CS 345 - Programming Languages
Spring 2008

Homework #7

Due: 2pm CDT (in class), April 29, 2008

YOUR NAME: _____

Collaboration policy

No collaboration is permitted on this assignment. Any cheating (*e.g.*, submitting another person's work as your own, or permitting your work to be copied) will automatically result in a failing grade. The Computer Sciences department code of conduct can be found at `http://www.cs.utexas.edu/users/ear/CodeOfConduct.html`

Late submission policy

This homework is due at the **beginning of class** on **April 29**. All late submissions will be subject to the following policy.

You start the semester with a credit of 3 late days. For the purpose of counting late days, a "day" is 24 hours starting at 2pm on the assignment's due date. Partial days are rounded up to the next full day. You are free to divide your late days among the take-home assignments any way you want: submit four assignments 1 day late, submit one assignment 3 days late, *etc.* After your 3 days are used up, no late submissions will be accepted and you will automatically receive 0 points for each late assignment.

You may submit late assignments to Vitaly Shmatikov (TAY 4.115C—slide under the door if the office is locked). **If you are submitting late, please indicate how many late days you are using.**

Write the number of late days you are using: _____

Homework #7 (27 points)

Problem 1 (12 points)

The following webpage contains a "cross-site scripting" vulnerability:

`http://www.cs.utexas.edu/~shmat/courses/cs345_spring08/broken.html`

Imagine that you want to trick your fellow CS 345 student into believing that the course has a different collaboration policy.

Craft a URL that will cause the above website to display an alternate collaboration policy. You may assume that your victim will visit your webpage and click on a special link that you have created. This link must point to the above page. When the victim clicks on it, he should see the above page, but the displayed collaboration policy should be different.

The vulnerability has been tested with Firefox 2 and Internet Explorer 7.

IMPORTANT: Do not point your link to a modified copy of the above page. Your link should point to `http://www.cs.utexas.edu/~shmat/courses/cs345_spring08/broken.html`, or you will get no credit for this problem.

Problem 2 (15 points)

Use Python to implement the utility `printfile.py` that prints a file to the standard output N lines at a time, where N is determined by the command-line argument `-n`. After N lines are printed, it should wait for user to click any button before printing the next N lines.

The utility should also take an optional command-line argument `-l`. If this option is supplied, it should number the lines starting from 1.

Sample usage:

```
linux% python printfile.py -n 20 file1.txt
...
linux% python printfile.py -n 30 -l file2.txt
...
```

In Python, `sys.argv` is a list where `sys.argv[0]` is the name of the Python script which is being executed, `sys.argv[1]` is the first argument to the script, if any, `sys.argv[2]` is the second argument, and so on. If no arguments are provided, the list contains just the name of the script.

To use the `sys` module, you must import it at the start of your program. You may also want to use the `getopt` module to process command-line arguments. Help for both modules is available inside Python.

IMPORTANT: You may not use Unix utilities such as `cat` and `more` inside your Python script, but you are free to use built-in Python modules.

Submission instructions

1. For problem 1, put your crafted URL in a file called `attackURL.txt`. For problem 2, put your Python script in a file called `printfile.py`. Submit both files electronically using the following command:

   ```
   turnin --submit austin hw7 attackURL.txt printfile.py
   ```

2. Submit a paper printout of your Python script, stapled to the first page of this homework (the one showing your name and the number of late days you are using, if any). The printout **must** be processed using the following command:

   ```
   enscript -C -2Gr -Epython printfile.py -o <outputfile.ps>
   ```

Tips and hints

We have created an account for each student enrolled in the course at this website: `http://z.cs.utexas.edu/users/arvindn/wordpress` (or follow the link from the course website) You can obtain useful tips for the current take-home assignment by logging into your account. Your username is your UT EID. You must **update your password** for each assignment.

We may use some of the passwords in our research on password security. **IMPORTANT: Do not use your UT Direct, UT CS or any other existing password for the above account!**