**Experiment-8**

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# Branch: BE-CSE Section/Group: KPIT-902-B

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**Subject Name:** Project Based Learning in Java **Subject Code:** 22CSH-359

# Aim:

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

# 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.

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

# Objective: The objective is to develop web applications using Servlets and JSP for user input handling, database integration.

# Implementation/Code:

# a)

# HTML code:

# <!DOCTYPE html>

# <html>

# <head>

# <title>Login Page</title>

# </head>

# <body>

# <h2>Login</h2>

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

# <label>Username:</label>

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

# 

# <label>Password:</label>

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

# 

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

# </form>

# </body>

# </html>

# Java code:

# 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 {

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

# PrintWriter out = response.getWriter();

# // Retrieve username and password

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

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

# // Hardcoded credentials for validation (Replace with DB authentication)

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

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

# } else {

# out.println("<h2>Invalid Username or Password</h2>");

# }

# out.close();

# }

# }

# 

# 

# (a)

# b)

# Sql code:

# CREATE DATABASE CompanyDB;

# USE CompanyDB;

# CREATE TABLE employees (

# id INT PRIMARY KEY AUTO\_INCREMENT,

# name VARCHAR(100) NOT NULL,

# position VARCHAR(100),

# salary DECIMAL(10,2)

# );

# INSERT INTO employees (name, position, salary) VALUES

# ('Alice Johnson', 'Software Engineer', 75000.00),

# ('Bob Smith', 'Manager', 90000.00),

# ('Charlie Brown', 'Analyst', 65000.00);

# Java code:

# 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")

# public class EmployeeServlet extends HttpServlet {

# private static final String JDBC\_URL = "jdbc:mysql://localhost:3306/CompanyDB";

# private static final String JDBC\_USER = "root"; // Change as per your MySQL setup

# private static final String JDBC\_PASS = "password"; // Change accordingly

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

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

# PrintWriter out = response.getWriter();

# try {

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

# Connection conn = DriverManager.getConnection(JDBC\_URL, JDBC\_USER, JDBC\_PASS);

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

# String query = "SELECT \* FROM employees";

# if (searchId != null && !searchId.isEmpty()) {

# query += " WHERE id = ?";

# }

# PreparedStatement stmt = conn.prepareStatement(query);

# if (searchId != null && !searchId.isEmpty()) {

# stmt.setInt(1, Integer.parseInt(searchId));

# }

# ResultSet rs = stmt.executeQuery();

# out.println("<html><head><title>Employee List</title></head><body>");

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

# out.println("<form action='EmployeeServlet' method='GET'>");

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

# out.println("</form><br>");

# out.println("<table border='1'><tr><th>ID</th><th>Name</th><th>Position</th><th>Salary</th></tr>");

# boolean found = false;

# while (rs.next()) {

# found = true;

# out.println("<tr><td>" + rs.getInt("id") + "</td>");

# out.println("<td>" + rs.getString("name") + "</td>");

# out.println("<td>" + rs.getString("position") + "</td>");

# out.println("<td>" + rs.getDouble("salary") + "</td></tr>");

# }

# if (!found) {

# out.println("<tr><td colspan='4'>No Employee Found</td></tr>");

# }

# out.println("</table></body></html>");

# rs.close();

# stmt.close();

# conn.close();

# } catch (Exception e) {

# out.println("<h3>Error: " + e.getMessage() + "</h3>");

# }

# }

# }

# XML code:

# <web-app>

# <servlet>

# <servlet-name>EmployeeServlet</servlet-name>

# <servlet-class>EmployeeServlet</servlet-class>

# </servlet>

# <servlet-mapping>

# <servlet-name>EmployeeServlet</servlet-name>

# <url-pattern>/EmployeeServlet</url-pattern>

# </servlet-mapping>

# </web-app>

# Employees List

# 

# ID 2 searching

# 

# (b)

# c)

# Sql code:

# CREATE DATABASE StudentDB;

# USE StudentDB;

# CREATE TABLE student\_attendance (

# id INT PRIMARY KEY AUTO\_INCREMENT,

# student\_name VARCHAR(100) NOT NULL,

# roll\_number VARCHAR(20) UNIQUE NOT NULL,

# attendance\_status ENUM('Present', 'Absent') NOT NULL,

# date DATE NOT NULL

# );

# Java code:

# 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("/AttendanceServlet")

# public class AttendanceServlet extends HttpServlet {

# private static final String JDBC\_URL = "jdbc:mysql://localhost:3306/StudentDB";

# private static final String JDBC\_USER = "root"; // Change as per your MySQL setup

# private static final String JDBC\_PASS = "password"; // Change accordingly

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

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

# PrintWriter out = response.getWriter();

# String name = request.getParameter("studentName");

# String rollNumber = request.getParameter("rollNumber");

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

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

# try {

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

# Connection conn = DriverManager.getConnection(JDBC\_URL, JDBC\_USER, JDBC\_PASS);

# String query = "INSERT INTO student\_attendance (student\_name, roll\_number, attendance\_status, date) VALUES (?, ?, ?, ?)";

# PreparedStatement stmt = conn.prepareStatement(query);

# stmt.setString(1, name);

# stmt.setString(2, rollNumber);

# stmt.setString(3, status);

# stmt.setString(4, date);

# 

# int rows = stmt.executeUpdate();

# if (rows > 0) {

# out.println("<h3>Attendance recorded successfully!</h3>");

# }

# stmt.close();

# conn.close();

# } catch (Exception e) {

# out.println("<h3>Error: " + e.getMessage() + "</h3>");

# }

# out.println("<br><a href='attendance.jsp'>Back to Attendance Form</a>");

# }

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

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

# PrintWriter out = response.getWriter();

# try {

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

# Connection conn = DriverManager.getConnection(JDBC\_URL, JDBC\_USER, JDBC\_PASS);

# String query = "SELECT \* FROM student\_attendance";

# PreparedStatement stmt = conn.prepareStatement(query);

# ResultSet rs = stmt.executeQuery();

# out.println("<h2>Student Attendance Records</h2>");

# out.println("<table border='1'><tr><th>ID</th><th>Name</th><th>Roll Number</th><th>Status</th><th>Date</th></tr>");

# while (rs.next()) {

# out.println("<tr><td>" + rs.getInt("id") + "</td>");

# out.println("<td>" + rs.getString("student\_name") + "</td>");

# out.println("<td>" + rs.getString("roll\_number") + "</td>");

# out.println("<td>" + rs.getString("attendance\_status") + "</td>");

# out.println("<td>" + rs.getString("date") + "</td></tr>");

# }

# out.println("</table>");

# out.println("<br><a href='attendance.jsp'>Back to Attendance Form</a>");

# rs.close();

# stmt.close();

# conn.close();

# } catch (Exception e) {

# out.println("<h3>Error: " + e.getMessage() + "</h3>");

# }

# }

# }

# 

# XML code:

# <web-app>

# <servlet>

# <servlet-name>AttendanceServlet</servlet-name>

# <servlet-class>AttendanceServlet</servlet-class>

# </servlet>

# <servlet-mapping>

# <servlet-name>AttendanceServlet</servlet-name>

# <url-pattern>/AttendanceServlet</url-pattern>

# </servlet-mapping>

# </web-app>

# 

# JSP code:

# <%@ page language="java" contentType="text/html; charset=UTF-8" pageEncoding="UTF-8"%>

# <!DOCTYPE html>

# <html>

# <head>

# <title>Student Attendance Portal</title>

# </head>

# <body>

# <h2>Enter Attendance Details</h2>

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

# Name: <input type="text" name="studentName" required /><br><br>

# Roll Number: <input type="text" name="rollNumber" required /><br><br>

# Attendance:

# <select name="attendanceStatus">

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

# <option value="Absent">Absent</option>

# </select><br><br>

# Date: <input type="date" name="date" required /><br><br>

# <input type="submit" value="Submit Attendance">

# </form>

# <h3><a href="AttendanceServlet">View Attendance Records</a></h3>

# </body>

# </html>

# Attendance form

# 

# Viewing Attendance

# 

# (c)

1. **Learning Outcome:**

* Servlet and JDBC Integration: Understanding how to connect a Java Servlet to a MySQL database.
* Handling HTTP Requests: Learning how to process GET and POST requests to retrieve and display data.
* Database Query Execution: Writing SQL queries in Java to fetch records dynamically.
* Form Handling & User Input: Implementing a search feature to filter employee records.
* Deploying on Tomcat: Deploying a Java web application using Apache Tomcat.
* Error Handling in JDBC: Managing SQL exceptions and debugging database connectivity issues.