



DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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Experiment 7

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Subject Name: Project based Learning Java

Subject Code: 22CSH-359

Problem :- 1(Easy-Level)

1.Aim: Write a servlet to accept user credentials through an HTML form and display a personalized welcome message if the login is successful.

2.Objective:

- Implement a servlet to handle HTTP POST requests for user authentication.
- Accept username and password through an HTML form.
- Validate credentials and display a welcome message upon success.

3. Algorithm:

- Create an HTML form with fields for username and password.
- Implement a Java Servlet to handle form submissions.
- Retrieve user credentials from the request.
- Validate credentials (using hardcoded values for simplicity).
- If valid, display a personalized welcome message; otherwise, show an error.

4. Implementation :

HTML Form (index.html)

```
<!DOCTYPE html>
```

```
<html>
```

```
<head>
```

```
<title>Login Page</title>
```



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```
</head>

<body>

    <form action="LoginServlet" method="post">

        <label>Username:</label>

        <input type="text" name="username" required><br>

        <label>Password:</label>

        <input type="password" name="password" required><br>

        <input type="submit" value="Login">

    </form>

</body>

</html>
```

Servlet (LoginServlet.java)

```
import java.io.IOException;

import java.io.PrintWriter;

import javax.servlet.ServletException;

import javax.servlet.annotation.WebServlet;

import javax.servlet.http.HttpServlet;

import javax.servlet.http.HttpServletRequest;

import javax.servlet.http.HttpServletResponse;

@WebServlet("/LoginServlet")

public class LoginServlet extends HttpServlet {

    protected void doPost(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {
```



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```
response.setContentType("text/html");

PrintWriter out = response.getWriter();

// Retrieve form parameters

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

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

// Hardcoded credentials for validation

if ("admin".equals(username) && "password123".equals(password)) {

    out.println("<h2>Welcome, " + username + "!</h2>");

} else {

    out.println("<h2>Invalid username or password. Try again.</h2>");

}

}
```

5.Output:

A screenshot of a web form for user login. It contains two input fields: 'Username:' and 'Password:'. Below these fields is a 'Login' button. The form is styled with a light gray border and a white background.

Username:

Password:

Login

Problem:- 2(Medium-level)



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1.Aim:Create a servlet integrated with JDBC to display a list of employees from a database. Include a search form to fetch employee details by ID.

2.Objective:

- Establish a connection to a MySQL database using JDBC.
- Fetch and display all employees from the database.
- Provide a search form to retrieve employee details by ID.

3.Algorithm:

- Define database connection details (URL, username, password).
- Establish a connection using DriverManager.
- If an employee ID is provided, fetch and display the corresponding record.
- Otherwise, retrieve and display all employee records.
- Close the database connection.

5. Implementation/Code:

Servlet (EmployeeServlet.java)

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import java.sql.ResultSet;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

@WebServlet("/EmployeeServlet")
```



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```
public class EmployeeServlet extends HttpServlet {

    private static final String URL = "jdbc:mysql://localhost:3306/your_database"; // Replace with DB
    name

    private static final String USER = "your_username"; // Replace with MySQL username
    private static final String PASSWORD = "your_password"; // Replace with MySQL password


    protected void doGet(HttpServletRequest request, HttpServletResponse response)

        throws ServletException, IOException {
        response.setContentType("text/html");
        PrintWriter out = response.getWriter();

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

        try {
            Connection conn = DriverManager.getConnection(URL, USER, PASSWORD);
            String query;
            PreparedStatement stmt;

            if (empId != null && !empId.isEmpty()) {
                query = "SELECT EmpID, Name, Salary FROM Employee WHERE EmpID = ?";
                stmt = conn.prepareStatement(query);
                stmt.setInt(1, Integer.parseInt(empId));
            } else {
                query = "SELECT EmpID, Name, Salary FROM Employee";
                stmt = conn.prepareStatement(query);
            }

            ResultSet rs = stmt.executeQuery();

            out.println("<h2>Employee Details</h2>");
```

```
while (rs.next()) {  
    out.println("EmpID: " + rs.getInt("EmpID") + ", Name: " + rs.getString("Name") +  
        ", Salary: " + rs.getDouble("Salary") + "<br>");  
}  
  
conn.close();  
} catch (Exception e) {  
    out.println("<h2>Error: " + e.getMessage() + "</h2>");  
}  
}  
}
```

5. Output:

1. Viewing All Employees:

```
EmpID: 1, Name: John Doe, Salary: 50000  
EmpID: 2, Name: Alice, Salary: 60000  
EmpID: 3, Name: Bob, Salary: 55000
```

2. Searching for Employee by ID (Example: ID = 1)

```
EmpID: 1, Name: John Doe, Salary: 50000
```

Problem:- 3(Hard-level)

1.Aim:Develop a JSP-based student portal that includes a form for entering attendance details and saves them to a database using a servlet.

2.Objective:

- Create a JSP form to enter student attendance details.

- Implement a servlet to handle form submissions.
- Store attendance records in a MySQL database using JDBC.

3. Algorithm:

- Create a JSP form to enter student ID, name, and attendance status.
- Implement a servlet to handle form submission and insert data into the database.
- Retrieve form data using HttpServletRequest.
- Establish a database connection using DriverManager.
- Insert the data into the attendance table.
- Close the database connection.

4. Implementation/Code:

JSP Form (attendance.jsp)

```
<!DOCTYPE html>

<html>

<head>

    <title>Student Attendance</title>

</head>

<body>

    <h2>Enter Student Attendance</h2>

    <form action="AttendanceServlet" method="post">

        <label>Student ID:</label>

        <input type="text" name="studentId" required><br>

        <label>Name:</label>

        <input type="text" name="name" required><br>

        <label>Attendance:</label>

        <select name="attendance">

            <option value="Present">Present</option>
```

```
<option value="Absent">Absent</option>
</select><br>
<input type="submit" value="Submit">
</form>
</body>
</html>
```

Servlet (AttendanceServlet.java)

```
import java.io.IOException;
import java.io.PrintWriter;
import java.sql.Connection;
import java.sql.DriverManager;
import java.sql.PreparedStatement;
import javax.servlet.ServletException;
import javax.servlet.annotation.WebServlet;
import javax.servlet.http.HttpServlet;
import javax.servlet.http.HttpServletRequest;
import javax.servlet.http.HttpServletResponse;

@WebServlet("/AttendanceServlet")

public class AttendanceServlet extends HttpServlet {

    private static final String URL = "jdbc:mysql://localhost:3306/your_database"; // Replace with
    DB name

    private static final String USER = "your_username"; // Replace with MySQL username
    private static final String PASSWORD = "your_password"; // Replace with MySQL password

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



```
response.setContentType("text/html");

PrintWriter out = response.getWriter();

String studentId = request.getParameter("studentId");
String name = request.getParameter("name");
String attendance = request.getParameter("attendance");

try {
    Connection conn = DriverManager.getConnection(URL, USER, PASSWORD);
    String query = "INSERT INTO Attendance (StudentID, Name, Status) VALUES (?, ?, ?)";

    PreparedStatement stmt = conn.prepareStatement(query);
    stmt.setInt(1, Integer.parseInt(studentId));
    stmt.setString(2, name);
    stmt.setString(3, attendance);
    int rows = stmt.executeUpdate();

    if (rows > 0) {
        out.println("<h2>Attendance recorded successfully.</h2>");
    } else {
        out.println("<h2>Failed to record attendance.</h2>");
    }

    conn.close();
} catch (Exception e) {
    out.println("<h2>Error: " + e.getMessage() + "</h2>");
}
```



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```
}  
  
}
```

6. Output:

Enter Student Attendance

Student ID:
Name:
Attendance:

7. Learning Outcomes:

- ✧ **JSP Form Handling:** How to create and submit forms using JSP.
- ✧ **Servlet Communication:** How a servlet processes form data sent from a JSP page.
- ✧ **JDBC Connectivity:** How to establish a connection to a MySQL database using JDBC.
- ✧ **Data Insertion:** How to insert form data into a database using PreparedStatement.
- ✧ **HTTP Request Handling:** How to use doPost() in servlets for handling form submissions.
- ✧ **Web Application Flow:** Understanding how JSP, servlets, and databases interact in a web application.