Homework 3: Starting to Code

Assigned: Monday 19 February
Due Date: Monday 26 February

Objectives

Learn how to write, compile, and run a basic C program.

NOTE: I have used my own username and home directory in the examples. While you are entering the commands, be sure the words before the `]` on your screen match what's shown in the examples, as that'll ensure you are in the right place to execute each command.

NOTE: At the end of the lab, you will use `submit` to turn in a transcript of your Linux session. If you do not finish all the steps, just submit as much as you get done.

Assignment: Our First C Program

When programmers learn a new language, a common thing to start off with is to write what is called a "Hello World" program. This is the most basic program that can be written that demonstrates how to code in the language. For our first C program, we will modify the traditional "Hello World" program to instead print out "I will not surf the web in class" 20 times.

1. Login to GL and change directory to `hw3` (`cd cs104/hw3`).
2. Use `nano` to create and edit a file called `surf.c`. Note that the filenames of C programs must end with `.c`.
3. Start with the following code:

```
#include <stdio.h>

int main() {
    printf("Hello World!\n");
    return 0;
}
```

4. Change the text so that instead of "Hello World!", it says "I will not surf the web in class!".
5. Use the cut-and-paste feature of `nano` (`Ctrl-K`) to cut the line which prints out the statement mentioned previously, and paste it back (`Ctrl-U`) twenty times.
   NOTE: You must place your cursor at the beginning of the line you want to cut to get the whole line, then place it at the beginning of the line you want to insert it back in.
6. Save the file and exit `nano`.
7. Start a script session, using the `script` command.

```
[arsenaul@linux1 hw3]$ script
Script started, file is typescript
```

```
[arsenaul@linux1 hw3]$
```

8. Check that `surf.c` is not empty.

```
[arsenaul@linux1 hw3]$ cat surf.c
NOTE: The contents of your file should display here.
[arsenaul@linux1 hw3]$
```

9. Compile your program.

```
[arsenaul@linux1 hw3]$ gcc -Wall surf.c
```

10. Check that you have a file called `a.out`

```
[arsenaul@linux1 hw3]$ ls
a.out surf.c typescript
[arsenaul@linux1 hw3]$
```

11. Run your program

```
[arsenaul@linux1 hw3]$ ./a.out
```

12. Quit your `script` session.

```
[arsenaul@linux1 hw3]$ exit
exit
Script done, file is typescript
[arsenaul@linux1 hw3]$
```

13. Look at your `typescript` file to make sure it is correct.

```
[arsenaul@linux1 hw3]$ cat typescript
NOTE: The contents of your file should display here.
[arsenaul@linux1 hw3]$
```

14. Submit your C program and the typescript file.

```
[arsenaul@linux1 hw03]$ submit cmsc104_arsenaul hw3 surf.c typescript
```

15. Verify that you submitted two files by using the `submitls` command.

```
[arsenaul@linux1 hw03]$ submitls cmsc104_arsenaul hw3
```

Grading Rubric

- surf.c compiles: 40 points

- surf.c prints correctly: 50 points
- typescript is complete and not garbled: 10 points

What to Submit

You should have already submitted the necessary files (surf.c and typescript) by following the instructions above.