**Problem Statement 1: Develop a Login application with Servlet API**

**• login.html – user should be able to enter username and password.**

**• LoginServlet – reads username and password from login.html and sends it for validation to LoginBO. If, LoginBO returns true navigate to welcome.html else navigate backto login.html with error message that “Invalid Username/Password”.**

**• welcome.html – on successful login it should display “welcome user” and you have**

**Logged in successfully, and also create a hyperlink as “Logoff”.**

**• LoginBO – here you validate if the proper business required values were entered or not fort he username and password else throw a BusinessException.**

**• LoginDAO – here you check if the username and password combination is existing in the database or not if not throw BusinessException. Make a call to LoginDAO class only if LoginBO clears validation.**

**• LogoffServlet – Onclickingonlogofffromwelcome.html destroy thesession**

**created in LoginServlet and navigate tologin.html.**

**• User - is a model class which will hold username and password**

**1.login.HTML**

<!DOCTYPE html>

<html>

<head>

<title>Login</title>

</head>

<body>

<h2>Login Form</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.HTML**

<!DOCTYPE html>

<html>

<head>

<title>Welcome</title>

</head>

<body>

<h2>Welcome <span id=*"username"*></span>!</h2>

<p>You have logged in successfully.</p>

<a href=*"LogoffServlet"*>Logoff</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.Create a database**

CREATE TABLE users ( id INT AUTO\_INCREMENT PRIMARY KEY, username VARCHAR(50) NOT NULL, password VARCHAR(100) NOT NULL );

INSERT INTO users (username, password) VALUES (“sai”, “sai@king”);

**Output:**

**Login Form**

Top of Form

Username:   
Password:   
  
Login

Bottom of Form

**Welcome !**

You have logged in successfully.

[Logoff](http://localhost:8085/login/LogoffServlet)