Web Development using Java, JSP, and Web Services

JSP Web Development using Java, JSP, and Web Services

Gall JSP Cookies
Sessions
Responses
MIME Types
JSP
Client-Side
Components
ActiveX
Components
ActiveX
Components
JNET
Lecture #5 2008

Next Time

Web
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JSP Web
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Today

Today

Today

Cookies
Sessions

2 Responses
MIME Types
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2 Responses
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JSP

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Request Methods

Request Methods

POST - data in URL-encoded name/value-pairs
POST - data encoded in HTTP request body
PUT - data stream in HTTP request body

PUT - data stream in HTTP request body

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Common Gateway Interface (CGI)

The original way to send dynamic data to web servers

• Data delivered URL-encoded in specific parameters
• Scripts located and invoked by the web server on demand
• Data parsing was difficult and error-prone
• Serious security issues

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URL Encoding
A-Z, a-z, 0-9
not escaped
\$-...+!*'(),
not escaped
hex-coded
e.g., (whitespace) %20

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Requests CGI JSP Coolies Sessions

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• The original way to send dynamic data to web servers

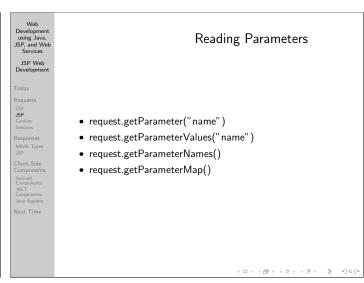
• Data delivered URL-encoded in specific parameters

• Still available to web servers

• Contains useful metadata (such as client IP, username, length of data stream etc)

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Web Development using Java, JSP, and Web Services JSP Web Development	The Request Object
Today Requests CGI JSP Cookies Sessions Responses MIME Types JSP Client-Side Components ActivaX Components Java Applets Next Time	 Represents the HTTP request Contains all info in the request Exposes an API for traversing request data Performs URL-decoding of data Provides uniform ways to read data regardless of method



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Always check for null

• Always provide a default value (as appropriate)

Parameter getParameter() returns
not present in request
contains empty string

Parameter mot present in request contains empty string

empty string

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Code Reuse

Code Reuse

Code Reuse

Services

• Declare reusable functions in JSP fragments

• Use include directives to import them into JSP

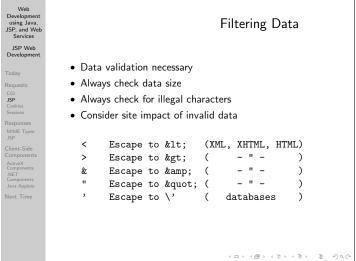
• Very useful for small utility functions

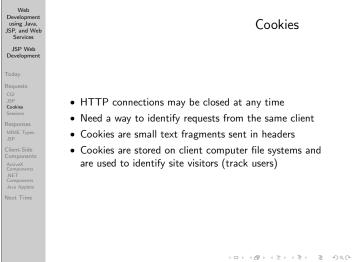
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Don't store sensitive data in cookies

Use cookies, but don't depend on them

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Data contexts stored on the web server and shared between requests from the same user

Cookins
Sessions

Cookins
Sessions

Data contexts stored on the web server and shared between requests from the same user

Can store anything (POJO)

Can be serialized to databases or short-lived

Need a way to identify session for new requests

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The JSP session API hides the session identification

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Responses

• May be sent in one chunk
• May be sent incrementally

MIME Types

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MIME Types

• Instructs the client how to interpret data returned

• Defaults to text/html is JSP

• Usually used for binary data

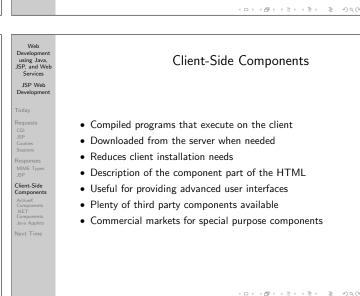
• NOTE: MIME type must be set before any data is sent

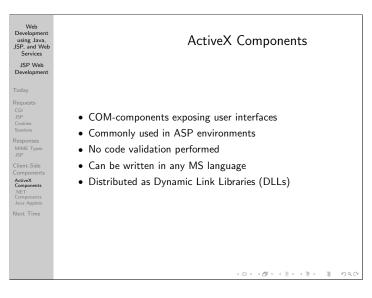
NOTE: MIME type must be set before any data is sent

Web Development using Java, JSP, and Web Services	MIME Type Examples					
JSP Web Development Today Requests CGI JSP Cookies Sessions Responses MIME Types JSP Client-Side Components ActiveX Components ActiveX Lomponents Lompon	MIME type text/css text/html text/plain application/pdf application/postscript application/zip application/octet-stream image/gif image/jpeg image/png audio/x-wav video/mpeg video/quicktime	ZIP file				
	, .	· (a) (b) (2) (2) (2) 2 4				

Web Development using Java, JSP, and Web Services	JSP Processing
Development	
Today Requests CGI JSP Cookies Sessions Responses MIME Types JSP Client-Side Components ActiveX Components NET Comments Java Applets Next Time	 A JSP page is requested Server checks if a Java Servlet for the page exists If no Servlet is found (or newer JSP is detected), the JSP is translated to Java (a Servlet class is created) The Java Servlet is compiled The Java Servlet is invoked and processes the request

	10,10,15,15,15,15,15,15,15
Web Development using Java, JSP, and Web Services	JSP Translation
JSP Web Development	
Today Requests CGI JSP Cookies Sessions Responses MIME Types JSP Client-Side Components ActiveX Components Java Applets Next Time	• JSP declarations become - Servlet class members - Servlet class methods • JSP scriptlets become - local variables in the Servlet service() method • JSP expressions become - out.print() calls in - "-





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NET-components exposing user interfaces

• Commonly used in ASP.NET environments
• Can be used interchangibly with (D)HTML interfaces

• Can be developed using any .NET language
• Strong development environment (Visual Studio)
• Supports code signing
• Distributed as Dynamic Link Libraries (DLLs)

Java Applets • Java objects extending the Applet class • Can be used in any HTML environment • Developed in Java • Contains a sandbox security model • Supports code signing • Distributed as standalone classes or JARs Java Applets

Java Applets • Extend Applet - creates a AWT container - functions as a Frame for your applet • Extend JApplet - creates a heavy-weight Java Swing container - functions as a JFrame for your applet • Assure thread safe implementations of applets (invoke worker threads via Java Applets SwingUtilities.invokeAndWait())

Applet Lifecycle JSP Web Development 1 init() - performs applet initialization - called after the applet has received its parameters 2 start() - activates the applet - called after init() and whenever an applet page receives focus 3 stop() - deactivates the applet - called when an applet page looses focus Java Applets 4 destrov() - deinitializes the applet - called when the browser is shut down

JSP Web that is executing it host that it came from executing it Java Applets

Applet Restrictions • Applets cannot load libraries or define native methods • An applet cannot ordinarily read or write files on the host An applet cannot make network connections except to the • An applet cannot start any program on the host that is • An applet cannot read certain system properties • Windows that an applet brings up look different than windows that an application brings up Each browser has a SecurityManager object that implements its security policies. When a SecurityManager detects a violation, it throws a SecurityException. Your applet can catch this SecurityException and react appropriately.

Applet Capabilities JSP Web • Applets provide a way to create non-web GUIs to web applications • Applets can make network connections to the host they came from String host = getCodeBase().getHost(); • Applets running within a Web browser can easily cause HTML documents to be displayed getAppletContext().showDocument(url,browsertitle) • Applets can invoke public methods of other applets on the Java Applets same page • Applets that are loaded from the local file system (from a directory in the user's CLASSPATH) have none of the restrictions that applets loaded over the network do < 0 > < 0 > < 2 > < 2 > < 2 >

Development using Java, JSP, and Web Applet Checklist JSP Web • Removed or disable debugging output • Does the applet stop running when it's offscreen? (should it? it may be application dependent) • Can the applet stop the annoying behavior? (rethink behavior that can be perceived as annoying) • Make your applet as flexible as possible • Make your applet accessible • Implement the getParameterInfo() method Java Applets • Implement the getAppletInfo() method

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Development Today Requests CGI JSP Cookies Sessions Responses MIME Types JSP Client-Side Components ActiveX Components NET Components Java Applets Next Time	PokerClockApplet applet = new PokerClockApplet(); JFrame frame = new JFrame("Poker Clock Applet"); frame.setDefaultCloseOperation(WindowConstants.EXIT_ON_CLOSE); frame.getContentPane().add(applet,BorderLayout.CENTER); applet.sinit(); applet.start(); frame.pack(); frame.setVisible(true);	Development Today Requests CGI JSP Cookies Sessions Responses MIME Types JSP Client-Side Components ActivaX Components NET Components Java Applets Next Time	• Custom Tag Libraries	4日> 4畳> 4至> 4至> 至 かなで