



# DEPARTMENT OF COMPUTER SCIENCE & ENGINEERING

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## Experiment -8

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**Semester:** 6<sup>th</sup>  
**Subject Name:** Project Based Learning  
in Java with Lab

**UID:** 22BCS12031  
**Section/Group:** IOT\_642-B  
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**8.1.1.Aim:** Write a servlet to accept user credentials through an HTML form and display a personalized welcome message if the login is successful.

**8.1.2 Objective:** To develop a servlet that authenticates user credentials submitted via an HTML form and displays a personalized welcome message upon successful login.

### **8.1.3 Code:**

#### **LoginServlet.java**

```
package mypackage;
```

```
import javax.servlet.*;  
import javax.servlet.http.*;  
import java.io.*;
```

```
public class LoginServlet extends HttpServlet {  
    protected void doPost(HttpServletRequest request, HttpServletResponse response) throws  
ServletException, IOException {  
        // Get the username and password from the request  
        String username = request.getParameter("username");  
        String password = request.getParameter("password");  
  
        // Simple validation (you can improve this)  
        if ("admin".equals(username) && "password123".equals(password)) {  
            // If login is successful, send a welcome message  
            response.setContentType("text/html");  
            PrintWriter out = response.getWriter();  
            out.println("<html><body>");  
            out.println("<h2>Welcome, " + username + "!</h2>");  
            out.println("</body></html>");  
        } else {  
            // If login fails, send an error message  
            response.setContentType("text/html");  
            PrintWriter out = response.getWriter();
```



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```
        out.println("<html><body>");
        out.println("<h2>Invalid credentials, please try again.</h2>");
        out.println("</body></html>");
    }
}
```

## Login.html

```
<!DOCTYPE html>
<html lang="en">
<head>
    <meta charset="UTF-8">
    <meta name="viewport" content="width=device-width, initial-scale=1.0">
    <title>Login</title>
</head>
<body>
    <h2>Login Form</h2>
    <form action="login" method="POST">
        <label for="username">Username:</label>
        <input type="text" id="username" name="username" required><br><br>

        <label for="password">Password:</label>
        <input type="password" id="password" name="password" required><br><br>

        <input type="submit" value="Login">
    </form>
</body>
</html>
```

## Web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app 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_4_0.xsd"
    version="4.0">

    <servlet>
        <servlet-name>LoginServlet</servlet-name>
        <servlet-class>mypackage.LoginServlet</servlet-class>
    </servlet>
```



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```
<servlet-mapping>  
  <servlet-  
<url-pattern>/login</url-pattern>  
  </servlet-mapping>  
</web-app>
```

## 8.1.4 Output:

### Login Form

Username:

Password:

Login

← → ↻ ⓘ http://localhost:8080/LoginServletApp/login

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## Welcome, admin!

**8.2.1 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.

**8.2.2 Objective:** To create a servlet using JDBC that displays a list of employees from a database and provides a search functionality to retrieve employee details by their ID.

**8.2.3 Code:**

**EmployeeServlet.java**

```
package com.example;
```

```
import java.io.*;
import java.sql.*;
import javax.servlet.*;
import javax.servlet.http.*;
```

```
public class EmployeeServlet extends HttpServlet {
    private static final long serialVersionUID = 1L;
```

```
    // Database connection parameters
```

```
    private final String jdbcURL = "jdbc:mysql://localhost:3306/EmployeesDB";
```

```
    private final String jdbcUsername = "root";
```

```
    private final String jdbcPassword = "password"; // use your password
```

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

```
        throws ServletException, IOException {
```

```
        String searchId = request.getParameter("id");
```

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

```
        PrintWriter out = response.getWriter();
```

```
        try {
```

```
            Class.forName("com.mysql.cj.jdbc.Driver");
```

```
            Connection conn = DriverManager.getConnection(jdbcURL, jdbcUsername,
jdbcPassword);
```

```
            Statement stmt = conn.createStatement();
```

```
            ResultSet rs;
```

```
            out.println("<html><body>");
```

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

```
            out.println("<form method='get'>");
```

```
            out.println("Search by ID: <input type='text' name='id' />");
```



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```
out.println("<input type='submit' value='Search' />");
out.println("</form><br>");

if (searchId != null && !searchId.trim().isEmpty()) {
    rs = stmt.executeQuery("SELECT * FROM employees WHERE id=" + searchId);
} else {
    rs = stmt.executeQuery("SELECT * FROM employees");
}

out.println("<table
border='1'><tr><th>ID</th><th>Name</th><th>Department</th><th>Email</th></tr>");
while (rs.next()) {
    out.println("<tr><td>" + rs.getInt("id") + "</td><td>" +
        rs.getString("name") + "</td><td>" +
        rs.getString("department") + "</td><td>" +
        rs.getString("email") + "</td></tr>");
}
out.println("</table>");
out.println("</body></html>");

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

## Web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app 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"
    version="3.1">

    <display-name>EmployeeServletApp</display-name>

    <servlet>
        <servlet-name>EmployeeServlet</servlet-name>
        <servlet-class>com.example.EmployeeServlet</servlet-class>
    </servlet>
```



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```
<servlet-mapping>  
  <servlet-name>EmployeeServlet</servlet-name>  
  <url-pattern>/employees</url-pattern>  
</servlet-mapping>
```

```
</web-app>
```

## 8.2.4 Output:

### Employee Directory

Search by ID:

ID	Name	Department	Email
1	John Doe	HR	john@example.com
2	Jane Smith	IT	alice@example.com
3	Alice Brown	Finance	bob@example.com

### Employee Directory

Search by ID:

ID	Name	Department	Email
1	John Doe	HR	john@example.com



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**8.3.1 Aim:** Develop a JSP-based student portal. Include a form for entering attendance details and save them to the database using a servlet.

**8.3.2 Objective:** To develop a JSP-based student portal where users can enter attendance details via a form, and the data is saved to the database through a servlet for storage and retrieval.

**8.3.3 Code:**

**AttendanceServlet.java**

```
package com.studentportal;
```

```
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 long serialVersionUID = 1L;
```

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

```
        // Get the form data
```

```
        String studentName = request.getParameter("studentName");
```

```
        String date = request.getParameter("date");
```

```
        String status = request.getParameter("status");
```

```
        // Database connection setup
```

```
        String jdbcURL = "jdbc:mysql://localhost:3306/StudentPortalDB
```

```
        String jdbcUsername = "root";
```

```
        String jdbcPassword = "paassword"; // Replace with your actual password
```

```
        // SQL query to insert attendance
```

```
        String insertSQL = "INSERT INTO attendance (student_name, date, status) VALUES
        (?, ?, ?)";
```



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```
Connection connection = null;  
PreparedStatement preparedStatement = null;
```

```
response.setContentType("text/html");  
PrintWriter out = response.getWriter();
```

```
try {  
    // Load JDBC driver  
    Class.forName("com.mysql.cj.jdbc.Driver");  
  
    // Establish connection  
    connection = DriverManager.getConnection(jdbcURL, jdbcUsername,  
jdbcPassword);  
    preparedStatement = connection.prepareStatement(insertSQL);  
  
    // Set query parameters  
    preparedStatement.setString(1, studentName);  
    preparedStatement.setString(2, date);  
    preparedStatement.setString(3, status);  
  
    int result = preparedStatement.executeUpdate();  
  
    if (result > 0) {  
        out.println("<h3>Attendance successfully recorded!</h3>");  
    } else {  
        out.println("<h3>Failed to record attendance.</h3>");  
    }  
  
} catch (Exception e) {  
    e.printStackTrace();  
    out.println("<h3>Error: " + e.getMessage() + "</h3>");  
} finally {  
    try {  
        if (preparedStatement != null) preparedStatement.close();  
        if (connection != null) connection.close();  
    } catch (Exception ex) {  
        ex.printStackTrace();  
    }  
}  
  
out.close(); } }
```





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## Attendance.jsp

```
<% @ page language="java" contentType="text/html; charset=ISO-8859-1"
pageEncoding="ISO-8859-1"%>
<!DOCTYPE html>
<html lang="en">
<head>
  <meta charset="UTF-8">
  <meta name="viewport" content="width=device-width, initial-scale=1.0">
  <title>Student Attendance Portal</title>
</head>
<body>
  <h2>Enter Attendance</h2>
  <form action="AttendanceServlet" method="POST">
    <label for="studentName">Student Name:</label><br>
    <input type="text" id="studentName" name="studentName" required><br><br>

    <label for="date">Date:</label><br>
    <input type="date" id="date" name="date" required><br><br>

    <label for="status">Attendance Status:</label><br>
    <select id="status" name="status" required>
      <option value="Present">Present</option>
      <option value="Absent">Absent</option>
    </select><br><br>

    <input type="submit" value="Submit">
  </form>
</body>
</html>
```

## Web.xml

```
<?xml version="1.0" encoding="UTF-8"?>
<web-app xmlns="http://java.sun.com/xml/ns/javaee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/javaee
    http://java.sun.com/xml/ns/javaee/web-app_3_0.xsd"
  version="3.0">

  <!-- Welcome file list: the default page to display when you visit the site -->
  <welcome-file-list>
    <welcome-file>attendance.jsp</welcome-file>
  </welcome-file-list>
```

```
<!-- Servlet configuration -->
<Servlet>
  <Servlet-name>AttendanceServlet</Servlet-name>
  <Servlet-class>com.studentportal.AttendanceServlet</Servlet-class>
  <load-on-startup>1</load-on-startup>
</Servlet>

<!-- Servlet mapping -->
<Servlet-mapping>
  <Servlet-name>AttendanceServlet</Servlet-name>
  <url-pattern>/AttendanceServlet</url-pattern>
</Servlet-mapping>

</web-app>
```

## 8.3.4 Output:

### Enter Attendance

Student Name:

Date:



Attendance Status:

← → ↻ ⓘ http://localhost:8080/StudentPortal/AttendanceServlet



**Attendance successfully recorded!**



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## **Learning Outcomes:**

1. Understand how to create a Java Servlet that interacts with a database using JDBC to perform CRUD operations.
2. Gain experience in using JSP to build dynamic web pages and handle form submissions for user interaction.
3. Learn how to implement user authentication and session management to personalize web applications.
4. Develop skills to design and implement a search functionality to fetch data from a database based on specific criteria.
5. Acquire knowledge of integrating web forms with backend servlets for storing and retrieving data in a relational database.