Laboratory Work

Subject: Java Technologies

Branch: B.Tech. (CE)

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Lab - 10

JSP, Servlet, Session Management in web application

Topics:

1. Question:

Write a Java web application using **HttpSession** which allows only logged in users to access the other JSPs/Servlets of the application. Write the following components:

1. **Login.html** allows users to provide username and password and send them as request parameters to LoginVerifierServlet.

2. **LoginVerifierServlet takes username and password from login.html and verifies it. If credentials are correct then it creates a session. It displays welcome message along with username and links to first.jsp and second.jsp.**

3. **first.jsp** and **second.jsp** display some text with username and can be accessed if the user is logged in. (you should delegate to Login.html if the user is not logged in)

Login.html

```
<%@ page contentType="text/html; charset=UTF-8" pageEncoding="UTF-8" %>
<!DOCTYPE html>
<html>
<head>
    <title>Login</title>
```

```html
</head>
<body>
<h2>Login</h2>
<form action="LoginVerifierServlet" method="post">
    Username: <input type="text" name="username"><br>
    Password: <input type="password" name="password"><br>
    <input type="submit" value="Login">
</form>
</body>
</html>
```

LoginVerifierServlet

```java
package org.lakhman.lab9;

import java.io.*;

import jakarta.servlet.http.*;
import jakarta.servlet.annotation.*;

@WebServlet(name = "helloServlet", value = "/LoginVerifierServlet")
public class HelloServlet extends HttpServlet {
    private String message;

    public void init() {
        message = "Hello World!";
    }

    public void doPost(HttpServletRequest request, HttpServletResponse response)
throws IOException {
        String username = request.getParameter("username");
        String password = request.getParameter("password");
```

```java
        // For simplicity, hardcoding the correct username and password
        if ("admin".equals(username) && "password".equals(password)) {
            HttpSession session = request.getSession();
            session.setAttribute("username", username);
            response.sendRedirect("WelcomeServlet");
        } else {
            response.sendRedirect("Login.html");
        }
    }

    public void destroy() {
    }
}
```

WelcomeServlet.java

```java
package org.lakhman.lab9;

import java.io.*;

import jakarta.servlet.http.*;
import jakarta.servlet.annotation.*;

@WebServlet(name = "WelcomeServlet", value = "/WelcomeServlet")
public class WelcomeServlet extends HttpServlet {
    private String message;

    public void init() {
        message = "Hello World!";
    }

    public void doGet(HttpServletRequest request, HttpServletResponse response)
```

```java
throws IOException {
    HttpSession session = request.getSession();
    String username = (String) session.getAttribute("username");
    response.setContentType("text/html");

    if (username != null) {
        response.getWriter().println("<h1>Welcome, " + username + "!</h1>");
        response.getWriter().println("<a href='first.jsp'>First Page</a><br>");
        response.getWriter().println("<a href='second.jsp'>Second Page</a>");
    } else {
        response.sendRedirect("Login.html");
    }
}

public void destroy() {
}
}
```

First.jsp

```jsp
<%--
  Created by IntelliJ IDEA.
  User: lakhman
  Date: 20/02/24
  Time: 10:24 am
  To change this template use File | Settings | File Templates.
--%>
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<!DOCTYPE html>
<html>
<head>
    <title>First Page</title>
```

```
</head>
<body>
<h1>First Page</h1>
<% String username = (String) session.getAttribute("username"); %>
<% if (username != null) { %>
<p>Welcome, <%= username %>!</p>
<p>This is the first page.</p>
<% } else { %>
<% response.sendRedirect("Login.html"); %>
<% } %>
</body>
</html>
```

Second.jsp

```
<%--
  Created by IntelliJ IDEA.
  User: lakhman
  Date: 20/02/24
  Time: 10:24 am
  To change this template use File | Settings | File Templates.
--%>
<%@ page contentType="text/html;charset=UTF-8" language="java" %>
<!DOCTYPE html>
<html>
<head>
    <title>First Page</title>
</head>
<body>
<h1>First Page</h1>
<% String username = (String) session.getAttribute("username"); %>
<% if (username != null) { %>
<p>Welcome, <%= username %>!</p>
```
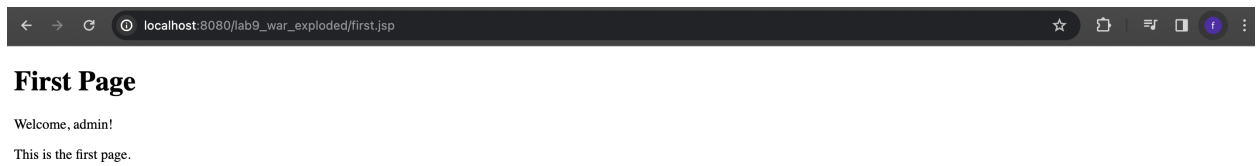
```
<p>This is the first page.</p>
<% } else { %>
<% response.sendRedirect("Login.html"); %>
<% } %>
</body>
</html>
```

localhost:8080/lab9_war_exploded/Login.html

Login

Username: admin
Password: ••••••••
Login

localhost:8080/lab9_war_exploded/WelcomeServlet

Welcome, admin!

[First Page](#)
[Second Page](#)

localhost:8080/lab9_war_exploded/first.jsp

First Page

Welcome, admin!

This is the first page.

Second Page

Welcome, admin!

This is the second page.

Login

Username: lakhman
Password: •••

Login

Invalid username or password

Login

Username: [   ]
Password: [   ]
[Login]
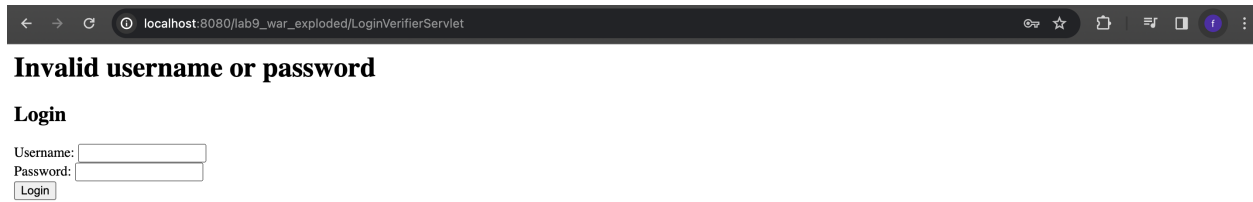
1. Write a web based java application containing a JSP which performs the simple arithmetic calculation. Take the necessary operands and operators in textboxes. Write your JSP code using jsp:useBean action tag.

CalculatorBean

```
package org.lakhman.lab9;

public class CalculatorBean {
    private double operand1;
    private double operand2;
    private String operator;
```

```java
private double result;

public double getOperand1() {
    return operand1;
}

public void setOperand1(double operand1) {
    this.operand1 = operand1;
}

public double getOperand2() {
    return operand2;
}

public void setOperand2(double operand2) {
    this.operand2 = operand2;
}

public String getOperator() {
    return operator;
}

public void setOperator(String operator) {
    this.operator = operator;
}

public double getResult() {
    switch (operator) {
        case "+":
            result = operand1 + operand2;
            break;
        case "-":
            result = operand1 - operand2;
            break;
        case "*":
            result = operand1 * operand2;
```

```
            break;
        case "/":
            if (operand2 != 0) {
                result = operand1 / operand2;
            } else {
                result = Double.NaN; // Indicate division by zero
            }
            break;
        default:
            result = Double.NaN; // Invalid operator
    }
    return result;
    }
}
```

Calculator.jsp

```
<%@ page import="org.lakhman.lab9.CalculatorBean" %>
<jsp:useBean id="calculator" class="org.lakhman.lab9.CalculatorBean"
scope="session"/>

<html>
<head>
    <title>Simple Calculator</title>
</head>
<body>
<h2>Simple Calculator</h2>
<form method="post" action="calculator.jsp">
    Operand 1: <input type="text" name="operand1" /><br/>
    Operator: <input type="text" name="operator" /><br/>
    Operand 2: <input type="text" name="operand2" /><br/>
    <input type="submit" value="Calculate" /><br/>
</form>
```
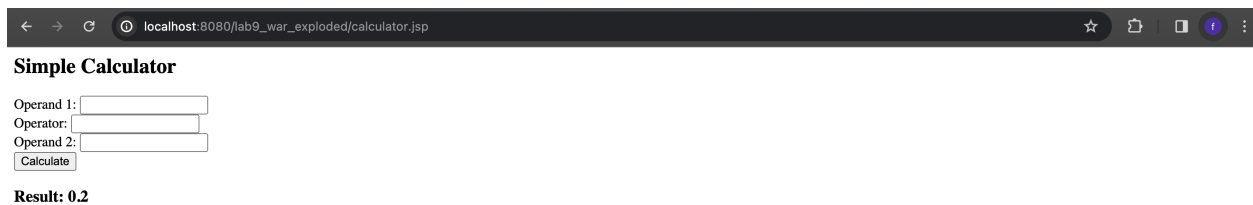
```
<%
    if (request.getMethod().equalsIgnoreCase("POST")) {
        double operand1 = Double.parseDouble(request.getParameter("operand1"));
        String operator = request.getParameter("operator");
        double operand2 = Double.parseDouble(request.getParameter("operand2"));

        calculator.setOperand1(operand1);
        calculator.setOperator(operator);
        calculator.setOperand2(operand2);
%>
<h3>Result: <%= calculator.getResult() %></h3>
<%
    }
%>
</body>
</html>
```


Simple Calculator

Operand 1: [ ]
Operator: [ ]
Operand 2: [ ]
[Calculate]

Result: 0.2

Simple Calculator

Operand 1: [10]
Operator: [/]
Operand 2: [50]
[Calculate]

Result: 255.0