JAVA

Advanced Computer Programming

Java JSP

Web Development in Java

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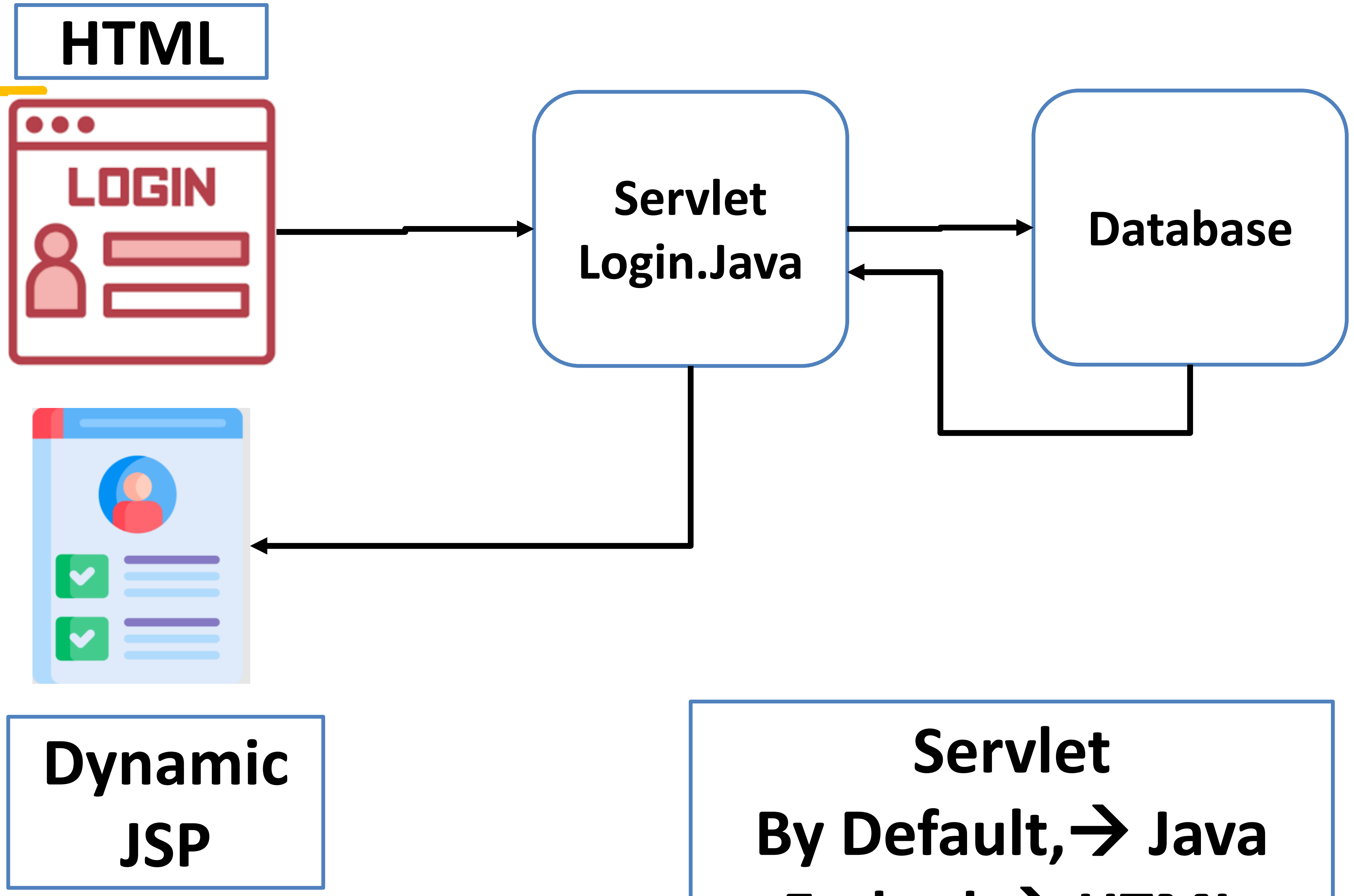
Project Checklists

- Responsive Design Bootstrap Template
- HTML Forms Validations
- Minimum Two Roles Management
- Admin
  - Add/ Delete/Update Records (Not providing ID its Dynamics)
- User
  - Add Update and Deactivate (Can’t Delete)
- Session Management
- HTML Final Invoice or Report

Why Need JSP

- JSP Stands for Java Server Pages.
- JSP is a server-side technology, creates dynamics Pages.
- JSP is advance version of Servlet.
- Embed Java Code in JSP with the help of Tags <%   %> Same like PHP



Servlet
By Default,→ Java
Embed → HTML

JSP
By Default,→ HTML
Embed → JSP

JSP Life Cycle

- Translation
  - Convert JSP into Servlet (.java)
- Compilation
  - Convert Java file into Class (Byte Code)
- Loading and Instantiation
  - When server is started, servlet class is loading in the memory and servlet object is created.
- Initialization
  - Servlet object will be initialized by invoking jspInit() method.
- Request Handling
  - It will handle or serve the client request by invoking _jspService() method. It use threads by multiple request.
- Destroy
  - When the server is shutdown jspDestroy() method will be executed and servlet object will be deleted

JSP Program

- Right Click on webapp and add new file (.jsp)
- Translation Phase verfiy
- C:\Users\Zohair\eclipse-workspace\.metadata\.plugins\org.eclipse.wst.server.core\tmp0\work\Catalina\localhost\webapp\org\apache\jsp\index_jsp.java

```
<%@ page language="java" contentType="text/html;
charset=UTF-8"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>JSP APP</title>
</head>
<body>
<h3>This is the JSP APP</h3>

   <%
   String name = "Zohair Ahmed";
   int len = name.length();
   %>
   <%=name%>
   <%=len%>
</body>
</html>
```

JSP Tags

- **Scripting Tags**
  - Allows the developer to write free-form Java code in a JSP page.
  - **Scriptlet Tag**
    - a. <% some Java code %>
  - **Declaration Tags**
    - a. <%! variable declaration & method definition %>
  - **Expression Tags**
    - a. <%= an Expression to Print Values %>
- **Directive Tags**
  - Specifies translation time instructions to the JSP engine.
  - <%@ directives %>
    - a. Page Directive
    - b. Include Directive
    - c. Taglib Directive
- **Action Tags**
  - Provides request-time instructions to the JSP engine.
  - <jsp:actionName />
    - a. Include Tags
    - b. Forward Tags
    - c. Bean Action Tags

JSP Program for Different Tags

- Example

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>JSP APP</title>
</head>
<body>
<h3>This is the JSP APP</h3>

      <%!int a = 10;
      int square() {
      return a * a;
      }
      %>

      <%
      out.println("The value of a: " + a);
      out.println("The square function: " + square());
      %>

</body>
</html>
```

JSP Implicit Objects

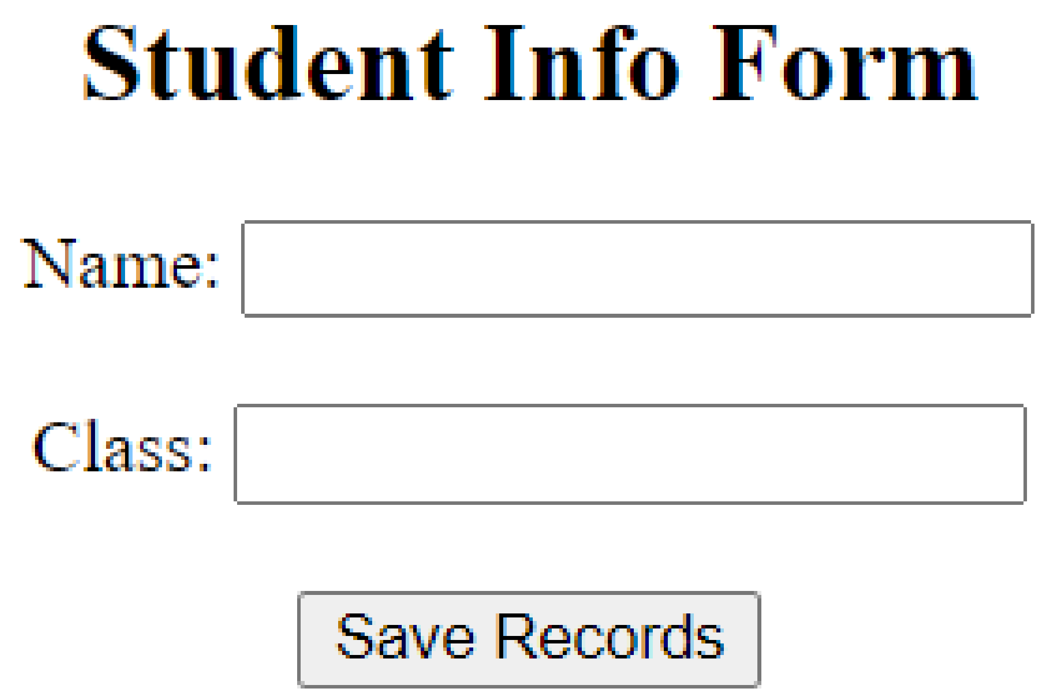
- JSP Implicit Objects are also called pre-defined

Object	Type
out	JspWriter
request	HttpServletRequest
response	HttpServletResponse
config	ServletConfig
application	ServletContext
session	HttpSession
pageContext	PageContext
page	Object
exception	Throwable

JSP Implicit Objects

```
<%@ page language="java" contentType="text/html; charset=UTF-8"
pageEncoding="UTF-8"%>
<!DOCTYPE html>
<html>
<head>
<meta charset="UTF-8">
<title>JSP APP</title>
</head>
<body>
<h3>This is the JSP APP</h3>

<%
String std_name= request.getParameter("std_name");
String std_class= request.getParameter("std_class");
out.println(std_name);
out.println(std_class);


%>

</body>
</html>
```

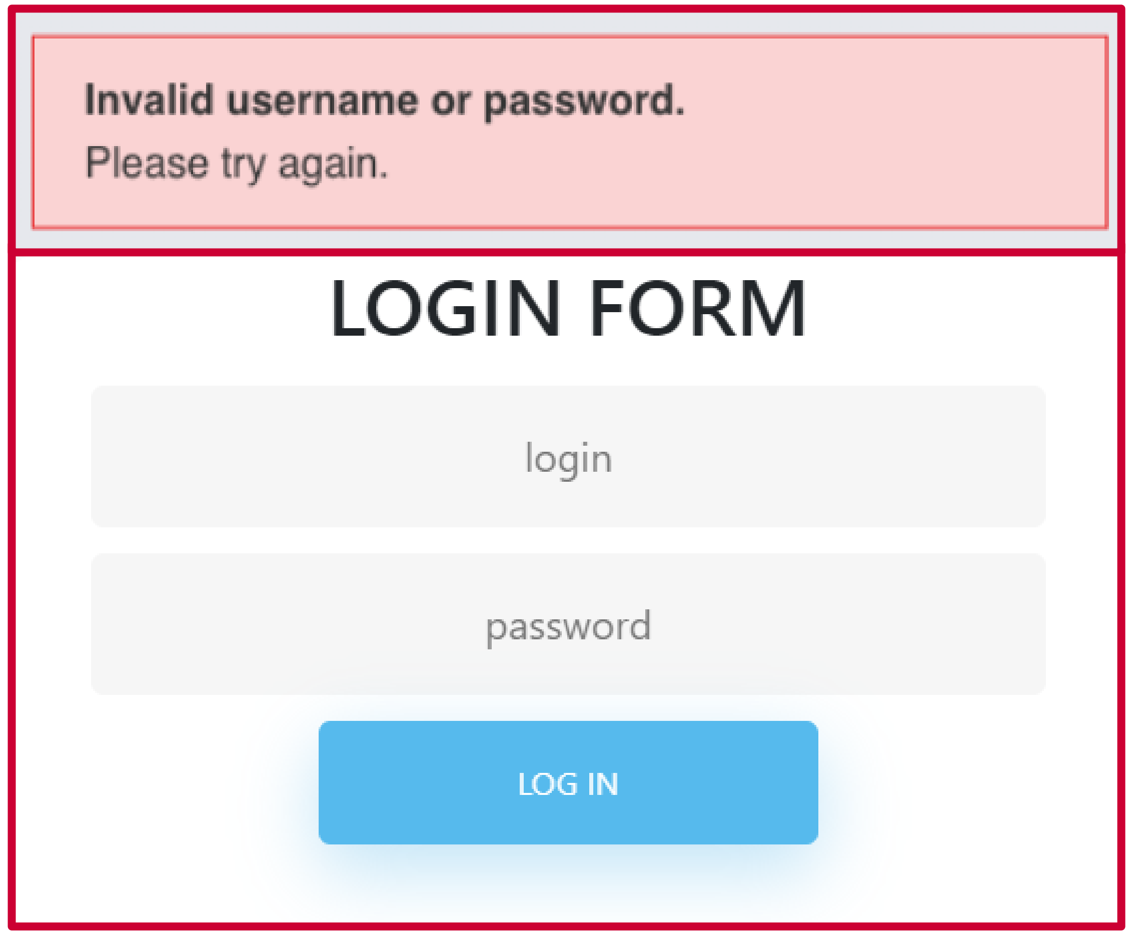
Std_info.html



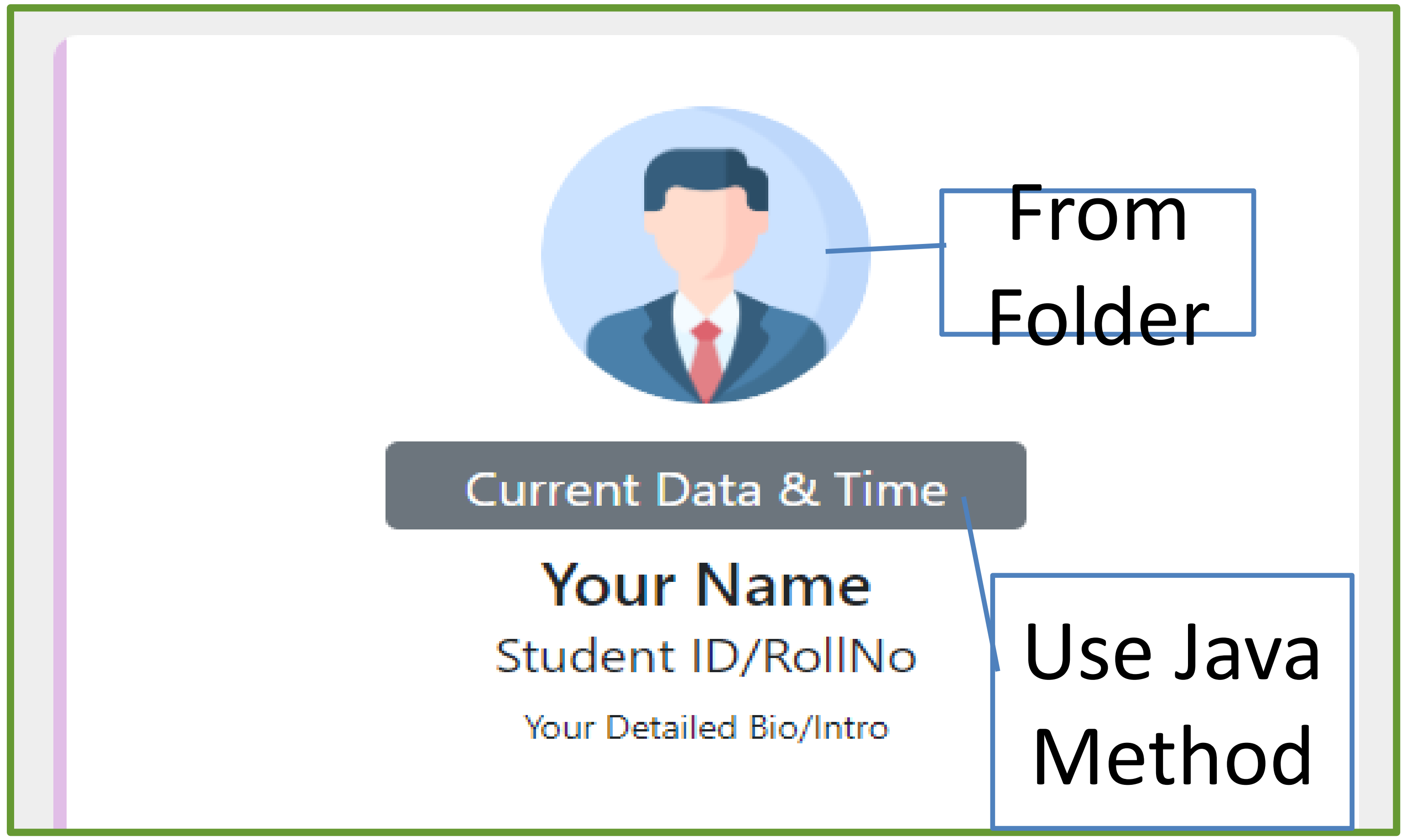
```
<div style="text-align:center;">
<h2>Student Info Form</h2>
<form action="index.jsp" method="post">
Name: <input type=" text" name="std_name" />
Class: <input type="text" name="std_class" />
<input type="submit" value="Save Records" />
</form>
</div>
```

Task

- Create Two JSP Pages with Bootstrap
  - Login
  - Profile
- Use Query String to Display Error
- Load Images from folder



Invalid username or password.
Please try again.



From Folder

Current Data & Time

Your Name

Student ID/RollNo

Your Detailed Bio/Intro

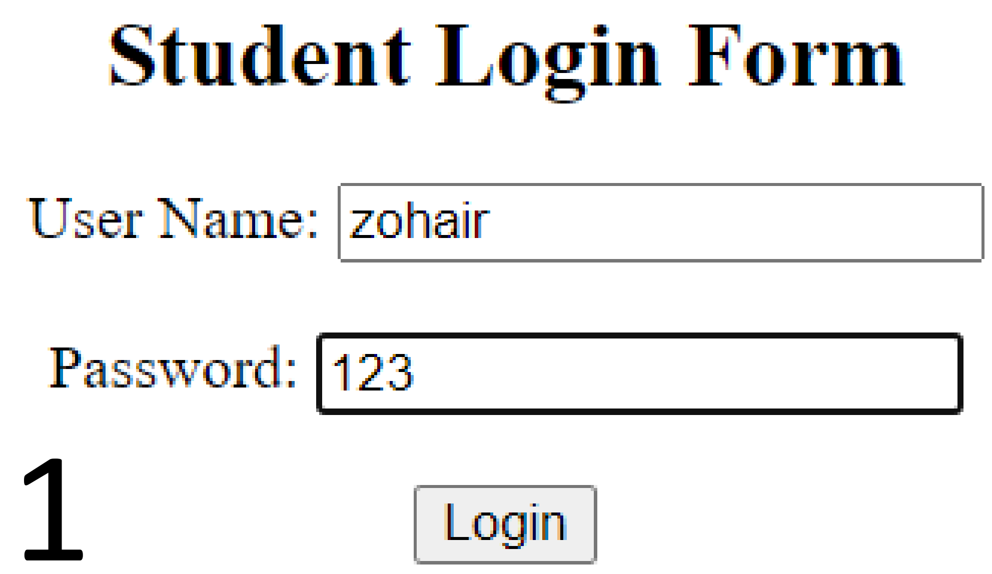
Use Java Method

Session Management

- HttpSession in Java

Sessions

Std_info.html



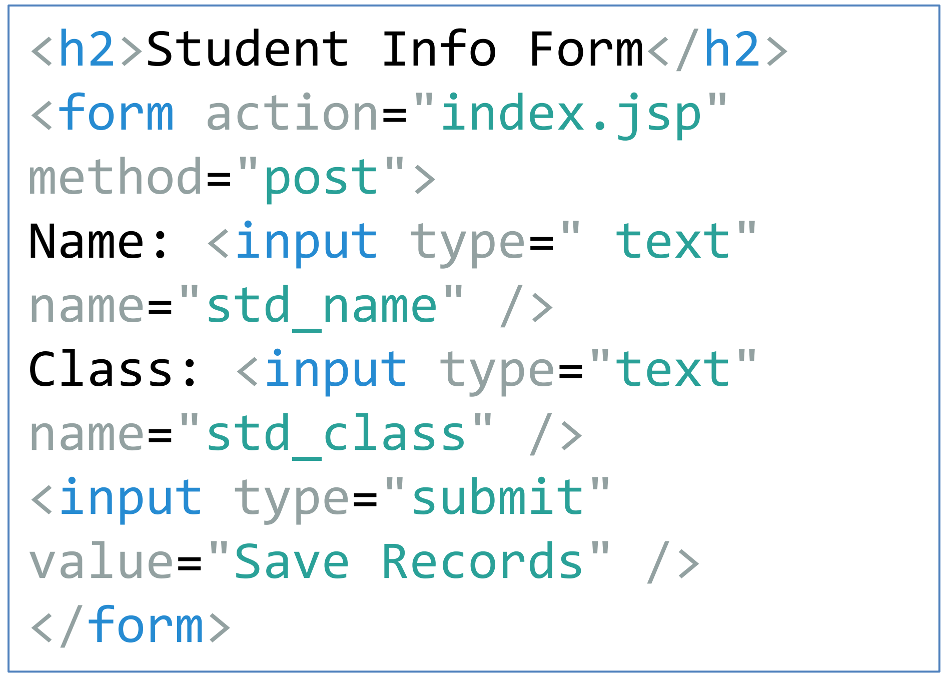
Student Login Form

User Name: zohair

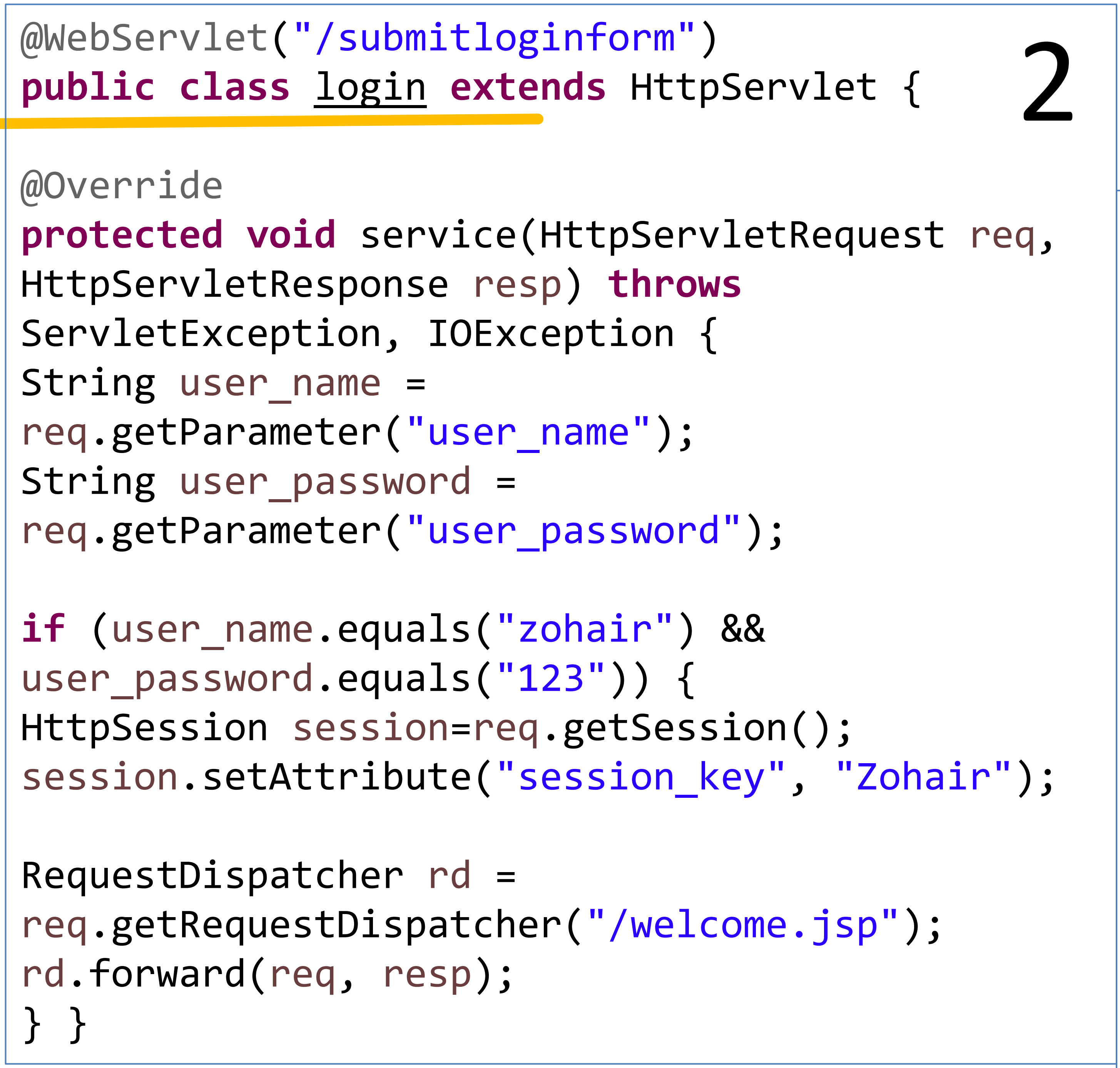
Password: 123

Login

1

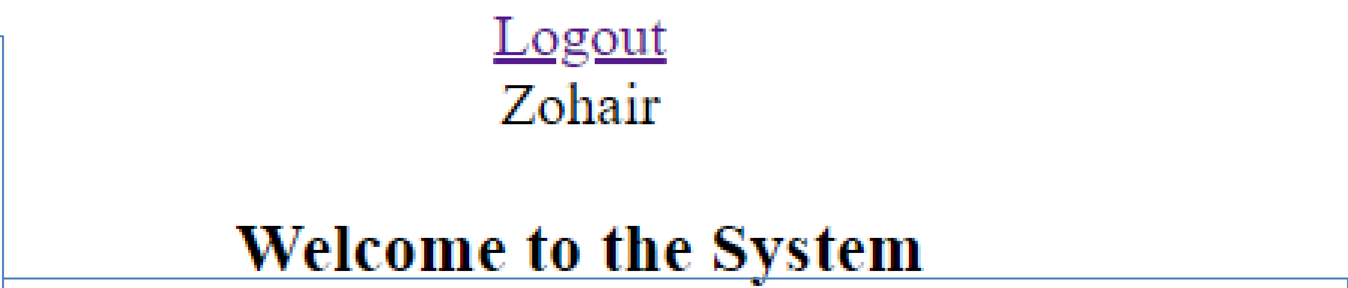


```
<h2>Student Info Form</h2>
<form action="index.jsp"
method="post">
Name: <input type=" text"
name="std_name" />
Class: <input type="text"
name="std_class" />
<input type="submit"
value="Save Records" />
</form>
```



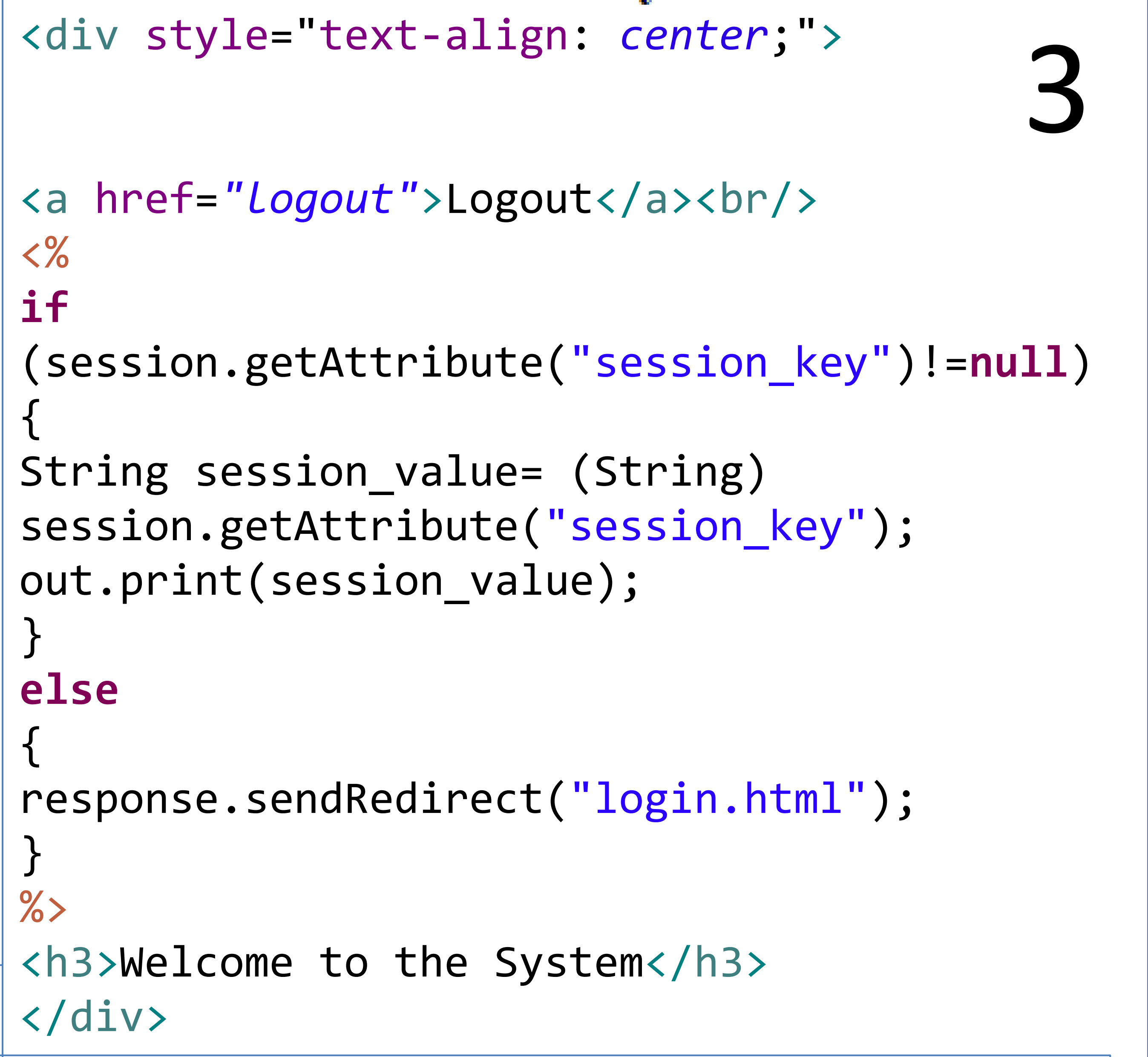
2

```
@WebServlet("/submitloginform")
public class login extends HttpServlet {

@Override
protected void service(HttpServletRequest req,
HttpServletResponse resp) throws
ServletException, IOException {
String user_name =
req.getParameter("user_name");
String user_password =
req.getParameter("user_password");

if (user_name.equals("zohair") &&
user_password.equals("123")) {
HttpSession session=req.getSession();
session.setAttribute("session_key", "Zohair");

RequestDispatcher rd =
req.getRequestDispatcher("/welcome.jsp");
rd.forward(req, resp);
} }
```



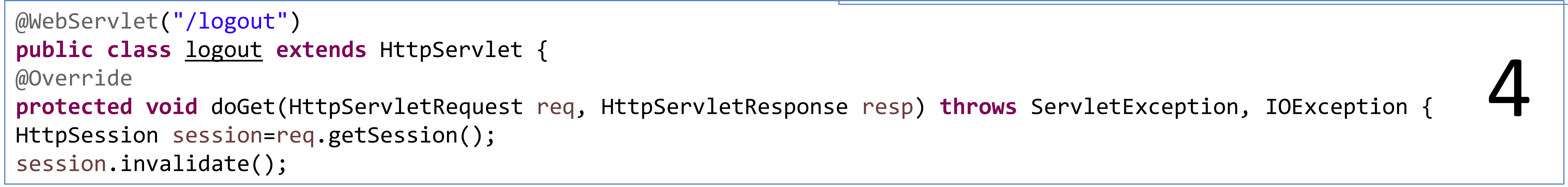
Logout
Zohair

Welcome to the System



3

```
<div style="text-align: center;">


<a href="logout">Logout</a><br/>
<%
if
(session.getAttribute("session_key")!=null)
{
String session_value= (String)
session.getAttribute("session_key");
out.print(session_value);
}
else
{
response.sendRedirect("login.html");
}
%>
<h3>Welcome to the System</h3>
</div>
```



4

```
@WebServlet("/logout")
public class logout extends HttpServlet {
@Override
protected void doGet(HttpServletRequest req, HttpServletResponse resp) throws ServletException, IOException {
HttpSession session=req.getSession();
session.invalidate();
```

Expression Language (EL)

- The Expression Language (EL) simplifies the accessibility of data stored in component, and other objects like request, session, application etc.
- ${ expression }
- Use directly without implicit object
- <p>${session_key}</p>
- <p>${param.std_name}</p>

Implicit Objects	Usage
pageScope	it maps the given attribute name with the value set in the page scope
requestScope	it maps the given attribute name with the value set in the request scope
sessionScope	it maps the given attribute name with the value set in the session scope
applicationScope	it maps the given attribute name with the value set in the application scope
param	it maps the request parameter to the single value
paramValues	it maps the request parameter to an array of values
header	it maps the request header name to the single value
headerValues	it maps the request header name to an array of values
cookie	it maps the given cookie name to the cookie value
initParam	it maps the initialization parameter
pageContext	it provides access to many objects request, session etc.

CRUD with JSP + Servlet

Improve Web Logic

This Complete Application will be uploaded on Github Repository