CS320 Web and Internet Programming
Introduction to Java Servlets

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Servlet Hello World

```
import java.io.*;
import javax.servlet.*;
import javax.servlet.http.*;

public class HelloWorld extends HttpServlet {
    public void doGet( HttpServletRequest request,
                            HttpServletResponse response )
        throws ServletExceptoin, IOException
    {
        PrintWriter out = response.getWriter();
        out.println( "Hello World" );
    }
}
```

Some Simple Observations

◆ Inherits from HttpServlet
◆ There's no `main()` method
  ▪ Who "runs" HelloWorld?
◆ doGet()
  ▪ HttpServletRequest
  ▪ HttpServletResponse → sent back to the client browser

Compilation – The Hard Way

◆ `javac HelloWorld.java`
  ▪ Where is the servlet library?
  ▪ How to include it in compilation?
◆ Copy HelloWorld.class to the right directory

Compilation – The Slightly Smarter Way

◆ Set environment variable
  ▪ .bashrc
◆ Use -d option of javac

Generate HTML

◆ Set content type to "text/html"
◆ Output a HTML page using println()
  ▪ <html>
  ▪ <head>, <title>
  ▪ <body>
◆ Validate
  ▪ validator.w3c.org
  ▪ Sometimes useful for debugging

Package

◆ The advantages of using packages
◆ The necessity of using packages
  - A Class without a package qualifier cannot be used in a class that belongs to a package (enforced in JDK 1.4)
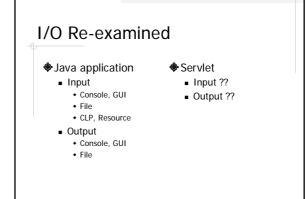 - All servlets generated from JSPs are in packages

Package Example

◆ Package and directory structure
  - cs320.stu31.HelloWorld
◆ `package` statement
◆ URL to access a packaged servlet

Servlet Life Cycle

◆ Loaded for the first time – `init()`
◆ Per request – `service()`
  - dispatch to doXxx()
◆ Unloaded – `destroy()`
  - When requested by the admin or manager user
  - When the servlet is idle for a long time

I/O Re-examined

◆ Java application
  - Input
    - Console, GUI
    - File
    - CLP, Resource
  - Output
    - Console, GUI
    - File

◆ Servlet
  - Input ??
  - Output ??

File I/O Example

◆ Read quotes.txt
◆ Display the content in a HTML table
  - <table>
  - <tr>
  - <td>

More About Files

◆ Paths
  - Absolute path
  - Relative path
  - *File path on the CS server??*
◆ Permissions
  - Who owns the file?
  - Who can read/write the file?

Servlet Debugging Tips

◆ Debugging servlets could be rather hard
◆ Section 3.8
  - Use print statements
  - Invest some time in a good IDE
    - JBuilder Developer
    - Netbeans
    - Eclipse
  - Follow good programming practice
  - Check out HTML source
  - Restart server