## Experiment-8

**Student Name:** Gagnesh Kakkar
**UID:** 23BCS11196
**Branch:** B.E-C.S.E
**Section/Group:** 23KRG-2B
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**Subject Name:** PBLJ
**Subject Code:** 23CSH-304

## 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:** Understand how to link a servlet with HTML and handle HTTP POST requests for login validation.

3. **Input/Apparatus Used:** HTML Form, Java Servlet, HTTPServletRequest, HTTPServletResponse.

4. **Procedure:**
   1. Create an HTML form with fields for username and password and set form action to the servlet URL.
   2. Create a servlet class that extends HttpServlet and override doPost().
   3. Retrieve username and password using request.getParameter().
   4. Check credentials against hardcoded values.
   5. If valid, display welcome message using response.getWriter().
   6. Configure servlet mapping in web.xml or use @WebServlet annotation.

5. **Sample Output:**
Welcome, John! Login Successful.

## 6. Code:

### Step 1 — HTML Form (login.html)

```
<!DOCTYPE html>
<html>
<head>
    <title>Login Page</title>
</head>
<body>
<form action="LoginServlet" method="post">
    Username: <input type="text" name="username"><br><br>
    Password: <input type="password" name="password"><br><br>
    <input type="submit" value="Login">
</form>
</body>
</html>
```

### Step 2 — Servlet (LoginServlet.java)

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

@WebServlet("/LoginServlet")
public class LoginServlet extends HttpServlet {

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

        String user = request.getParameter("username");
        String pass = request.getParameter("password");

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

        if(user.equals("Gagnesh") && pass.equals("12345")) {
            out.println("<h2>Welcome, " + user + "! Login Successful.</h2>");
        } else {
            out.println("<h2>Invalid Credentials. Try Again!</h2>");
        }
    }
}
```

## 7. Output:

```
Welcome, Gagnesh! Login Successful.
```

# Medium Level

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:** Demonstrate integration of database operations with servlet handling using JDBC.

3. **Input/Apparatus Used:** Servlet, JDBC, MySQL Database, HTML Form.

4. **Procedure:**
   1. Set up a MySQL table named 'Employee' with EmpID, Name, and Department.
   2. Create an HTML form with input field for EmpID and a submit button.
   3. Create a servlet to handle doGet() or doPost() depending on method.
   4. Use JDBC to establish a connection, and execute SELECT query.
   5. If EmpID is entered, filter by that; otherwise, display full list.
   6. Display the result in a formatted HTML table.
   7. Handle all exceptions and close ResultSet, Statement, Connection properly.

5. **Sample Output :**

   Employee List:
   ID: 101 | Name: Alice | Department: HR
   ID: 102 | Name: Bob | Department: IT

6. **Code:**

**Step 1 — HTML Search Form (employeeSearch.html)**

```
<!DOCTYPE html>
<html>
<head><title>Search Employee</title></head>
<body>
<form action="EmployeeServlet" method="get">
    Enter Employee ID (optional): <input type="text" name="empid">
    <input type="submit" value="Search">
</form>
</body>
</html>
```

**Step 2 — Servlet (EmployeeServlet.java)**

```
import java.io.*;

import java.sql.*;

import javax.servlet.*;

import javax.servlet.http.*;

import javax.servlet.annotation.WebServlet;


@WebServlet("/EmployeeServlet")

public class EmployeeServlet extends HttpServlet {


    protected void doGet(HttpServletRequest request, HttpServletResponse
response)

            throws ServletException, IOException {


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


        response.setContentType("text/html");

        PrintWriter out = response.getWriter();


        try {

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

            Connection con = DriverManager.getConnection(

                    "jdbc:mysql://localhost:3306/yourdb", "root",
"yourpass");


            Statement stmt = con.createStatement();

            String query = (empid == null || empid.isEmpty())

                    ? "SELECT * FROM Employee"

                    : "SELECT * FROM Employee WHERE EmpID=" + empid;
```

```
            ResultSet rs = stmt.executeQuery(query);

            out.println("<h2>Employee List:</h2>");
            while (rs.next()) {
                out.println("ID: " + rs.getInt("EmpID") + " | Name: " +
                        rs.getString("Name") + " | Department: " +
                        rs.getString("Department") + "<br>");
            }

            rs.close();
            stmt.close();
            con.close();

        } catch (Exception e) {
            out.println("Error: " + e.getMessage());
        }
    }
}
```

## 7. Output:

```
Employee List:
ID: 101 | Name: Gagnesh | Department: HR
ID: 102 | Name: Jaidev | Department: IT
```

# Hard Level

## 1. Aim:

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

## 2. Objective:

Combine JSP and Servlet to build a functional web portal for student attendance management.

## 3. Input/Apparatus Used:

JSP, Servlet, HTML Form, JDBC, MySQL, web.xml or annotations.

## 4. Procedure:

1. Create a JSP file to render a form that accepts Student ID, Date, and Attendance status.
2. Form submits to a servlet via POST method.
3. In the servlet, retrieve the submitted values using request.getParameter().
4. Connect to the database using JDBC and insert the attendance record.
5. Forward a success or error message back to JSP using request.setAttribute().
6. Use JSP include and directives for modular design and layout.

## Sample Output:

Attendance recorded successfully for Student ID: 2023CS101

## 5. Code:

### Step 1 — JSP Form (attendance.jsp)

```
<!DOCTYPE html>
<html>
<head>
    <title>Attendance Form</title>
</head>
<body>
<h2>Enter Attendance</h2>

<form action="AttendanceServlet" method="post">
    Student ID: <input type="text" name="sid"><br><br>
    Date: <input type="date" name="date"><br><br>
    Status: <select name="status">
        <option>Present</option>
        <option>Absent</option>
    </select><br><br>
    <input type="submit" value="Submit">
</form>
```

```
<% if(request.getAttribute("msg") != null) { %>
    <h3><%= request.getAttribute("msg") %></h3>
<% } %>

</body>
</html>
```

**Step 2 — Servlet (AttendanceServlet.java)**

```
import java.io.*;

import java.sql.*;

import javax.servlet.*;

import javax.servlet.http.*;

import javax.servlet.annotation.WebServlet;


@WebServlet("/AttendanceServlet")

public class AttendanceServlet extends HttpServlet {


    protected void doPost(HttpServletRequest request, HttpServletResponse
response)

            throws ServletException, IOException {


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

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

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


        try {

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

            Connection con = DriverManager.getConnection(

                    "jdbc:mysql://localhost:3306/yourdb", "root", "yourpass");


            PreparedStatement ps = con.prepareStatement(

                    "INSERT INTO Attendance(StudentID, Date, Status) VALUES (?,
?, ?)");
```

```
            ps.setString(1, sid);
            ps.setString(2, date);
            ps.setString(3, status);

            ps.executeUpdate();
            con.close();

            request.setAttribute("msg",
                    "Attendance recorded successfully for Student ID: " + sid);

        } catch (Exception e) {
            request.setAttribute("msg", "Error: " + e.getMessage());
        }

        request.getRequestDispatcher("attendance.jsp").forward(request,
response);
    }
}
```

## 6. Output:

```
Attendance recorded successfully for Student ID: 23BCS11196
```