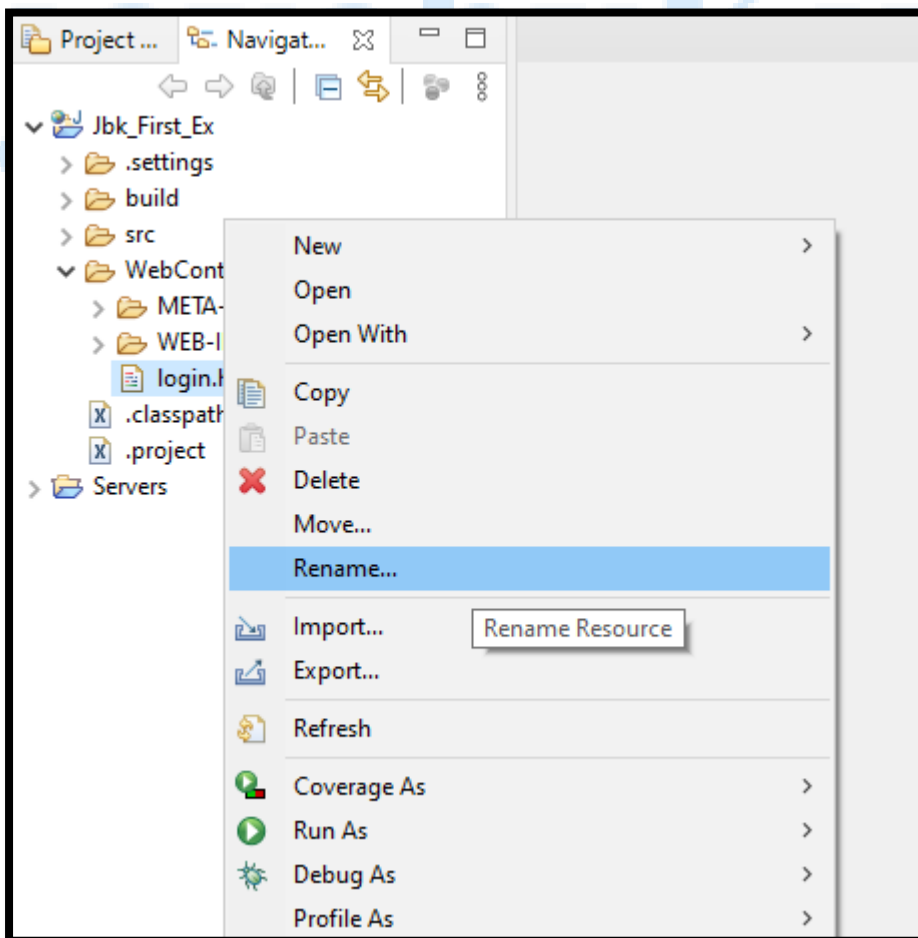


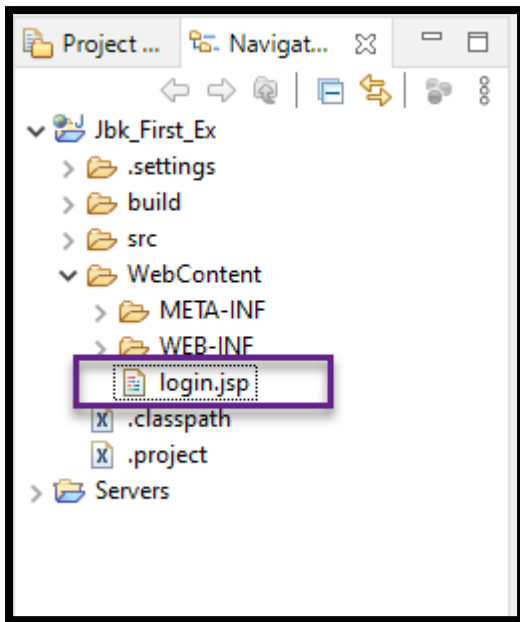
SERVLETS

1. Converting HTML to JSP
2. Introduction to JSP
3. Difference between HTML and JSP
4. Bringing error or success message from servlet to JSP
5. Navigating to different pages as per conditions
6. Integrating HTML and Java Code

1. Converting HTML to JSP

1# Rename your html to jsp.





2. Introduction to JSP

JSP is a web component like servlet. This is responsible for the following.

- 1) Receiving the request from client
- 2) Processing the request
- 3) Sending a response

As per MVC design [model view controller] JSP should be used for presentation purpose only. mvc we will learn later.

JSP is a combination of HTML tags and java code.

In JSP we need to differentiate between java and html code for that below are used.

To do this we have three things.

1. Scriptlet
2. Expressions
3. Declaration

1. Scriptlet

- a. Syntax is.

```
<% %>
```

// any java code as it is. // no method allowed.

// if variable is declared then they are treated as local variable

// in detail we will see later in this chapter.

2. Expressions

- a. Syntax is.

```
<%= %>
```

// any java code that must give output

// ex. 6+7 == will print 11 on jsp

// we can use like <%= 11+6%>

3. Declaration

- a. Syntax is.

```
<%! %>
```

We can write method here.

Variables declared considered as a global variable.

3. Difference between HTML and JSP

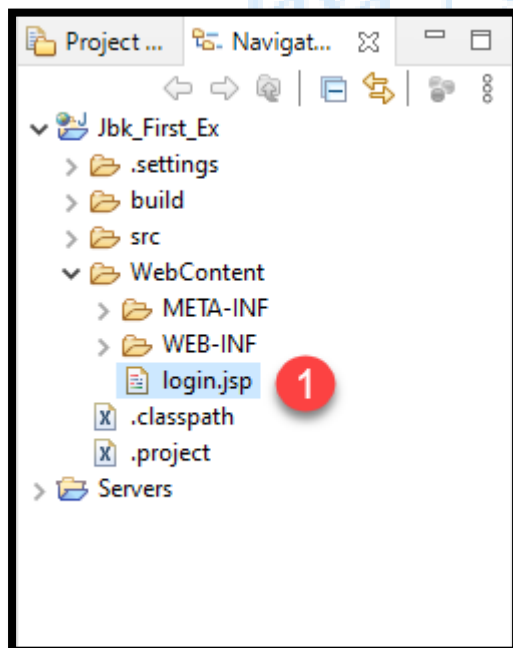
#	JSP	HTML
1	JSP provides a dynamic interface for the continuously changing data.	HTML provides a non-changing data display or view. static data.
2	There is a need of JSP container or server to execute JSP code.	No need of server we can run directly.
3	We can have java code in jsp	We can-not have java code in jsp
4	JSP is a technology which is used to create dynamic web applications.	HTML is a standard markup language which is used to create the structure of web pages.
5	JSP runs straight on the Web Server	HTML runs in the Web Browser.
6	JSP is termed as server-side scripting language.	HTML is termed as client-side scripting language.
7	JSP takes some time to load as it need to interact with the Web Server.	As HTML runs on the local machine, it gets loaded very faster.

4. Bringing error or success message from servlet to JSP

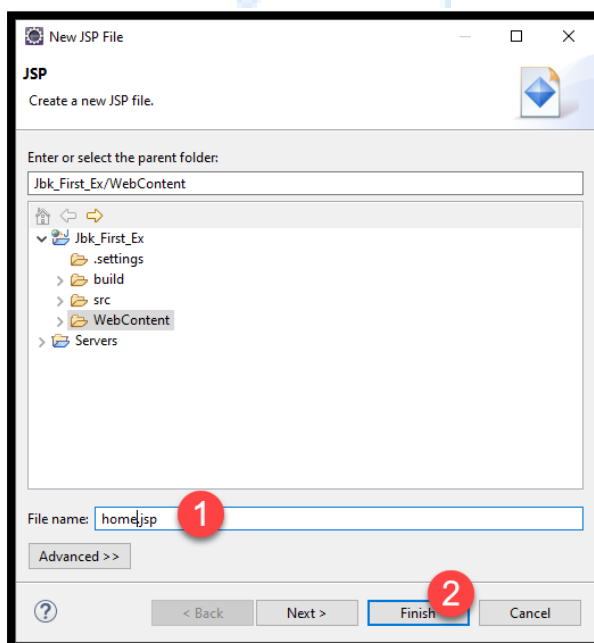
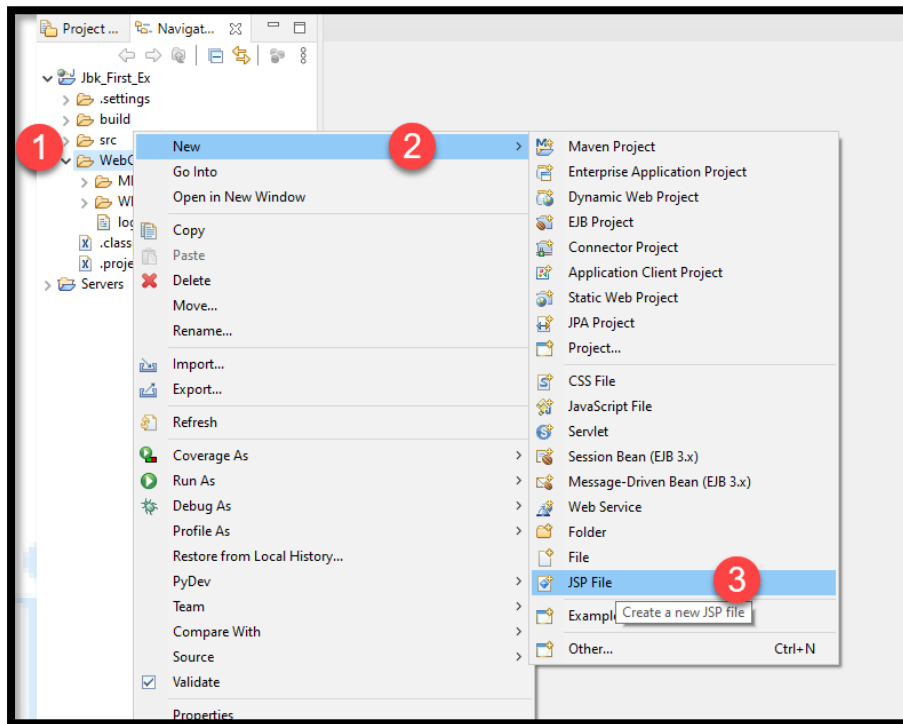
Objective: We will keep same project structure only changes will be as below

1. We will convert login.html to login.jsp.
2. We will add java logic in servlet doPost Method.
 - a. doPost method is inbuilt method which we have overridden in servlet to serve our request.
3. We will add home.jsp so that user will be navigated to that page if userid and password is correct.

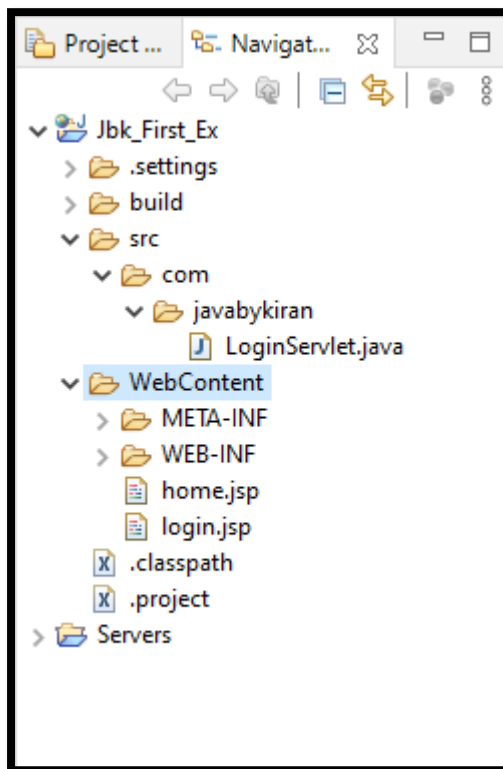
This is project structure we have now.



Create home.jsp



Now project structure as below.



Add code in servlet as below.

```
package com.javabykiran;
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;

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

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

        String username = request.getParameter("uname");
        String password = request.getParameter("pword");
        System.out.println("username >> " + username);
        System.out.println("password >> " + password);

        if ("admin".equals(username)) {
```

```
        request.setAttribute("msg", "Your userId and Password are Correct");
    } else {
        request.setAttribute("msg", "Your userId and Password are Wrong");
    }

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

}

}
```

Code will look like



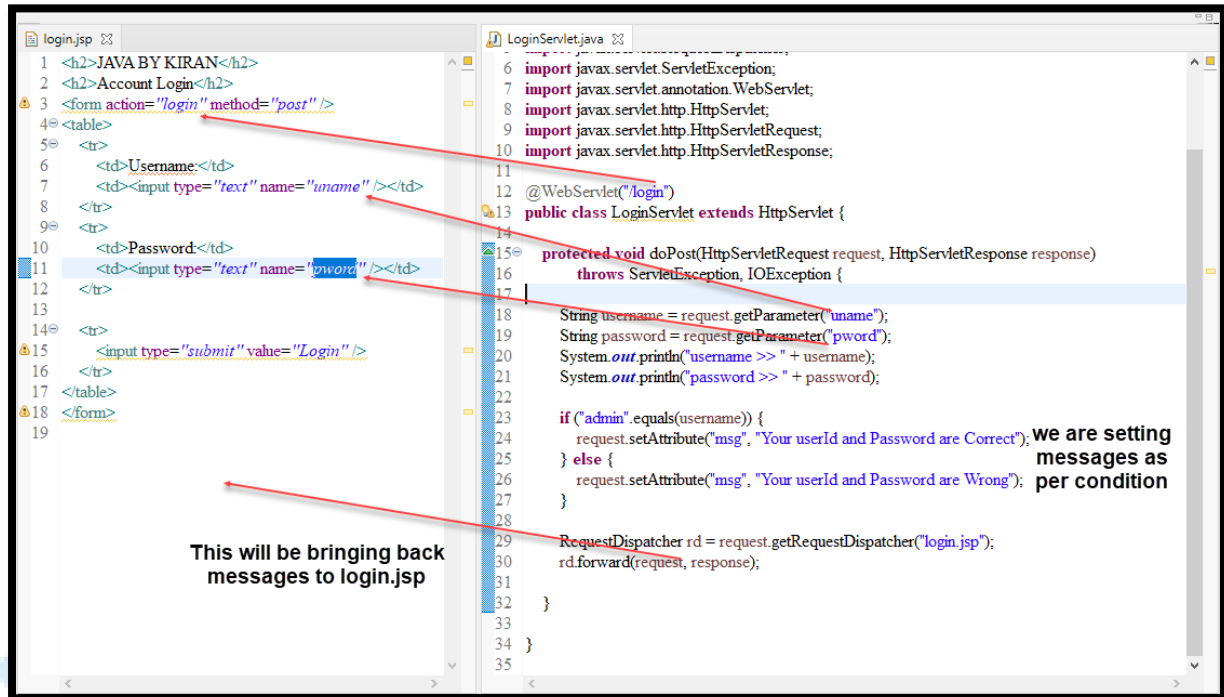
```
1 package com.javabykiran;
2
3 import java.io.IOException;
4
5 import javax.servlet.RequestDispatcher;
6 import javax.servlet.ServletException;
7 import javax.servlet.annotation.WebServlet;
8 import javax.servlet.http.HttpServlet;
9 import javax.servlet.http.HttpServletRequest;
10 import javax.servlet.http.HttpServletResponse;
11
12 @WebServlet("/login")
13 public class LoginServlet extends HttpServlet {
14
15     protected void doPost(HttpServletRequest request, HttpServletResponse response)
16         throws ServletException, IOException {
17
18         String username = request.getParameter("uname");
19         String password = request.getParameter("passwd");
20         System.out.println("username >> " + username);
21         System.out.println("password >> " + password);
22
23         if ("admin".equals(username)) {
24             request.setAttribute("msg", "Your userId and Password are Correct");
25         } else {
26             request.setAttribute("msg", "Your userId and Password are Wrong");
27         }
28
29         RequestDispatcher rd = request.getRequestDispatcher("login.jsp");
30         rd.forward(request, response);
31
32     }
33 }
34
35 }
```

Explanation

- 1) `getAttribute` is a method of `HttpRequest` interface used to take data from html or jsp
- 2) We are logic for checking username and password , we did not use database in this case. “admin” is username in this case.
 - a. In this case we are using `setAttribute` method which sets a data to request which will be retrieved in jsp later.

- b. Homework: add password condition in a program
- 3) RequestDispatcher Interface is used to navigate from servlet to jsp or html.forward() method is used for navigation where we request is now getting converted to response.

Graphical representation is as follows.

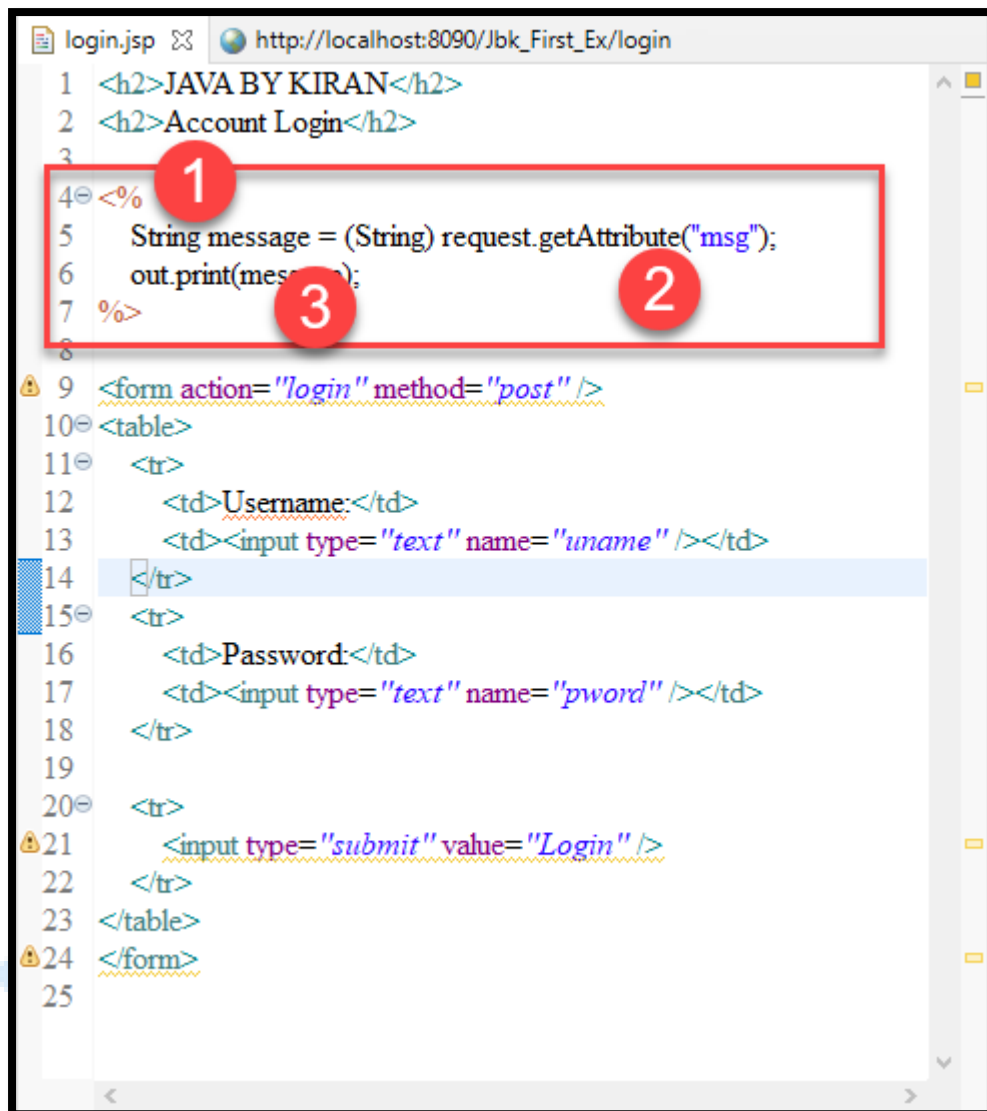


We need to change login.jsp as below to receive data from server as per condition. Add below code in jsp page.

```

<%
    String message = (String) request.getAttribute("msg");
    out.print(message);
%>

```



```
login.jsp http://localhost:8090/Jbk_First_Ex/login
1 <h2>JAVA BY KIRAN</h2>
2 <h2>Account Login</h2>
3
4 <% 1
5     String message = (String) request.getAttribute("msg");
6     out.print(message);
7 %> 2
8
9 <form action="login" method="post" />
10 <table>
11 <tr>
12 <td>Username:</td>
13 <td><input type="text" name="uname" /></td>
14 </tr>
15 <tr>
16 <td>Password:</td>
17 <td><input type="text" name="pword" /></td>
18 </tr>
19
20 <tr>
21 <td><input type="submit" value="Login" /></td>
22 </tr>
23 </table>
24 </form>
25
```

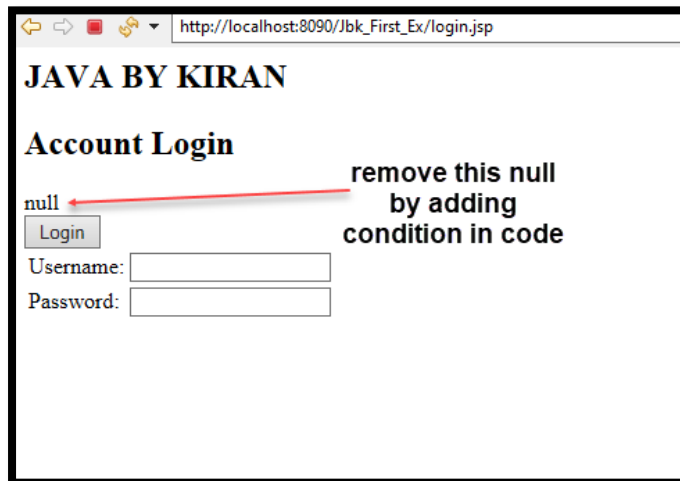
Explanation

- 1) We are using scriptlet in this case to differentiate between html and java code, if we do not give this then it will be considered as just a html label but not java code.
- 2) getAttribute has return type as Object so we have type casted it. If from server we receive ArrayList then we need to type cast as per ArrayList but not String.
- 3) In java we used to print text by using System.out.println(). This was printing on console in this case we are using out.println() to get our text printed on jsp.

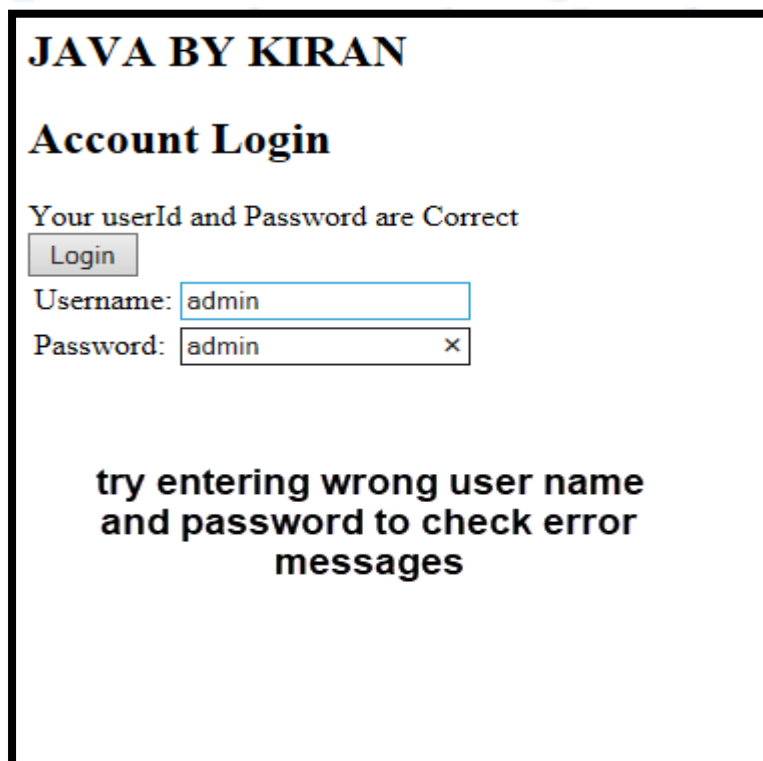
Now run a project and check error messages.

Homework: remove null from home page by adding not null condition in jsp

After running a project observe.



The screenshot shows a web browser window with the address bar displaying `http://localhost:8090/Jbk_First_Ex/login.jsp`. The page title is "JAVA BY KIRAN". Below the title, the heading "Account Login" is visible. A red arrow points from the text "remove this null by adding condition in code" to the word "null" which is displayed next to a "Login" button. Below the button, there are input fields for "Username:" and "Password:".



The screenshot shows a web browser window with the address bar displaying `http://localhost:8090/Jbk_First_Ex/login.jsp`. The page title is "JAVA BY KIRAN". Below the title, the heading "Account Login" is visible. A message "Your userId and Password are Correct" is displayed. Below the message, there is a "Login" button. Below the button, there are input fields for "Username:" and "Password:". The "Username:" field contains the text "admin". The "Password:" field contains the text "admin" and has a small "x" icon next to it. Below the input fields, the text "try entering wrong user name and password to check error messages" is displayed.

5. Navigating to different pages as per conditions

Objective:

- If user enters wrong username he should be navigated to login page again
- If user enters correct username then he should be navigated to home.jsp
- If user adds manager userid and password then he should be navigated to manager.jsp

To achieve above we need to do below changes.

1. Create home.jsp.
 - a. Add logic to retrieve data from servlet.
 - b. In our case we will be trying to bring some names from server
2. Change in logic of doPost method in servlet
 - a. Understand logic listed below and implement your own different logics for different operations.
3. Add manager.jsp [homework]
 - a. Try bringing some data from hashmap.
 - b. Hashmap can have key as rollnumber.
 - c. Hashmap can have value as student Name.

Servlet will have code as below.

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

    String username = request.getParameter("uname");
    String password = request.getParameter("pword");
    System.out.println("username >> " + username);
    System.out.println("password >> " + password);

    ArrayList<String> listData = new ArrayList<>();
    listData.add("javabykiran");
    listData.add("jbktest");
    listData.add("jbktutorials");

    if ("admin".equals(username)) {
        request.setAttribute("data", listData);
    }
}
```

```
        RequestDispatcher rd = request.getRequestDispatcher("home.jsp");
        rd.forward(request, response);
    } else {
        request.setAttribute("msg", "Your userId and Password are Wrong");
        RequestDispatcher rd = request.getRequestDispatcher("login.jsp");
        rd.forward(request, response);
    }
}
```

Below is representation of servlet.

```
login.jsp http://localhost:8090/Jbk_First_Ex/login LoginServlet.java
10 import javax.servlet.http.HttpServletRequest;
11 import javax.servlet.http.HttpServletResponse;
12
13 @WebServlet("/login")
14 public class LoginServlet extends HttpServlet {
15
16     protected void doPost(HttpServletRequest request, HttpServletResponse response)
17         throws ServletException, IOException {
18
19         String username = request.getParameter("uname");
20         String password = request.getParameter("pword");
21         System.out.println("username >> " + username);
22         System.out.println("password >> " + password);
23
24         ArrayList<String> listData = new ArrayList<>();
25         listData.add("javabykiran");
26         listData.add("jbktest");
27         listData.add("jbktutorials");
28
29         if ("admin".equals(username)) {
30             request.setAttribute("data", listData);
31             RequestDispatcher rd = request.getRequestDispatcher("home.jsp");
32             rd.forward(request, response);
33         } else {
34             request.setAttribute("msg", "Your userId and Password are Wrong");
35             RequestDispatcher rd = request.getRequestDispatcher("login.jsp");
36             rd.forward(request, response);
37         }
38
39     }
40 }
```

Explanation

1. This is ArrayList to store multiple elements which in future will be adding to request and those will get retrieved in home.jsp.
2. setAttribute has key and value like hashmap in this case.
 - a. key : any name we can put in this case it is "data" - use same name on jsp to get this data
 - b. value: arraylist object
3. Requestdispatcher is as above explained. if username is correct then go to home page with data.
4. if username is wrong then go to login page with error message.
 - Now it's time to add code in home.jsp.
 - We need to add scriplet in this file as we want to have java code with html code.

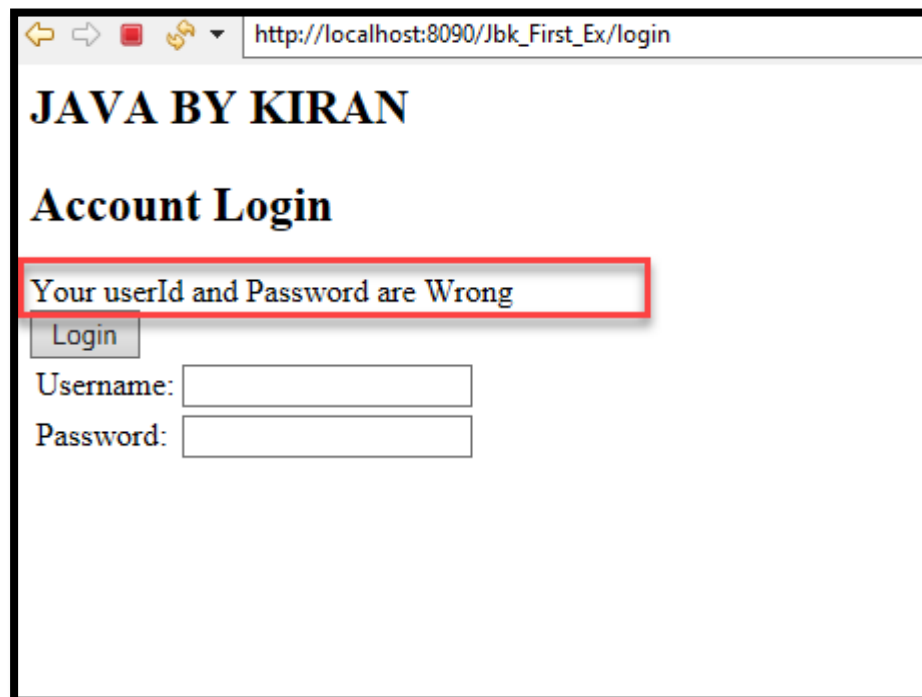
home.jsp

```
<% @page import="java.util.ArrayList"%>
<%
ArrayList<String> al = (ArrayList<String>)
request.getAttribute("data");

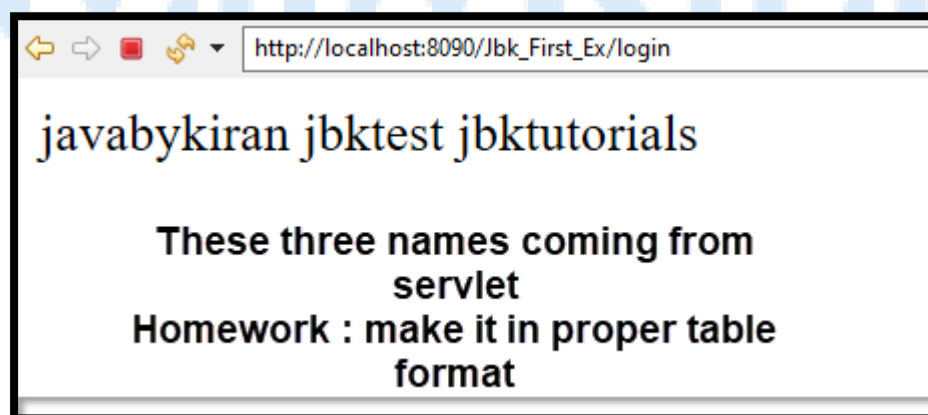
for (String name : al) {
    out.println(name);
}
%>
```

- Now run a project and observe below.
 - Enter wrong uname and password.
 - Error message should appear on login page.
 - Enter admin as a username and password.
 - List of string should be displayed.

- After running a project we can see below.
 - Wrong uname and password



- Correct uname and password



Homework: Try adding html tags in between scriptlet to display list of strings in tabular format with borders.

6. Integrating HTML and Java Code

Add below code in home.jsp you will see tabular structure.

```
<% @page import="java.util.ArrayList"%>
<table border="1">
    <%
        ArrayList<String> al = (ArrayList<String>) request.getAttribute("data");
    %>
    <%
        for (String name : al) {
    %><tr>
        <td>
            <%
                out.println(name);
            %>
        </td>
    </tr>
    <%
        }
    %>
</table>
```

Homework:

1. Add password condition in login page. Right now we have only coded for username.
2. Navigate to manager page after entering username as “manager” and password as “manager”
3. Error message in login.jsp should be in red color
4. Display employee names on manager.jsp in proper tabular format
5. In total you need to check
 - a. Wrong uname and password
 - b. Admin uname and password
 - c. Manager uname and password
6. Add signup page and code accordingly. Signup page should be linked in login page.

Download:

<https://drive.google.com/drive/folders/18mASFOQmZbpJf0GndTP7n4RFDaCUzMHK?usp=sharing>

javabyKiran
java | selenium | python