All You Ever Wanted To Know About Servlets

But Were Afraid to Ask

Three Embedded Scripting Languages

- **ASP** is proprietary to Microsoft and only works on certain servers
- **JSP** is an open standard for use with many servers
  - Built on Java
- **PHP** is open source freeware
- All allow you to insert code, objects, and do text substitutions in webpages

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Java Servlets

- Not as simple to use as JSP, but easier to install
- We don't have JSP at Dal FCS

- Run on the server (like SSI or CGI)
- Threaded (unlike SSI or CGI)
- Run inside the single JVM owned by `http`

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But what about `mod_perl`?

- `mod_perl` is server-side and light weight (like a thread)
- Java has some network support that is more sometimes more convenient than using perl
- Particularly for session tracking

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Session Tracking With Servlets

Programs written in java produce output
which is sent to the client like any CGI
program

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Session Tracking With Servlets

- All servlets implement the `Servlet`
  interface or extend a class the implements it
- Important methods:

Init	Service	Destroy
getServletConfig getServletInfo		

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Common Methods

- We will use **HttpServlet** and these methods:
  - **doGet**
  - **doPost**
  - **doPut**
  - **doDelete**
  - **init**
  - **destroy**
  - **getServletInfo**
- One of those methods must be overridden for each servlet

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Example: Hello Servlet

- Source Code
- Run it
- See Compilation Record
- Must be compiled and run from **torch**
- Note how it overrides the doGet method

- Which process runs the servlet?

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Session Tracking

Four ways to maintain state:

1. Cookies
2. Hidden fields in `forms`
3. URL rewriting
4. Servlets
   - Will use cookies if possible
   - Will use URL rewriting if no cookies

How Does The Servlet Track The Session?

- Each session has a unique ID
- The first time a session is begun an ID is assigned
- Every subsequent connection must send the ID (through a cookie or the URL)

Servlet Sessions

- **`HttpSession session = request.getSession();`**

- If `null` then this is a new session
- Force a new session like this…
  `request.getSession(true);`

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Storing Information in Sessions

- **`setAttribute`**(String name, Object value)
- **`getAttribute`**(String name)
- **`removeAttribute`**(String name)
- **`getAttributeNames`**()

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Information About Sessions

- **getId()**
- **isNew()**
- **getCreationTime()**
- **getLastAccessedTime()**
- **getMaxInactiveInterval()**

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Example: Session Tracking

- Source Code
- Run it

Note the encoding of the URL

All examples are available at
http://www.cs.dal.ca/~jamie/CS4173/Materials/examples/servlets/

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Questions?

- Which process executes the servlets?
- How are they like CGI programs?
- How are they different from CGI programs?
- What advantages do they have over other technologies we've seen so far?

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References

- *Programming The World Wide Web* By Robert W. Sebesta ©2002 by Addison-Wesley
- *Core Web Programming* (2e) by Marty Hall and Larry Brown ©2001 by Sun Microsystems, Inc.

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