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

**Structure of Given Problem:**

SRC/MAIN/JAVA

>>com.example:

InvalidUserException.JAVA

LoginBO.JAVA

LoginServlet.JAVA

LogoffServlet.JAVA

>>com.example.DAO :

LoginDAO.JAVA

>>model:

User.JAVA

WEBAPP

Login.JSP

Welcome.JSP

**SOURCE CODE:**

**InvalidUserException.JAVA:**

**package** com.example;

**public** **class** InvalidUserException **extends** Exception {

**public** InvalidUserException(String message) {

**super**(message);

}

}

**LoginBO.JAVA:**

**package** com.example;

**import** com.example.DAO.LoginDAO;

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

**public** **boolean** validateUser(String username, String password) **throws** InvalidUserException {

**if** (username == **null** || password == **null** || username.isEmpty() || password.isEmpty()) {

**throw** **new** InvalidUserException("Username or Password cannot be empty");

}

LoginDAO loginDAO = **new** LoginDAO();

**return** loginDAO.isValidUser(username, password);

}

}

**LoginServlet.JAVA:**

**package** com.example;

**import** java.io.IOException;

**import** javax.servlet.RequestDispatcher;

**import** javax.servlet.ServletException;

**import** javax.servlet.annotation.WebServlet;

**import** javax.servlet.http.HttpServlet;

**import** javax.servlet.http.HttpServletRequest;

**import** javax.servlet.http.HttpServletResponse;

**import** javax.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");

LoginBO loginBO = **new** LoginBO();

**try** {

**boolean** isValidUser = loginBO.validateUser(username, password);

**if** (isValidUser) {

HttpSession session = request.getSession();

session.setAttribute("username", username);

response.sendRedirect("welcome.jsp");

}

} **catch** (InvalidUserException e) {

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

RequestDispatcher rd = request.getRequestDispatcher("login.jsp");

rd.forward(request, response);

}

}

}

**LogoffServlet.JAVA:**

**package** com.example;

**import** java.io.IOException;

**import** javax.servlet.ServletException;

**import** javax.servlet.annotation.WebServlet;

**import** javax.servlet.http.HttpServlet;

**import** javax.servlet.http.HttpServletRequest;

**import** javax.servlet.http.HttpServletResponse;

**import** javax.servlet.http.HttpSession;

@WebServlet("/LogoffServlet")

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

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

**throws** ServletException, IOException {

HttpSession session = request.getSession();

session.invalidate(); // Destroy session

response.sendRedirect("login.jsp");

}

}

**LoginDAO.JAVA:**

**package** com.example.DAO;

**import** java.sql.\*;

**import** com.example.InvalidUserException;

**import** java.sql.\*;

**public** **class** LoginDAO {

**private** **static** **final** String ***DB\_URL*** = "jdbc:mysql://localhost:3306/Loginform";

**private** **static** **final** String ***DB\_USER*** = "root";

**private** **static** **final** String ***DB\_PASSWORD*** = "Password@12";

**public** **boolean** isValidUser(String username, String password) **throws** InvalidUserException {

**boolean** isValid = **false**;

**try** {

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

Connection conn = DriverManager.*getConnection*(***DB\_URL***, ***DB\_USER***, ***DB\_PASSWORD***);

PreparedStatement ps = conn.prepareStatement("SELECT \* FROM users WHERE username=? AND password=?");

ps.setString(1, username);

ps.setString(2, password);

ResultSet rs = ps.executeQuery();

**if** (rs.next()) {

isValid = **true**;

} **else** {

**throw** **new** InvalidUserException("Invalid Username or Password");

}

conn.close();

} **catch** (ClassNotFoundException | SQLException e) {

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

}

**return** isValid;

}

}

**User.JAVA:**

**package** com.example.model;

**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** String getPassword() {

**return** password;

}

}

**Login.JSP:**

<html>

<body>

<h2>Login Page</h2>

<% String errorMessage = (String) request.getAttribute("errorMessage"); %>

<% **if** (errorMessage != **null**) { %>

<p style="color:*red*;"><%= errorMessage %></p>

<% } %>

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

Username: <input type=*"text"* name=*"username"* required><br><br>

Password: <input type=*"password"* name=*"password"* required><br><br>

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

</form>

</body>

</html>

**Welcome.JSP:**

<%@ page import=*"javax.servlet.http.HttpSession"* %>

<%

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

String username = (String) Session.getAttribute("username");

**if** (username == **null**) {

response.sendRedirect("login.jsp");

}

%>

<html>

<body>

<h2>Welcome, <%= username %>! You have logged in successfully.</h2>

<a href=*"LogoffServlet"*>Logoff</a>

</body>

</html>