**Practice Exercise 1: Develop a Login application with Servlet API**

**login.html**

<html>

<body bgcolor=*orange*>

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

<h1>Login Form</h1>

<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>

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

</form>

<p id=*"error"* style="color:*red*;"></p>

<!--

<script type="text/javascript">

document.getElementById("error").textContent = "Invalid username/password";

</script>

<script type="text/javascript">

function getQueryParams() {

const params = {};

window.location.search.substring(1).split("&").forEach(param => {

const [key, value] = param.split("=");

params[key] = decodeURIComponent(value);

});

return params;

}

const params = getQueryParams();

if (params.error) {

document.getElementById("errorMessage").textContent = params.error;

}

</script>

-->

</body>

</html>

**welcome.html**

<!DOCTYPE html>

<html>

<head>

<meta charset=*"ISO-8859-1"*>

<title>Insert title here</title>

</head>

<body>

<h1>welcome user</h1>

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

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

**error.jsp**

<%@ page language=*"java"* %>

<html>

<body>

<p><%= request.getAttribute("error") %></p>

<a href=*"login.html"*>Try Again</a>

</body>

</html>

**DataBaseConnection.java**

import java.sql.Connection;

import java.sql.DriverManager;

import java.sql.SQLException;

public class DatabaseConnection {

//

public static Connection getConnection() throws SQLException, ClassNotFoundException {

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

Connection con=DriverManager.*getConnection*("jdbc:mysql://localhost:3306/prblm1","root","Password@12");

return con;

}

}

**User.java**

public class User {

private String username;

private String 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;

}

}

**loginServlet.java**

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;

@SuppressWarnings("serial")

@WebServlet("/loginServlet")

public class loginServlet extends HttpServlet{

protected void doPost(HttpServletRequest req,HttpServletResponse res) throws IOException,ServletException {

//PrintWriter pw=res.getWriter();

User uobj=new User();

res.setContentType("text/html");

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

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

uobj.setUsername(username);

uobj.setUsername(password);

LoginBO lbo=new LoginBO();

try {

if(lbo.validate(username,password)) {

HttpSession session=req.getSession();

session.setAttribute("username",username);

res.sendRedirect("welcome.html");

}

else {

//res.sendRedirect("login.html");

//req.setAttribute("errorMessage","Invalid username/password");

RequestDispatcher dispatcher=req.getRequestDispatcher("error.jsp");

dispatcher.include(req, res);

//res.sendRedirect("login.html?error=InvalidUsername/Password");

//res.sendRedirect("login.html?error=Invalid Username/Password");

}

}catch (BusinessException e) {

//req.setAttribute("error", e.getMessage());

req.setAttribute("error", "<span style='color:red'>" + e.getMessage() + "</span>");

RequestDispatcher rd = req.getRequestDispatcher("error.jsp");

rd.include(req, res);

//req.setAttribute("errorMessage",e.getMessage());

//RequestDispatcher dispatcher=req.getRequestDispatcher("login.html");

//dispatcher.forward(req, res);

//res.sendRedirect("login.html?error=" + e.getMessage() );

}

}

}

**LoginBO.java**

public class LoginBO {

public boolean validate(String username,String password) throws BusinessException {

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

throw new BusinessException("Username and password cannot be empty");

}

LoginDAO dao=new LoginDAO();

return dao.checkCredentials(username,password);

}

}

**LoginDAO.java**

import java.sql.Connection;

import java.sql.PreparedStatement;

import java.sql.ResultSet;

import java.sql.SQLException;

public class LoginDAO {

public boolean checkCredentials(String username,String password) throws BusinessException{

try(Connection con=DatabaseConnection.*getConnection*()){

User uobj=new User();

int count=0;

String sql="Select \* from user where username=? and password=?";

PreparedStatement pstm=con.prepareStatement(sql);

pstm.setString(1, username);

pstm.setString(2, password);

ResultSet rs=pstm.executeQuery();

while(rs.next()) {

count++;

}

if(count>0) {

return true;

}

else {

return false;

}

}catch(SQLException | ClassNotFoundException e) {

throw new BusinessException("Invalid username/password");

}

}

}

**logoutServlet.java**

**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;

@SuppressWarnings("serial")

@WebServlet("/logoutServlet")

**public** **class** logoutServlet **extends** HttpServlet{

**protected** **void** doGet(HttpServletRequest req,HttpServletResponse res) **throws** IOException,ServletException{

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

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

session.invalidate();

}

res.sendRedirect("login.html");

}

}

**BusinessException.java**

public class BusinessException extends Exception{

public BusinessException(String message) {

super(message);

}

}