

## CS320 Web and Internet Programming Expression Language (EL)

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## What is EL?

- ◆ Expression Language (EL)
  - A JSP 2.0 standard feature
  - A more concise way to write JSP expressions
    - ◆ vs. `<%= expression %>`
  - Java's answer to scripting languages
    - ◆ e.g. associative array

### ◆ EL Syntax

`#{ expression }`

## EL Example 1: BGColor4.jsp

- ◆ Access bean property
  - `getProperty`
  - JSP Expression
  - EL

## EL Example 2: ShowCookie.jsp

- ◆ Display the value of cookie "JSESSIONID"
  - JSP Scriptlet ??
  - EL
  - PHP: `echo $HTTP_COOKIE_VARS[JSESSIONID]`

## Expression

- ◆ Literals
- ◆ Operators
- ◆ Variables
- ◆ Functions
  - see Custom Tag Libraries

## EL Literals

- ◆ `true, false`
- ◆ `23, 0x10, ...`
- ◆ `7.5, 1.1e13, ...`
- ◆ `"double-quoted", 'single-quoted'`
- ◆ `null`
  
- ◆ No char type

## EL Operators

- ◆ Arithmetic
  - +, -, \*, /, %
  - div, mod
- ◆ Logical
  - &&, ||, !
  - and, or, not
- ◆ Relational
  - ==, !=, <, >, <=, >=
  - eq, ne, lt, gt, le, ge
- ◆ Conditional
  - ? :
- ◆ empty
  - check whether a value is null or empty
- ◆ Other
  - [], ., ()

## EL Evaluation and Auto Type Conversion

<code>#{2+4/2}</code>		<code>#{empty ""}</code>	
<code>#{2+3/2}</code>		<code>#{empty param.a}</code>	
<code>#{^2"+3/2}</code>		<code>#{empty null}</code>	
<code>#{^2"+3 div 2}</code>		<code>#{empty "null"}</code>	
<code>#{^a" + 3 div 2}</code>		<code>#{^"abc" lt 'b'}</code>	
<code>#{null == 'test'}</code>		<code>#{^"cs320" &gt; "cs203"}</code>	
<code>#{null eq 'null'}</code>			

## EL Variables

- ◆ You cannot declare new variables using EL (after all, it's called "*expression*" language).
- ◆ However, you can access beans, implicit objects, and previously defined scoped variables.

## Access Bean Property

- ◆ Cart3.jsp
  - Simple property
  - Collection property
    - array
    - map

## Implicit Objects

- ◆ pageContext
  - servletContext
  - session
  - request
  - response
- ◆ param, paramValues
- ◆ header, headerValues
- ◆ cookie
- ◆ initParam
- ◆ pageScope
- ◆ requestScope
- ◆ sessionScope
- ◆ applicationScope

## Ignore EL Directive

```
<%-- JSP 2.0 default --%>
<%@ page isELIgnored="false" %>
```

```
<%-- JSP 1.2 default --%>
<%@ page isELIgnored="true" %>
```

## web.xml for JSP 1.2 Applications

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<!DOCTYPE web-app
  PUBLIC "-//Sun Microsystems, Inc./DTD Web Application 2.3//EN"
  "http://java.sun.com/dtd/web-app_2_3.dtd">
<web-app>
...
</web-app>
```

**Servlet 2.3 → JSP 1.2**

## web.xml for JSP 2.0 Applications

```
<?xml version="1.0" encoding="ISO-8859-1"?>
<web-app xmlns="http://java.sun.com/xml/ns/j2ee"
  xmlns:xsi="http://www.w3.org/2001/XMLSchema-instance"
  xsi:schemaLocation="http://java.sun.com/xml/ns/j2ee http://java.sun.com/xml/
ns/j2ee/web-app_2_4.xsd"
  version="2.4">
...
</web-app>
```

**Servlet 2.4 → JSP 2.0**

## Limitations of EL

- ◆ Only expressions, no statements, especially *no control-flow statements*



**JSTL**