

JSP Expression Language Intro

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Why Shouldn't use Scriptlets and JSP Expression in JSP?

- The intention of JSP: Designed for the presentation layer as View.
- Help web designers to understand the code.

```
<body>
<%
    pageContext.setAttribute("weather", "Rainy"); //page scope
    String weather = (String) request.getAttribute("weather");
    String favorite_kpop_group = (String) session.getAttribute("favorite_kpop_group");
    String appName = (String) application.getAttribute("appName");
%>
<p>Weather: <%=weather%></p>
<p>favorite kpop group: <%=favorite_kpop_group%></p>
<p>appName: <%=appName%></p>
</body>
```

Expression Language in JSP

- Simplifies the accessibility of data stored in the Java Bean component, and other objects like request, session, application etc.
- There are many implicit objects, operators and reserve words
- Added in JSP technology version 2.0.
- Syntax for Expression Language (EL)
 - `${ expression }`

First JSP EL Demo

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JSP EL Implicit Object

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EL Implicit Objects

- Provides many implicit objects that we can use to get attributes from different scopes and parameter values.
- Different from the implicit objects in JSP, can ONLY be used in EL.

pageScope: A map that contains the attributes set with page scope.
requestScope: Used to get the attribute value with request scope.
sessionScope:Used to get the attribute value with session scope.
applicationScope:Used to get the attributes value from application scope.
param: Used to get the request parameter value, returns a single value
paramValues: Used to get the request param values in an array, useful when request parameter contain multiple values.
header: Used to get request header information.
headerValues: Used to get header values in an array.
cookie: Used to get the cookie value in the JSP
initParam: Used to get the context init params, we can't use it for servlet init params
pageContext: Same as JSP implicit pageContext object, used to get the request, session references etc. example usage is getting request HTTP Method name.

JSP EL Operators

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Expression Language - Expression

- `${something}`
 - Container evaluates this as follows:
 1. Checks page scope for an attribute named “something”, if found, use it
 2. Otherwise checks request scope for an attribute named “something”, if found, use it
 3. Otherwise checks session scope for an attribute named “something”, if found, use it
 4. Otherwise checks application scope for an attribute named “something”, if found use it
 5. Otherwise ignore this expression

EL Property Access Operator or Dot (.) Operator

- `${firstObj.secondObj}`
 - “firstObj” can be
 - EL implicit objects, normally implicit objects return a map
 - then “secondObj” is the key of the map
 - `${ param.name }`
 - An attribute in page, request, session and application scope
 - then “secondObj” is a property of the bean
 - `${emp.firstName}`

JSP EL [] Operator or Collection Access Operator

- `${firstObj[secondObj]}`
 - Can be used as dot operator
 - Can be used to get data from List and Array too
 - if “firstObj” is a List, “secondObj” is an index into the List
 - `${myList[1]}` and `${myList["1"]}` the same
- When attribute names have dots, cannot use dot operator, use [] operator instead
 - `${requestScope["foo.bar"]}`

EL Other Operators

- JSP EL Arithmetic Operators
 - Used for simple calculations in EL expressions.
 - +, -, *, / or div, % or mod
- JSP EL Logical Operators
 - && (and), || (or) and ! (not)
- JSP EL Relational Operators
 - == (eq), != (ne), < (lt), > (gt), <= (le) and >= (ge)

JSP EL Operator Precedence

EL Operator Precedence from Highest to Lowest

[] .

()

– (unary) not ! empty

* / div % mod

+ – (binary)

< > <= >= lt gt le ge

== != eq ne

&& and

|| or

? :

JSP EL Reserved Words

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JSP EL Reserve Words

- Don't use them as identifiers in JSPs.

and	or	not	eq	ne
lt	gt	le	ge	true
false	null	instanceof	empty	div,mod

JSP EL “null friendly”

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EL is “null friendly”

- If EL cannot find a value for the attribute it ignores it, no warning or error message
- In arithmetic expression, treats null value as 0
- In logical expression, treats null as `false`
- It's helpful when used by end users
- Not so good for developers, need to be aware