="text/html" pageEncoding="UTF-8"%>
7. <!DOCTYPE html>
8. <html>
9.     <head>
10.         <title>Cart</title>
11.         <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
12.     </head>
13.
14.     <body>
15.         <h3>Product List</h3>
16.         <a href="ShoppingCart.jsp" mce_href="ShoppingCart.jsp">View Cart</a>
17.         <p/>
18.         <table width="75%" border="1">
19.             <tr>
20.                 <td>
21.                     <form name="modelDetail1" method="POST"
22.                     action="servlet/CartController">
23.                         <strong>Model:</strong>
24.                         Product 1<input type="hidden" name="modelNo" value="TF-MODEL1">
25.                         <p><strong>Description:</strong>
26.                         Description for Product 1. <input type="hidden"
27.                         name="description" value="Description for Product 1."></p>
28.                         <p><strong>Quantity:<input type="text" size="2" value="1"
29.                         name="quantity"></strong></p>
30.                         <p><strong>Price:</strong>
31.                         $10.00<input type="hidden" name="price"
32.                         value="10"></p><input type="hidden" name="action" value="add"><input type="submit"
33.                         name="addToCart" value="Add To Cart">
34.                     </form></td>
35.                     <td><form name="modelDetail2" method="POST"
36.                     action="servlet/CartController"><strong>Model</strong>:
37.                     Product 2 <input type="hidden" name="modelNo" value="TF-MODEL2">
38.                     <p><strong>Description</strong>: Description for Product
39.                     2. <input type="hidden" name="description"
40.                     value="Description for Product 2."></p>
41.                     <p><font size="2"><strong>Quantity</strong>: <input type="text"
42.                     size="2" value="1" name="quantity"></p>
43.                     <p><font size="2"><strong>Price</strong>: $20.00<input
44.                     type="hidden" name="price" value="20"></p>
45.                     <input type="hidden" name="action" value="add">
46.                     <input type="submit" name="addToCart" value="Add To Cart">
47.                     </form></td>
48.             </tr>
49.             <tr>
50.                 <td>
51.                     <form name="modelDetail3" method="POST"
52.                     action="servlet/CartController"><p><strong>Model:</strong>
53.                     Product 3<input type="hidden" name="modelNo" value="TF-
54.                     MODEL3"></p>
55.                     <p><strong>Description:</strong>
56.                     Description for Product 3. <input type="hidden"
```

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name="description" value="Description for Product 3"></p>
46.         <p><strong>Quantity:</strong> <input type="text" size="2"
value="1" name="quantity"></p>
47.         <p><strong>Price: $30.00</strong><input type="hidden"
name="price" value="30"></p>
48.         <input type="hidden" name="action" value="add">
49.         <input type="submit" name="addToCart" value="Add To Cart">
50.         </form>
51.     </td>
52. </td>
53.     <form name="modelDetail4" method="POST"
action="servlet/CartController"><p><strong>Model</strong>:
54.         Product 4<input type="hidden" name="modelNo" value="TF-
MODEL4"></p>
55.         <p><strong>Description</strong>:
56.         Description for Product 4. <input type="hidden"
name="description" value="Description for Product 4."></p>
57.         <p><strong>Quantity</strong>: <input type="text" size="2"
value="1" name="quantity"></p>
58.         <p><strong>Price</strong>: $40.00<input type="hidden"
name="price" value="40"></p>
59.         <input type="hidden" name="action" value="add">
60.         <input type="submit" name="addToCart" value="Add To Cart">
61.     </form>
62. </td>
63. </tr>
64. </table>
65. <p> </p>
66. </body>
67. </html>

```

6. Create a ShoppingCart.jsp page:

```

<%@page contentType="text/html" pageEncoding="UTF-8"%>
<%@ taglib uri="http://java.sun.com/jsp/jstl/core" prefix="c" %>
<!DOCTYPE html>
<html>
    <head>
        <title>Shopping Cart</title>
        <meta http-equiv="Content-Type" content="text/html; charset=iso-8859-1">
    </head>

    <body>

        <h3>Shopping Cart</h3>
        <p><a href="Products.jsp" mce_href="ModelList.jsp">Products List</a> </p>
        <table width="75%" border="1">
            <tr bgcolor="#CCCCCC">
                <td><strong>Model Description</strong></td>
                <td><strong>Quantity</strong></td>
                <td><strong>Unit Price</strong></td>
                <td><strong>Total</strong></td>
            </tr>
            <jsp:useBean id="cart" scope="session" class="cis485.CartBean" />

```

```

        <c:if test = "${cart.lineItemCount == 0}">

            <tr>
                <td colspan="4">- Cart is currently empty -<br/>
            </tr>

        </c:if>

        <c:forEach var="cartItem" items="${cart.cartItems}" varStatus="counter">
            <form name="item" method="POST" action="servlet/Controller">
                <tr>
                    <td>
                        <strong>
                            <c:out value="${cartItem.partNumber}"/>
                        </strong><br/>
                        <c:out value="${cartItem.modelDescription}"/></td>
                    <td>
                        <input type='hidden' name='itemIndex' value='<c:out value="${counter.count}"/>'>
                        <input type='text' name="quantity" value='<c:out value="${cartItem.quantity}"/>' size='2'>
                            <input type="submit" name="action" value="Update">
                            <input type="submit" name="action" value="Delete"></td>
                    <td style="text-align: right;"><c:out
value="${cartItem.unitCost}"/></td>
                    <td style="text-align: right;"><c:out
value="${cartItem.totalCost}"/></td>
                </tr>
            </form>
        </c:forEach>
        <tr>
            <td colspan="2"> </td>
            <td> </td>
            <td style="text-align: right;">Subtotal: <c:out
value="${cart.orderTotal}"/></td>
        </tr>
    </table>
</body>
</html>

```

7. web.xml

```

<?xml version="1.0" encoding="UTF-8"?>
<web-app version="3.1" xmlns="http://xmlns.jcp.org/xml/ns/javaee"
    xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
    xsi:schemaLocation="http://xmlns.jcp.org/xml/ns/javaee
        http://xmlns.jcp.org/xml/ns/javaee/web-app_3_1.xsd">
    <display-name>Shopping Cart</display-name>
    <description>
        Simple Shopping Cart
    </description>

    <servlet>
        <servlet-name>CartController</servlet-name>
        <servlet-class>cis485.CartController</servlet-class>
    </servlet>

```



```
</servlet>

<!-- Define the Manager Servlet Mapping -->
<servlet-mapping>
    <servlet-name>CartController</servlet-name>
    <url-pattern>/servlet/*</url-pattern>
</servlet-mapping>

<session-config>
    <session-timeout>
        30
    </session-timeout>
</session-config>
</web-app>
```

Putting the cart to test:

We mainly want to test the below three functionalities:

1. Add to cart
2. Update the quantity
3. Remove an item from cart

Change requests:

Change is the essence of life! The same happens to business requirements and code. So, we would like you to be the ‘hardworking’ programmer to add the below functionality in this existing cart.

1. Currently, if the same item is again added to cart, a new line item is added. Modify this in such a way that, if the same item is added again, the existing item’s

quantity should be incremented by one. All other state of the cart/cart items should be adjusted accordingly.

2. In the cart page, provide a new text box for redeeming promotion codes. The discount of 5% should be provided on the order total, when any of the promotion code from a list of pre-defined codes is used.