"Introduction to programming"

27 April 1999

Administrivia

- 8 handouts in back (including this one)
- Assignment 10 is due this week; last assignment (11) is due next week!
- Study group (and me): Saturday, 11:00 AM
- Focus group: this Saturday, 1 May 1999, 11:00 AM
- Final project
- Hourly Exam #2 and Guest Lecture #2
- Course-wide review session: Saturday, 8 May—**NOT** Saturday, 1 May

Topics

- Server-side includes (SSI)
  - `http://www.courses.fas.harvard.edu/~cscie1/ssi.html`
  - Advantages: dynamic output; elimination of redundancy; easier to update pages

- Cascading style sheets (CSS)
  - Style
    - `http://www.courses.fas.harvard.edu/~cscie1/css.html`
    - `http://www.webreference.com/dev/style`
  - Layout
    - `http://developer.netscape.com/docs/examples/dynhtml/dragable/dragableDemo.html`

- Dynamic HTML (DHTML)
  - Cascading style sheets HTML, JavaScript

- HTML editors
  - BBEdit, Claris HomePage, Microsoft FrontPage

- Programming
  - Programmers
  - Instructions; branches and loops
  - Bugs and debugging

- Programming languages
  - Compiled languages: source code → compiler → object code
  - Interpreted languages: parsing
  - Java
    - `http://java.sun.com/applets/index.html`
    - `http://dir.yahoo.com/Computers_and_Internet/Programming_Languages/Java/Applets`
    - `http://www.wistrand.com/fireworks`
  - JavaScript
    - `http://www.obsidianwt.com/javacity2000/scripts.html`
    - `http://dir.yahoo.com/Computers_and_Internet/Programming_Languages/JavaScript/Applets`
  - Other languages: C, C++, Perl, *etc.*
  - Y2K revisited: COBOL and FORTRAN

- Viruses
  - McAfee's Virus Information Center: `http://vil.mcafee.com/villib/alpha.asp`

- Symantec's Virus Encyclopedia: `http://www.symantec.com/avcenter/vinfodb.html`

Some server-side includes

The following tokens can be found in the source code of
`http://www.courses.fas.harvard.edu/~cscie1/ssi.html`

Prints the date and time at which `ssi.html` was last modified.

```
<!--#config timefmt="%A, %B %d, %Y %r"-->
<!--#echo var="LAST_MODIFIED"-->
```

Prints the IP address of the computer whose browser requested `ssi.html`:

```
<!--#echo var="REMOTE_ADDR"-->
```

Prints the fully qualified domain name of the computer whose browser requested `ssi.html`:

```
<!--#echo var="REMOTE_HOST"-->
```

Prints the current date and time:

```
<!--#echo var="DATE_LOCAL"-->
```

Prints the type of browser that requested `ssi.html`:

```
<!--#echo var="HTTP_USER_AGENT"-->
```

Includes in `ssi.html` the contents of `footer.html`:

```
<!--#include file="footer.html"-->
```

Cascading style sheets

This page can be found at `http://www.courses.fas.harvard.edu/~cscie1/css.html`.

```
<HTML>
<HEAD>
<TITLE>Cascading style sheets</TITLE>

<STYLE TYPE="text/css">
<!--

A        { text-decoration: none; font-weight: bold; color: blue }
A:active { color: green }
A:hover  { text-decoration: underline; color: red }

H6 { font-weight: bold; font-size: 18pt; line-height: 16pt;
     font-family: Arial; color: blue }

//-->
</STYLE>

</HEAD>

<BODY BGCOLOR="#ffffff">

<CENTER>


<H6>I am encapsulated by the (stylized) &lt;H6&gt; and &lt;/H6&gt; tags.</H6>

<P>

<H1>I am encapsulated by the &lt;H1&gt; and &lt;/H1&gt; tags.</H1>

<P>

<FONT SIZE="5">Click <A HREF="http://cnn.com">here</A> to go to CNN.</FONT>

</CENTER>

</BODY>

</HTML>
```

Java

JavaJump, from *The Complete Idiot's Guide to Creating an HTML 4 Web Page*

```
import java.applet.Applet;
import java.awt.*;
import java.net.*;

public class JavaJump extends Applet
{
        Button btn;                             // The command button
        Choice lst;                             // The list of pages
       int appletWidth;                         // The width of the applet
       int appletHeight;                        // The height of the applet
        int totalPages;                         // The total number of pages in the list
        int i;                                  // The for loop counter
        String nameURL;                         // Holds the Name;URL parameter
        String pages[][];                       // Array that holds all the page names and URLs

        public void init()
        {
                appletWidth = Integer.valueOf(getParameter("width")).intValue();
                appletHeight = Integer.valueOf(getParameter("height")).intValue();
                totalPages = Integer.valueOf(getParameter("pages")).intValue();
                pages = new String[totalPages][2];
                for (i = 0; i <= totalPages - 1; i++)
                {
                        nameURL = getParameter("url" + (i + 1));
                        pages[i][0] = nameURL.substring(0, nameURL.indexOf(";"));
                        pages[i][1] = nameURL.substring(nameURL.indexOf(";") + 1);
                }
                lst = new Choice();
                lst.addItem("Select a page --->");
                for (i = 0; i <= totalPages - 1; i++)
                {
                        lst.addItem(pages[i][0]);
                }
                add(lst);
                btn = new Button("Go!");
                add(btn);
                repaint();
        }

        public void update(Graphics g)
        {
                paint(g);
        }

      public void paint(Graphics g)
      {
                String bg = getParameter("bgcolor");
                int firstComma = bg.indexOf(",");
                int secondComma = bg.indexOf(",", firstComma + 1);
                int red = Integer.valueOf(bg.substring(0, firstComma)).intValue();
                int green = Integer.valueOf(bg.substring(firstComma + 1,
                        secondComma)).intValue();
                int blue = Integer.valueOf(bg.substring(secondComma + 1)).intValue();
                Color bgcolor = new Color(red, green, blue);
                g.setColor(bgcolor);
                g.fillRect(0, 0, appletWidth, appletHeight);
        }
```

```
	public boolean action(Event evt, Object what)
	{
		URL page;
		int selectedPage = lst.getSelectedIndex();

		if (evt.target == btn && selectedPage > 0)
		{
			try
			{
				page = new URL(pages[selectedPage - 1][1]);
				jumpTo (page);
			}
			catch (MalformedURLException e)
			{
			}
			return true;
		}
		else
			return false;
	}

	public void jumpTo(URL page)
	{
		try
		{
			getAppletContext().showDocument(page);
		}

		catch (MalformedURLException e)
		{
		}
	}
}
```

JavaScript

```
<HTML>
<HEAD>
<TITLE>Christmas is coming!</TITLE>
</HEAD>

<BODY>

<!-- The following script prints out the number of days until Christmas. -->

<SCRIPT LANGUAGE="JavaScript">
<!--

today = new Date()
xmas = new Date("December 25, 1999")
xmas.setYear = today.getYear;
daysLeft = (xmas.getTime() - today.getTime()) / (1000*60*60*24);
daysLeft = Math.round(daysLeft);
document.write("There are only " + daysLeft + " days left until Christmas!");

//-->
</SCRIPT>

</BODY>

</HTML>
```

```
<HTML>

<HEAD>

<!-- The following script places a visitor's name in the page's header. -->

<SCRIPT LANGUAGE="JavaScript">
<!--
      var name = prompt("Please enter your name.", "");
      document.write("<TITLE>Welcome, " + name + "</TITLE>");
//-->
</SCRIPT>

</HEAD>

<BODY>

<CENTER>
<H1>Take a look at this window's title bar!</H1>
</CENTER>

</BODY>

</HTML>
```

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