**Problem Statement 2: Develop a Login application with JSP API**

**1.** **Login.Jsp**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1" pageEncoding="ISO-8859-1" errorPage="error.jsp" %>

<!DOCTYPE html>

<html lang="en">

<head>

<title>Login</title>

<body bgcolor=lightblue>

</head>

<body>

<h2>Login Page</h2>

<form action="LoginServlet" 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>

<button type="submit">Login</button>

</form>

</body>

</html>

**2.login.Servlet**

import jakarta.servlet.\*;

import java.io.\*;

import jakarta.servlet.annotation.WebServlet;

import jakarta.servlet.http.HttpServlet;

import jakarta.servlet.http.HttpServletRequest;

import jakarta.servlet.http.HttpServletResponse;

import jakarta.servlet.http.HttpSession;

@WebServlet("/LoginServlet")

public class LoginServlet extends HttpServlet {

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

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

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

User user = new User(username, password);

LoginBO loginBO = new LoginBO();

try {

if (loginBO.validateUser(user)) {

HttpSession session = request.getSession();

session.setAttribute("username", username);

System.*out*.println("Login successful for user: " + username);

response.sendRedirect("NewFile1.html");

} else {

System.*out*.println("Invalid login attempt for user: " + username);

request.setAttribute("errorMessage", "Invalid Username/Password");

RequestDispatcher dispatcher = request.getRequestDispatcher("NewFile.html");

dispatcher.forward(request, response);

}

} catch (BusinessException e) {

System.*out*.println("Exception during login validation: " + e.getMessage());

request.setAttribute("errorMessage", e.getMessage());

RequestDispatcher dispatcher = request.getRequestDispatcher("NewFile.html");

dispatcher.forward(request, response);

} catch (Exception e) {

e.printStackTrace();

}

}

}

**3.login.BO**

**public** **class** LoginBO {

**public** **boolean** validateUser(User user) **throws** Exception {

**if** (user.getUsername() == **null** || user.getUsername().isEmpty() ||

user.getPassword() == **null** || user.getPassword().isEmpty()) {

**throw** **new** BusinessException("Username and password must not be empty.");

}

LoginDAO dao = **new** LoginDAO();

**return** dao.checkLoginCredentials(user);

}

}

**4.login.DAO**

import java.sql.\*;

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class LoginDAO {

public boolean checkLoginCredentials(User user) throws BusinessException,Exception {

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

String url = "jdbc:mysql://localhost:3306/login";

String dbUsername = "root";

String dbPassword = "Password@12";

String query = "SELECT \* FROM users WHERE username = ? AND password = ?";

try (Connection conn = DriverManager.*getConnection*(url, dbUsername, dbPassword);

PreparedStatement stmt = conn.prepareStatement(query)) {

stmt.setString(1, user.getUsername());

stmt.setString(2, user.getPassword());

ResultSet rs = stmt.executeQuery();

if (rs.next()) {

return true;

} else {

throw new BusinessException("Invalid Username/Password.");

}

} catch (SQLException e) {

e.printStackTrace();

throw new BusinessException("Database connection error: " + e.getMessage());

}

}

}

**5.Business Exception**

public class BusinessException extends Exception {

public BusinessException(String message) {

super(message);

}

}

**6.** **Welcome.Jsp:**

<%@ page language="java" %>

<%

String username = (session != null) ? (String) session.getAttribute("username") : null;

if (username == null) {

response.sendRedirect("Login.jsp");

return;

}

%>

<!DOCTYPE html>

<html lang="en">

<head>

<title>Welcome</title>

<body bgcolor=lightgreen>

</head>

<body>

<h3>Welcome, <%= username %>!</h3>

<a href="Login.jsp">Logout</a>

</body>

</html>

**7.Logoff.Servlet**

**import** jakarta.servlet.\*;

**import** java.io.\*;

**import** jakarta.servlet.annotation.WebServlet;

**import** jakarta.servlet.http.HttpServlet;

**import** jakarta.servlet.http.HttpServletRequest;

**import** jakarta.servlet.http.HttpServletResponse;

**import** jakarta.servlet.http.HttpSession;

@WebServlet("/LogoffServlet")

**public** **class** LogoffServlet **extends** HttpServlet {

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

HttpSession session = request.getSession(**false**);

**if** (session != **null**) {

session.invalidate();

}

response.sendRedirect("NewFile.html");

}

}

**8.User.class**

**public** **class** User {

**private** String username;

**private** String password;

**public** User(String username, String password) {

**this**.username = username;

**this**.password = password;

}

**public** String getUsername() {

**return** username;

}

**public** **void** setUsername(String username) {

**this**.username = username;

}

**public** String getPassword() {

**return** password;

}

**public** **void** setPassword(String password) {

**this**.password = password;

}

}

**9.Error.Jsp:**

<%@ page language="java" contentType="text/html; charset=ISO-8859-1" pageEncoding="ISO-8859-1"

isErrorPage="true" %>

<!DOCTYPE html>

<html lang="en">

<head>

<title>Error</title>

<body>

</head>

<body>

<h2>Error Occured <br></h2>

<a href="Login.jsp">Try Again</a>

</body>

</html>