

Assignment 11: “Programming”

due by section during the week of 4 May 1999

Short answers. (10 points each.)

Please answer each of the following two questions in one or more sentences.

1. Recall that you were exempted from answering the following question on Assignment 10: “HTML, Part II.” No exemptions this time!

Suppose that you wish to re-define the H3 HTML tag for a particular Web page so that any text flanked by <H3> and </H3> in the page’s source code appears in browsers’ windows in a 14-point, khaki-colored font. The source code for this page already contains the following.

```
<HTML>

<HEAD>
<TITLE>Hello, world!</TITLE>
</HEAD>

<BODY>

<H1>Hello, world!</H1>
<H3>Enjoy your stay!</H3>

</BODY>

</HTML>
```

Exactly what words or lines could you add to this source code in order to re-define the H3 tag as desired? Where should those words or lines be placed in this source code?

2. Suppose that the local International House of Pancakes (IHOP) has just purchased a robot to serve as its hostess. That is, the job of this robot is to seat the restaurant’s patrons as they arrive. The restaurant’s manager has configured this robot with the following “program.”

```
while restaurant is open for business
  if a group of patrons is waiting to be seated then
    if the group contains fewer than five (5) patrons then
      seat the group at a small table
    else if the group contains more than five (5) patrons then
      seat the group at a large table
    end if
  else
    wait for a group of patrons to arrive
  end if
end while
```

The above program contains one or more “bugs.” Point out at least one bug and explain why it constitutes a mistake in this program.

Viruses: fact and fiction. (30 points.)

3. The “Melissa” virus is but one of countless viruses that programmers have written and released on the world. The “Good Times” virus is but one of many hoaxes that programmers have never written nor released on the world.

One can only truly appreciate the extent to which viruses have and have not plagued computers over the years by doing a little research. Your job for this question, then, is to unearth the answers to the following queries, using any sources available to you (books, magazines, the Web, *etc.*).

- What is the name of a virus (other than “Melissa”) that has plagued computer users in recent years? What was the effect of that virus on users’ computers? From what source did you garner this information (book title and author, magazine issue, URL, *etc.*)?
- What is the name of a hoax virus (other than “Good Times”) that has never plagued computer users? What was the effect of that hoax virus supposed to be? From what source did you garner this information (book title and author, magazine issue, URL, *etc.*)?

Programming your lunch. (50 points.)

4. Suppose that IHOP has decided to replace its newly purchased hostess with a human being. Rather than discard the robot, the restaurant has decided to put it to work in the kitchen.

You have been hired to re-program this robot to make peanut butter and jelly (PBJ) sandwiches. (The pancake business has been slow.)

Write, in English, a “program” that instructs this robot how to make PBJ sandwiches. Think carefully about the steps involved in this process; leave nothing out of your instructions.

Your “program” must comprise at least ten (10) steps, and it must include at least one (1) IF-THEN-ELSE construction and at least one (1) loop.

Your “program” will be graded on the basis of its correctness and thoroughness. That is, your teaching fellow will grade your answer by “de-bugging” your “program.”

The first step of your program must be the following.

Open the cupboard in the kitchen.

Extra credit. (5 points.)

5. The following source code includes both HTML and JavaScript.

```
<HTML>

<HEAD>
<TITLE>Blastoff</TITLE>
</HEAD>

<BODY>

<CENTER>

<SCRIPT LANGUAGE="JavaScript">
<!--
    var i;

    for (i = 10; i >= 0; i--)
    {
        document.write("" + i + "...<BR>");
    }

    document.write("Blastoff!");
//-->
</SCRIPT>

</BODY>

</HTML>
```

Does the JavaScript code above involve a branch, a loop, or neither? What exactly does this JavaScript do? How would changing the “i--” in this code to “i++” affect the page’s appearance? Why does that slight change have such an effect?