

J2EE structure

client: web browser

server: JSP/JServletlet Tomcat

Backend: database

Eclipse Server config

MVC: Struct, Spring, JSF

JSP fundamentals

jsp expression `<%= java statement %>`

jsp scriptlet `<% unnonymous java blocks %>`

jsp import `<%@ page import= comma separated java import %>`

jsp declaration `<%! named java blocks, ie methods %>`

call java class from jsp: avoid large chunk of java code (scriptlets or declarations) in jsp

```
<jsp:include file="header.jsp" />
```

jsp built-in objects

request http request header + form data

response Http support for send reponse
out jspWriter: include content in html

session unique session for each user across different page

application shared among users of web app

Read html form in JSP

```
<form id="test" action="student-response.jsp" method="post">
  name: <input type="text" name="name" />
  <input type="radio" name="isSophomore" value="Yes"> Yes
```

Read html form in JSP (cont)

```
<input type="radio" name="isSophomore" value="No"> No
<input type="checkbox" name="language" value="Javascript"> Javascript
<input type="checkbox" name="language" value="Java"> Java
<input type="checkbox" name="language" value="SQL"> SQL
<input type="checkbox" name="language" value="python"> Python
<input type="submit" value="Submit" />
</form>
<select name="country" form="test">
  <option value="China"> China
  <option value="US"> US
  <option value="Other"> Other
</select>
in JSP
${param.name} ${param.country}
<%=request.getParameter("country")%>
<ul>
<%
  String [] language=request.getParameterValues("language");
  if (language !=null)
    for (String s:language)
      out.println("<li>"+s+"</li>");
%>
</ul>
```

Session (copy)

unique for a user, share data across pages, like a shopping cart for a user

Kept in memory, each user has a session id

session id (create, transfer) is handled by browse automatically

session.setAttribute("name", value) setAttribute(String, Object)

(List<String>) session.getAttribute("name") Object getAttribute(String)

session.isNew() session.getId()

session.invalidate() session.setMaxInactiveInterval(ms)

1. create form 2. check set session attribute 3. read from session

to disable session: `<%@ page session="false" %>`

ServletContext

Cookie API in javax.servlet.http, imported implicitly for all jsp pages

Cookie(String name, String value);

Cookie theCookie=new Cookie("myApp.favoriteLang",favLang)

theCookie.setMaxAge(60*24*365);
//default 30min

response.addCookie(theCookie);

Cookie[] theCookies =request.getCookies();

if (theCookies !=null) { for (Cookie tempCookie:

Session -Cookies

Cookie api : javax.servlet.http; imported for all jsp implicitly only send to specific server domain matched

```
<!-- send cookies to web browser -->
```

```
<%
String favLang=request.getParameter("FavoriteLanguage");
```



Session -Cookies (cont)

```
Cookie the Cookie=new Cookie
("myApp.favorateLang",favLang);
theCookie.setMaxAge(606024*365);
//default 30min
response.addCookie(theCookie);
%>
```

cookies and session:

A cookie is a bit of data stored by the browser and sent to the server with every request. Cookies with no expiration time will be deleted after browser closed (some browser).facility the session.

A session is a collection of data stored on the server and associated with a given user (usually via a cookie containing an id code); session deleted at reconnection to server, give http a state.

```
<!--read cookies in web browser-->
<%
Cookie[] theCookies =request.g-
etCookies();
if (theCookies !=null) {
    for (Cookie tempCookie:theCoo-
kies){
        if ("myApp.favorateLang".eq-
uals(tempCookie.getName())){
            favLang=tempCookie.getVa-
lue();
            break;
        }
    }
}
%>
```

JDBC

```
install mysql, work bench +
shell + demo data setup
setup tomcat 7.0: download
tomcat 7, unzip to c:\
setup connection pool: multiple
users ( amazon) using the same
db, need more connections, pool
together to save resources ( not
setup connection every time,
preconfigured connect in the
pool)
download jdbc mysql connector
jar -> WebContent/WEB-INF/lib
define connection pool: WebCon-
tent/META-INF/context.xml
<Context>
    <Resource name="jdbc/web_stud-
ent_tracker"
        auth="Container" type="java-
x.sql.DataSource"
        maxActive="20" maxIdle="5"
        maxWait="10000"
        username="webstudent"
        password="webstudent"
        driverClassName="com.mysq-
l.jdbc.Driver"
        url="jdbc:mysql://localho-
st:3306/web_student_tracker?us-
eSSL=false"/>
</Context>
```

resource injection: tomcat automatically set the connection pool/ datasource on your servlet.

```
--connector/J 8
alter user 'webstudent'@'loca-
lhost' identified with mysql_-
native_password by 'webstudent';
```

cache busting?

<https://curtistimson.co.uk/post/front-end-dev/what-is-cache-busting/>