

`<% = session.getAttribute("user_dts") %>` → error
`<% = session.setAttribute("nm", 1234) %>` → 6/0
 → Refs null

`align = "center" style = "color: red"> session.id; </hs>`

`<% = session.getId() %>`

Implicitly
session is added

`<hs> Request Parameter via JSP Expression </hs>`

We can use directly

`<hs> Hello, <% = request.getParameter("name"); %>`

Expression Language Syntax :-

Implicit object → can be accessed only to scriptlets n expressions.

Implicit object → accessible to EL syntax \${...}

Syntax: (Expression L.)

`${expr to evaluate} . to be added in Body`

translate to string. send it to client Browser.

EL implicit objects → can be accessible only via EL syntax

param → name of Map containing request param.
 → only read Param

display.jsp → Param Map
 → only Parameter.
 they are thread safe.

`<hs> using EL syntax </hs> → MAP =`

`<hs> param: ${param} → O/P key value`

- ① Read only
② thread safe (immutability)

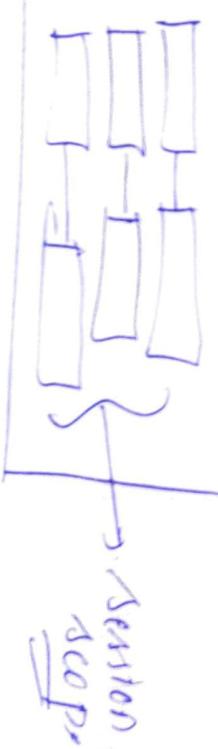
↳ ① String object
② Thread unsafe
③ Readable / Writable

Parameters vs Attributes

- ① pageScope → name of map containing page scoped attribute
- ② requestScope → request → request → request
- ③ sessionScope → session → session → session
- ④ applicationScope → application → application → application
- ⑤ pageContext → pageContext → pageContext → pageContext
- ⑥ → one per page
- ⑦ i) request
- ⑧ ii) session
- ⑨ iii) application

Sessioned →

↳ id expiration creation time,
last accessed.



day 7.1 → Index page → Testing scope
day 7.1 → Webapp → scopes.jsp

→ P D P P

If the syntax is for getting values

hence use Scriptlet:

<%

// add a attribute under varying page queue sess A

JSP
PRSA

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PageContext.setAttribute("nm1", 1234); private
request. — ,) — (nm2) within page
session. — ,) — (nm3)
application. — ,) — (nm4)

%> server side comment

(%) -- use client pull : <%>

<%>

 next 2/a>

day 7 / → use A → next.jsp.

<%> -- Display attribute -- %>

<%> Page scoped attribute: \${pageScope.nm1}

③ nm1

rbuilt gether

null → Blank

<%>

— ; β { requestScope.nm2 } .

— ; β { sessionScope.nm3 }

— ; β { applicationScope.nm4 }

— , —

Scopes → 10 → from first page .

next → from file page

→ Redirect in JSP

Scopes →

<% response.sendRedirect("next.jsp"); %>

Request Dispatcher Server pull

<%>

requestDispatcher = request.getRequestDispatcher("next.jsp");

sd. forward (req, res);

URL seen is of first page only.

inspect → Shows Request

Clarity in Scopes

Include scenario

- ① add → out.flush(); → After committing not allowed
② ad. includes(request, resp); → Passing directly

next →

\$ {nm4}

Will be treated as attribute

Nm4

Checks in all the maps

Lower performance

will be blank.

Waiting java code → Scriptlet
to get param → EL syntax

JSP Declaration:

Syntax:- Represents private members of the translated servlet class

Syntax = <%! %> → outside body

Head Body.

④ will be added - JSP Service

Default scope = private

⑤ used for override (jspInit, jspDestroy);

→ index.jsp → testing JSP

7.1 → test.jsp → <Head> <>
<%!

String msg = "Some message111";

I can override life cycle and ordinary methods

public void jspInit() { System.out.println("Hello"); }

Q) assignment \rightarrow page & help

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22/11/2021 D-8

Q) How to get a cookie value with name JSESSIONID?

JSP expression

$<\% = \text{session.getId}() \%>$

or

Via cookie EL syntax.

$\$ \{ \text{session.id} \}$. X

$\$ \{ \text{pageContext.session.id} \} \rightarrow \text{pageContext.getSession().getId()}$ (sent to client)

or
 $\{ \text{cookie.JSESSIONID.value} \}$ cookie.get("JSESSIONID").getValue() -> sent to client.

What will be the o/p for -

http://host:port/day8/one.jsp \rightarrow Context path

Q) How to get the value of session timeout?

$\$ \{ \text{pageContext.session.maxInactiveInterval} \}$ (EL Syntax)

$\sim \text{pageContext.getSession().getMaxInactiveInterval()}$

TOP How to set session scoped attribute?

$<\% \text{ session.setAttribute("nm"); } \%>$

$\%>$

JSP expression:

Session \Rightarrow HttpSession (Hint: jsp expression)

$<\% = \text{session.getAttribute("nm") } \%>$

EL Syntax

$\$ \{ \text{sessionScope.nm} \}$ or $\$ \{ nm \}$

URL Rewriting

If client pull if Cookies are disabled

Day 1 webapp → Index → <hs> Testing URL Rewriting

copy login.jsp from previous

Index.jsp ⇒ hs → sessionID: \${pageContext.session.id}

test1.jsp

<%
 create session scoped attribute to store user detail;
 session.setAttribute("userDetails", request.getParameter("name")
 + ":" + request.getParameter("pass"));

send Redirect("test2");

Test2.jsp

hs → userDetails: \${sessionScope.userDetails}

hs → Log me Out

will show error

test3.jsp

<hs> from test3: sessionID: \${pageContext.session.id}

<hs> user detail from log out page:

-\${pageContext.session.invalidate()}

// pageContext.getSession().invalidate()

if don't want error → write in scriptlet.

Disabled Cookies → Every time new sessionID is created and no client is remembered

* Session Tracking Technique (Develop Cookie, Independent App)

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* We require SESSIONID (which is not send)

Embed SESSIONID in URL

* Encoding the URL to contain the JSESSIONID info.

We → checks JSESSIONID in cookie if not found checks in URL

How To :- Encode URL (String origURL): → client pull
Rels → orig URL, JSESSIONID = 12345. ①

for client pull 2

encodeRedirectedURL (String redirectedURL)
redirected URL, JSESSIONID = 1234

Test2.jsp (client needs to remember here after)

⇒ // method of HttpServlet Response: public void encodeRed

~~Don't use deprecated~~ response.sendRedirect(URL ("test2.jsp"));

Test2.jsp
<%

String url = response.encodeURL ("test3.jsp");

 Log Me Out

End to End Encryption (https)

① cookie are checked → encode URL

Page directive

* commands/messages for JSP Engine (= JSP container = WC)

@ Translation time

Syntax:- <%@ %>

① Page directive // command applicable to page only.

↳ import → comma separated list

↳ session → boolean attribute default = true

To disable session tracking, specify session = "false";

Error Page :- " URL of error handling")

tells WC to forward user to error handler page

index.jsp: <%@ page test.jsp %>

test4 → <%

int result = 100/10; // method local variable - jspService
%>

h5 → Result : <% = result %>

isErrorPage: Error handling

<%@ page isErrorPage = "err-handler.jsp" %>

one.jsp

<%@ page isErrorPage = "True" %>

<%@ page isErrorPage = "err-handler.jsp" %>
two.jsp

ten.jsp

Centralized
error handl
err-handler.jsp

→ test4.jsp

<%@ page errorPage = "my-err-handler.jsp" %>

webapp → new JSP → my-err-handler.jsp. error handling.

<%@ page isErrorPage = "True" %>

<h5 style = "color: red;"> Error Message <% = exception %> </h5>

Error Msg Via EL syntax

\$ {exception.pageContext.exception.getMessage}

Savedocs get UR2

/day8/one.jsp

UR2

get is not written

My-err-handler.jsp.

\$ {pageContext.errorData.requestURI}

To get status code

\$ {pageContext.errorData.statusCode}

How to tell Web to forward all error to

Handle

* write in Web.xml:

When changing Web.xml
Reload server

<!-- error page related tag -->

<error-page>

<exception-type>java.lang.Exception</exception-type>

<location>/My-err-handler.jsp</location>

<error-page>

Session expiration time out:

{pageContext.session.maxInactiveInterval}

↳ HttpSession :- setMaxInactiveInterval (int interval);

Writing in Web.xml (changing timeout time)

<session-config>

<session-timeout>120s

after one minute session will be expired

5. isThreadSafe = "true | false"; default true → Recommended

true ⇒ informing WC → JSP is already written in thread-safe manner

--- Don't apply thread safety

false ⇒ informing WC ... Apply thread safety

WC will mark entire service as synchronised hence killing Concurrency, all other client will have to wait

Context Scoped attribute → are inherently thread-unsafe so access them always from within synchronized block ~~App~~

e.g. <%@ pojo LoanScheme : interest Rate : 10% %>

100%
Syncd on
APP

<% application.setAttribute("Scheme", new LoanScheme()); %>

Now due to market Condition we want to modify interest

rate = 12%

All Customer needs to blocked till changes are done.

<% synchronized (Application &
application.getAttribute("Scheme")); %>

LoanScheme loan

loan.setInterestRate(12); %>

key

Setting global
Attribute

Equivalent step in Servlet :- ~~deprecated.~~

Servlet class can implement ~~Tag If~~ ~~single Thread Model()~~

Include Directive :-

<%@ include file = "URL of the page to be included" %>

Index → test5.jsp

test5... → <%!> ~~head~~

int data = 1234 //→ Instance Variable

%>

</head> .

<body>

<% String msg = "Hello";
pageContext.setAttribute("nm1", 34567);

%>

<%@ include file = "test6.jsp" %>

test6.jsp :- <%> From include page <%>

<%> Instance Var;

<%> Local Var;

<%> Page scoped Attribute : \${pageScope.nm1}

at compilation time compiler copy past.
all data members from test5 copied in Test6

* Indicates page scope → pages are merged at compile time.

JSP Actions

- ① Standard Actions: use Bean, Set Property, get Property, forward include, param, plugin
- ⊗ Commands/msgs meant for WC to be interpreted @ translation time & applied @ req. processing time (run time)
- ⊗ Syntax: impl class = jsp-api:jsp(spic)
- <jsp:actionName attributeList>
 → Body {of tag>Action
 |
 </>
- ⊗ JSP std actions related to request Dispatcher.
RD's forward scenario
- <jsp:forward page = "dispatcher URL"/>
- e.g. In one.jsp
 <jsp:forward page = "two.jsp"/>
WC invoke → rd = rd.forward

Index: Testing forward action

~~Test JSP~~ :- href = {test7.jsp?pid=101&name=Mango & price = 50'}

test7.jsp hs → "in first page"

<%

Not create product pojo n add it in a suitable scope →

src/main/java → pojos → product.java

```
private int productId;
private String name;
    " double price;
Constructor, getters, setters -
```

}

Test 7 : Product product1 = new Product(Integer.parseInt(request.getParameter("id")),
 , " " ("name"), Double.parseDouble(request.getParameter("price"))
request.setAttribute("Product_dtl", product1);

<ISP: forward page="Test8.jsp" />

Test 8.jsp = <Body> |

product Details: \${product_dtl}

 \${requestScope.product_dtl}

<hs> Param: \${param}

→ map of request parameters

Include Scenario

<ISP: include page="test8.jsp" />

6u

Admin use case of Voter:

UseBean:- (jsp:useBean)

Remote JSP

Why Java beans

① To allow programmer to sep B. Logic in Java Beans (Req processing logic, page navigation & resp generation will still part of JSP)

② JBs can store conversational state of client (JB's properties will reflect client state)+

(One JB per client)

What is JB

① pkg'd public java class

(JB Naming Convection → Strict) → Camel casing

public void setRegAmount(double val);
set → capital.

③ Business logic → methods
public methods →

Day 8.2 → copy 5.2

SRK/main/java package beans

class Voter { UserBean }

// properties non static, non transient data members
private String name;
private String password;

// Reference Voter Dao

```
private VoterDaoImpl voterDao; } client specific info
// To hold validated user details } client conversational =
private bVoter userDetails;
```

Default constructor → invoked by WC
`

// Create Dao instance.

```
VoterDAO = new VoterDAOImpl();
```

```
System.out.println("User bean created");
```

Getters & setters.

// Add Business Logic for user Authentication, to return dynamic navigational outcome

public

public String authenticateUser() { }

// Invoke Dao's method for login

```
UserDetails = VoterDAO.authenticateUser(name, password);
```

If (userDetails == null) → Invalid

return "login"; =

return → check the role

If (userDetail.getRole().equals("admin")) {

return admin; =

If (userDetails.isStatus())

return "logout".

return "candidate_list".

✓ jsp:useBean id="bean id" class="fully qualified bean class name" scope="page, request | session | application"/> .

default scope = page

Web container created

To remember from login to logout → session.

e.g.

< JSP:useBean id="voter" class="beans.VoterBean" scope="session">



Wc checks if this bean (=attribut) exist already in given scope

session.getAttribute("voter");



null

bean doesn't exist

not
already exist

session.setAttribute("voter", new VoterBean())

< JSP:useBean> tag sets

\$ * 2 → Webapp → copy login

head

→ < JSP:useBean id="user" class="beans.UserBean",
Body scope="session" />

(1 per client)

< JSP:setProperty name="Voter" property="email" value="abc@gmail"/>

< JSP:setProperty name="user" property="*" />

Validate JSP :- 1 heads

JSP Bean id="user"
< JSP:setProperty property="*" name="user" />

All Matching
Setters

form = name
pass → we don't have "pass" we have password
then password will be null
pass X

Form parameters must match to javabeans
Setters
Change to password

Validate.jsp <Body> $\{\}$ JSP Bean → entry in inner map

How to invoke JavaBean's BOL using EL Syntax

$\$\{sessionScope.user.ValidateUser()\}$.

$\approx session.getAttribute("user").ValidateUser()$.

Debug → check page before, cache page

Validate.jsp → <JSP:forward page = " $\$\{sessionScope.user.ValidateUser\}$ "

JSP forward

"JSP" add externally.

Webapp → new jsp → candidate-list.jsp.

Bean name

<hs> In candidate-list user Detail : $\$\{sessionScope.user\}$

Details $\{$

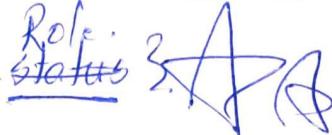
equivalent code

Bean is kept in

User →

$session.getAttribute("user").getUserDetails()$ to string and sent to client.

Admin.jsp

<hs> in admin page. Hello
<hs> you are currently a
\${SessionScope.user.UserDetails.name} 
\${SessionScope.user.UserDetails.name}

Logout.jsp

<hs> \${SessionScope.user.UserDetail.name};

\${pageContext.session.invalidate()}

Invalidating Session

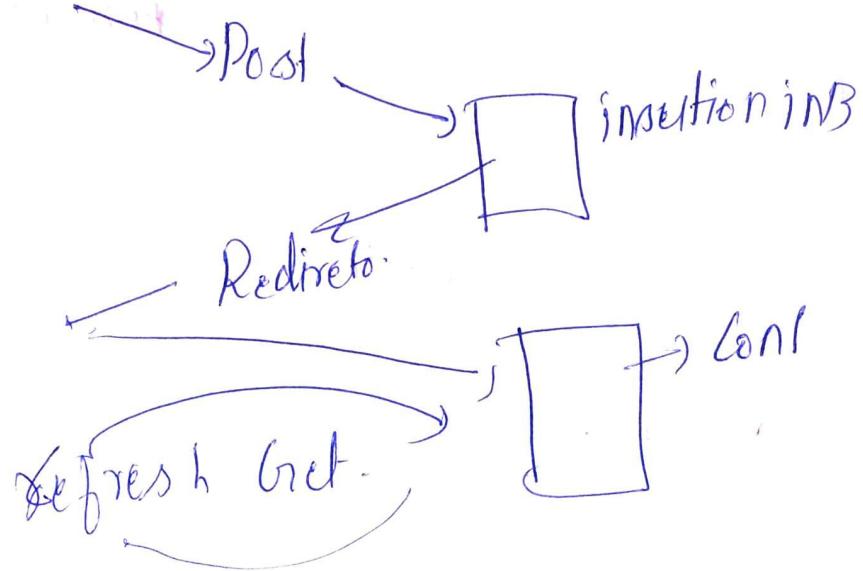
How to avoid multiple firing on DB if page refreshed

* Cause: Server pull.

Double submission problem

Soln

= server pull by PRG pattern
P → Redirect → Get pattern



Validate.jsp :- <jsp:fo

JSTL (JSP Standard Tag Library)

Readme.jsp →

Why? →

When JSP standard action are insufficient to solve requirement.

Using JSTL

(2) use taglib directive to import JSTL tag library.

Syntax : <%@ taglib uri="URI of JSTL tag lib" prefix="tagprfx"%>

Tag prefix ⇒ "c" %>

<c:redirect url=" \${sessionScope.myBank.closeAccount()}" />

↳ send redirect

+ include redirect (embed in url JSESSION)

Validate.jsp = <%@ page %>

<%@ taglib uri=" " /> code " ~~prefix~~ prefix = "c" %>

ctrl+space

<c:redirect ~~page~~ url=" \${sessionScope.user.validUser()}" />

Logout How to navigate after some delay ~~jsp~~ =

<% response.setHeader("refresh", "1"); url = "+request.getContextPath()" />

refresh

Core Java Topic

Emp e₁ = new emp();

Emp e₂ = e₁;

e₃ = e₁.clone();

Java docs → clone() → protected → overridden.

- ⊗ creates and return a copy of this object having same stat.
- ⊗ it is shallow copy (bit by bit).

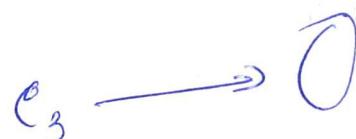
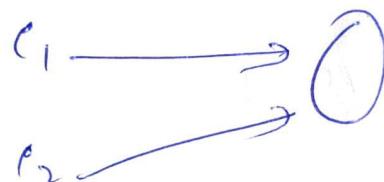
throws → CloneNotSupportedException.

Returns → Object

if not implements

Cloneable Interface

- ⊗ cloneable → Marker Interface



8 day Cloning &
@override

public Student clone() throws CloneNotSupportedException
{
 return (Student)
}

3