JSP - Form Processing

In this chapter, we will discuss Form Processing in JSP. You must have come across many situations when you need to pass some information from your browser to the web server and ultimately to your backend program. The browser uses two methods to pass this information to the web server. These methods are the GET Method and the POST Method.

The Methods in Form Processing

Let us now discuss the methods in Form Processing.

GET method

The GET method sends the encoded user information appended to the page request. The page and the encoded information are separated by the ? character as follows −

http://www.test.com/hello?key1=value1&key2=value2

The GET method is the default method to pass information from the browser to the web server and it produces a long string that appears in your browser's **Location:box**. It is recommended that the GET method is better not used. if you have password or other sensitive information to pass to the server.

The GET method has size limitation: **only 1024 characters can be in a request string**.

This information is passed using **QUERY_STRING header** and will be accessible through QUERY_STRING environment variable which can be handled using **getQueryString()** and **getParameter()** methods of request object.

POST method

A generally more reliable method of passing information to a backend program is the POST method.

This method packages the information in exactly the same way as the GET method, but instead of sending it as a text string after a ? in the URL it sends it as a separate message. This message comes to the backend program in the form of the standard input which you can parse and use for your processing.

JSP handles this type of requests using **getParameter()** method to read simple parameters and **getInputStream()** method to read binary data stream coming from the client.

Reading Form Data using JSP

JSP handles form data parsing automatically using the following methods depending on the situation −

- **getParameter()** − You call **request.getParameter()** method to get the value of a form parameter.
- **getParameterValues()** − Call this method if the parameter appears more than once and returns multiple values, for example checkbox.
- **getParameterNames()** − Call this method if you want a complete list of all parameters in the current request.
- **getInputStream()** − Call this method to read binary data stream coming from the client.

GET Method Example Using URL

The following URL will pass two values to HelloForm program using the GET method.

http://localhost:8080/main.jsp?first_name=ZARA&last_name=ALI

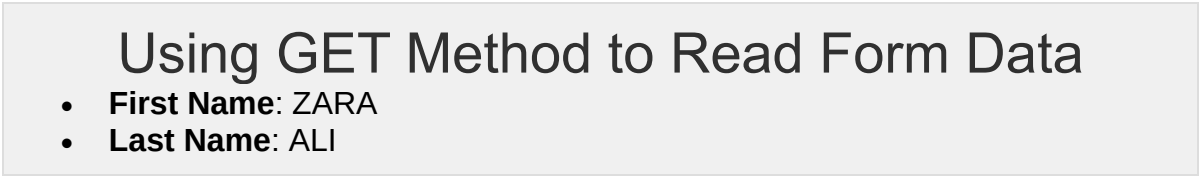
Below is the **main.jsp** JSP program to handle input given by web browser. We are going to use the **getParameter()** method which makes it very easy to access the passed information −

```
<html>
  <head>
    <title>Using GET Method to Read Form Data</title>
  </head>

  <body>
    <h1>Using GET Method to Read Form Data</h1>
    <ul>
      <li><p><b>First Name:</b>
        <%= request.getParameter("first_name")%>
      </p></li>
      <li><p><b>Last  Name:</b>
        <%= request.getParameter("last_name")%>
      </p></li>
    </ul>

  </body>
</html>
```

Now type ***http://localhost:8080/main.jsp?first_name=ZARA&last_name=ALI*** in your browser's **Location:box**. This will generate the following result −



GET Method Example Using Form

Following is an example that passes two values using the HTML FORM and the submit button. We are going to use the same JSP main.jsp to handle this input.

```
<html>
  <body>

    <form action = "main.jsp" method = "GET">
      First Name: <input type = "text" name = "first_name">
      <br />
      Last Name: <input type = "text" name = "last_name" />
      <input type = "submit" value = "Submit" />
    </form>

  </body>
```

```
</html>
```

Keep this HTML in a file Hello.htm and put it in **<Tomcat-installation-directory>/webapps/ROOT directory**. When you would access ***http://localhost:8080/Hello.htm***, you will receive the following output.

First Name:

Last Name:

< p>Try to enter the First Name and the Last Name and then click the submit button to see the result on your local machine where tomcat is running. Based on the input provided, it will generate similar result as mentioned in the above example.

POST Method Example Using Form

Let us do a little modification in the above JSP to handle both the GET and the POST method. Below is the **main.jsp** JSP program to handle the input given by web browser using the GET or the POST methods.

Infact there is no change in the above JSP because the only way of passing parameters is changed and no binary data is being passed to the JSP program. File handling related concepts will be explained in separate chapter where we need to read the binary data stream.

```
<html>
  <head>
    <title>Using GET and POST Method to Read Form Data</title>
  </head>

  <body>
    <center>
    <h1>Using POST Method to Read Form Data</h1>

    <ul>
      <li><p><b>First Name:</b>
        <%= request.getParameter("first_name")%>
      </p></li>
      <li><p><b>Last  Name:</b>
        <%= request.getParameter("last_name")%>
      </p></li>
    </ul>

  </body>
</html>
```

Following is the content of the **Hello.htm** file −

```
<html>
  <body>

    <form action = "main.jsp" method = "POST">
      First Name: <input type = "text" name = "first_name">
      <br />
```

```
      Last Name: <input type = "text" name = "last_name" />
      <input type = "submit" value = "Submit" />
   </form>

  </body>
</html>
```

Let us now keep **main.jsp** and hello.htm in **<Tomcat-installationdirectory>/webapps/ROOT directory**. When you access ***http://localhost:8080/Hello.htm***, you will receive the following output.

First Name:

Last Name:

Try to enter the First and the Last Name and then click the submit button to see the result on your local machine where tomcat is running.

Based on the input provided, you will receive similar results as in the above examples.

Passing Checkbox Data to JSP Program

Checkboxes are used when more than one option is required to be selected.

Following is an example **HTML code, CheckBox.htm**, for a form with two checkboxes.

```
<html>
  <body>

    <form action = "main.jsp" method = "POST" target = "_blank">
      <input type = "checkbox" name = "maths" checked = "checked" /> Maths
      <input type = "checkbox" name = "physics"  /> Physics
      <input type = "checkbox" name = "chemistry" checked = "checked" /> Chemistry
      <input type = "submit" value = "Select Subject" />
    </form>

  </body>
</html>
```

The above code will generate the following result −

Maths Physics Chemistry

Following is main.jsp JSP program to handle the input given by the web browser for the checkbox button.

```
<html>
  <head>
    <title>Reading Checkbox Data</title>
  </head>

  <body>
    <h1>Reading Checkbox Data</h1>

    <ul>
```

```
      <li><p><b>Maths Flag:</b>
        <%= request.getParameter("maths")%>
      </p></li>
      <li><p><b>Physics Flag:</b>
        <%= request.getParameter("physics")%>
      </p></li>
      <li><p><b>Chemistry Flag:</b>
        <%= request.getParameter("chemistry")%>
      </p></li>
    </ul>

  </body>
</html>
```

The above program will generate the following result −

Reading Checkbox Data

- **Maths Flag :**: on
- **Physics Flag:**: null
- **Chemistry Flag:**: on

Reading All Form Parameters

Following is a generic example which uses **getParameterNames()** method of HttpServletRequest to read all the available form parameters. This method returns an Enumeration that contains the parameter names in an unspecified order.

Once we have an Enumeration, we can loop down the Enumeration in the standard manner, using the ***hasMoreElements()*** method to determine when to stop and using the ***nextElement()*** method to get each parameter name.

```
<%@ page import = "java.io.*,java.util.*" %>

<html>
  <head>
    <title>HTTP Header Request Example</title>
  </head>

  <body>
    <center>
      <h2>HTTP Header Request Example</h2>
      <table width = "100%" border = "1" align = "center">
        <tr bgcolor = "#949494">
          <th>Param Name</th>
```

```
            <th>Param Value(s)</th>
          </tr>
          <%
            Enumeration paramNames = request.getParameterNames();
            while(paramNames.hasMoreElements()) {
              String paramName = (String)paramNames.nextElement();
              out.print("<tr><td>" + paramName + "</td>\n");
              String paramValue = request.getHeader(paramName);
              String paramValue = request.getParameter(paramName);  //correction in code

              out.println("<td> " + paramValue + "</td></tr>\n");
            }
          %>
        </table>
      </center>

    </body>
</html>
```

Following is the content of the **Hello.htm** −

```
<html>
  <body>

    <form action = "main.jsp" method = "POST" target = "_blank">
      <input type = "checkbox" name = "maths" checked = "checked" /> Maths
      <input type = "checkbox" name = "physics"  /> Physics
      <input type = "checkbox" name = "chemistry" checked = "checked" /> Chem
      <input type = "submit" value = "Select Subject" />
    </form>

  </body>
</html>
```

Now try calling JSP using the above Hello.htm; this would generate a result something like as below based on the provided input −

Reading All Form Parameters

Param Name	Param Value(s)
maths	on
chemistry	on

You can try the above JSP to read any other form's data which is having other objects like text box, radio button or dropdown, etc.