

# Filters and Annotations

## Objectives:

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1. Understanding about session tracking.
2. Understanding about filters and annotations.
3. How to use Servlet Context.
4. How to create filter.
5. How to use annotation.

## 2.1 Using Servlet Context

**Step 1.** Create direct.html and add the following code as below:

```
<html>
  <head>
    <title></title>
  </head>
  <body>
    <form action="Servlet2" method="POST">
      <input type="text" value="abc" name="txt3">
      <input type="submit">
    </form>
  </body>
</html>
```

**Step 2.** Create a Servlet2 and add the following code as below. In this code, we will include the content of index.jsp into the Servlet2.

```
import java.io.*;
import java.net.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class Servlet2 extends HttpServlet {
    public static int count = 0;

    protected void processRequest (HttpServletRequest request,
    HttpServletResponse response)
        throws ServletException, IOException {
        response.setContentType("text/html;charset=UTF-8");
        PrintWriter out = response.getWriter();
        /* TODO output your page here*/
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet Servlet2</title>");
        out.println("</head>");
        out.println("<body>");
        out.println("<h1>Servlet Servlet2 at " + request.getContextPath ()
+ "</h1>");
        out.println("<h1>Content from servlet 2</h1>");
        RequestDispatcher re = request.getRequestDispatcher ("index.jsp");
        re.include (request, response);
        out.print("<br/>This is initial value from webserver for company
name: " + getServletContext().getInitParameter ("CompanyName"));
    }
}
```

```

        out.print("<br/>This is number of user request form 1 servlet: "+
Servlet2.count++);
        getServletContext().setAttribute("Count",Servlet2.count+"");
        out.print(getServletContext().getAttribute("Count"));
        out.println("</body>");
        out.println("</html>");
        out.close();
    }

    protected void doGet(HttpServletRequest request, HttpServletResponse
response)
        throws ServletException, IOException {
        processRequest(request, response);
    }

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

    public String getServletInfo() {
        return "Short description";
    }
}

```

**Step 3.** Create index.jsp file, and add the following code as below:

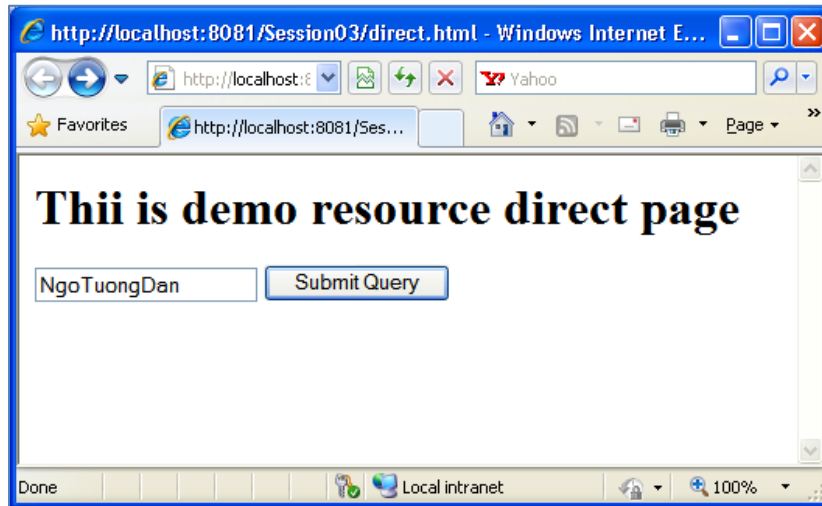
```

<!DOCTYPE HTML PUBLIC "-//W3C//DTD HTML 4.01 Transitional//EN">
<html>
    <head>
        <title></title>
    </head>
    <P>Servlet</P>
    <FORM METHOD="POST" ACTION="Servlet1">
        <br>Enter a string here: <INPUT TYPE=TEXT NAME="txt1"></br>
        Enter a string here: <INPUT TYPE=TEXT NAME="2"
value=<%=request.getParameter("txt3")%>>
        <br><INPUT TYPE=SUBMIT value="Sign up">
        <br>This is context get from direct.html page<b>
    </b>
    </FORM>
</FORM>
</body>

```

```
</html>
```

**Step 4.** Run the direct.html to see the result and click on the Submit Query button.



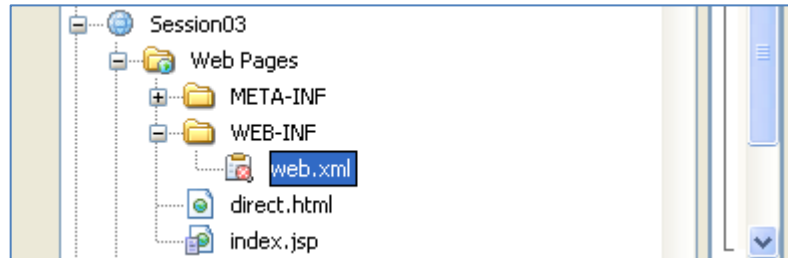
**Step 5.** You can see the "IBM" string, this is a initial value of webserver.



**Step 6.** To config the value of server, you can modify the information in web.xml.

```
<context-param>
  <param-name>CompanyName</param-name>
  <param-value> IBM </param-value>
</context-param>
```

```
<description> Name of the company </description>
</context-param>
```



## 2.2 Using filters

**Step 1.** Create a web application in Netbeans

**Step 2.** The structure of website is shown as below:

- RootFolder
  - Protected
    - Admin
      - backup.jsp
      - reset.jsp
    - User
  - Resources
- index.jsp
- login.jsp

**Step 3.** Create filter to receive all the request.

```
<filter>
  <filter-name>Auth_Filter</filter-name>
  <filter-class>codes.Auth_Filter</filter-class>
</filter>
<filter-mapping>
  <filter-name>Auth_Filter</filter-name>
  <url-pattern>/*</url-pattern>
</filter-mapping>
```

**Step 4.** Create a Filter and edit doFilter() method, If request want to access the protected resources, the request will be redirect to login page.

```
public void doFilter(ServletRequest request, ServletResponse response,
    FilterChain chain)
    throws IOException, ServletException {
```

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```
RequestWrapper wrappedRequest = new
RequestWrapper((HttpServletRequest) request);

ResponseWrapper wrappedResponse = new
ResponseWrapper((HttpServletResponse) response);

doBeforeProcessing(wrappedRequest, wrappedResponse);

Throwable problem = null;
try {
    HttpServletRequest req = (HttpServletRequest) wrappedRequest;
    HttpServletResponse res = (HttpServletResponse) wrappedResponse;
    HttpSession session = req.getSession();
    String requestURL = req.getRequestURI();

    if (session.getAttribute("login") != null
        || requestURL.endsWith("login.jsp")
        || requestURL.indexOf("/action/") &gt;= 0) {
        chain.doFilter(wrappedRequest, wrappedResponse);
    } else {
        if (requestURL.indexOf("/protected/") &gt;= 0) {
            String loginURL = req.getScheme()+"://"+
                req.getServerName()+":"+req.getServerPort()
+ "/Lab04_Authenticate_UserRequest_TomcatUser/login.jsp";
            res.sendRedirect(loginURL+"?returnURL="+requestURL);
        } else {
            chain.doFilter(wrappedRequest, wrappedResponse);
        }
    }
} catch (Throwable t) {
    problem = t;
    t.printStackTrace();
}

doAfterProcessing(wrappedRequest, wrappedResponse);

if (problem != null) {
    if (problem instanceof ServletException) {
        throw (ServletException) problem;
    }
    if (problem instanceof IOException) {
```

```
        throw (IOException) problem;
    }
    sendProcessingError(problem, response);
}
}
```

**Step 5.** Create a jsp file named **login.jsp** and add some code as below:

```
<html>
    <head>
        <meta http-equiv="Content-Type" content="text/html;
charset=UTF-8">
        <title>JSP Page</title>
    </head>
    <body>
        <% String url = ""; if (request.getParameter("returnURL") != null) {
url = "?returnURL="+request.getParameter("returnURL"); } %>
        <h1>Login</h1>
        <form action="action/Authentication<%=url%>" method="POST">
            User: <input type="text" name="txtUser" value="admin"/>
            User: <input type="password" name="txtPass" value="admin"/>
            <br />
            <input type="Submit" value="Login"/>
        </form>

    </body>
</html>
```

**Step 6.** Create a servlet named **AuthenticationServlet** and edit the **processRequest()** method as below:

```
protected void processRequest(HttpServletRequest request,
HttpServletResponse response)
    throws ServletException, IOException {
    response.setContentType("text/html;charset=UTF-8");
    PrintWriter out = response.getWriter();
    try {
        /* TODO output your page here
        out.println("<html>");
        out.println("<head>");
        out.println("<title>Servlet Authentication</title>");
        out.println("</head>");
```

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```
        out.println("<body>");
        out.println("<h1>Servlet Authentication at " +
request.getContextPath () + "</h1>");
        out.println("</body>");
        out.println("</html>");
        */
        if
(request.getParameter("txtUser").equalsIgnoreCase("admin")) {
            request.getSession().setAttribute("login", "admin");
            if (request.getParameter("returnURL") != null) {
response.sendRedirect(request.getParameter("returnURL") + "");
            } else {
                response.sendRedirect("../index.jsp");
            }
        } else {
request.getRequestDispatcher("../login.jsp").forward(request, response);
        }

    } catch (Exception ex) {
        System.out.print(ex.toString());
        out.close();
    }
}
```

**Step 7.** Run and test the result.