Homework Assignment 1: Hello World

Due: Saturday, 1/30/2016

Description:

The purpose of this assignment is to introduce you to using the vi editor and the C compiler in a Unix environment. To do this, you will need to use Secure Shell to remotely log into your mason account. (See the posted help guides if necessary.) Once you are logged in, you will have access to a Unix terminal on the Mason cluster. Once there, you will use the vi editor to type in and edit the below "Hello, world!" program. When it is complete, compile and run your program using the **gcc** compiler. Finally, follow the submission instructions below to create a typescript of a session where you demonstrate that your program compiles and runs without errors. You will submit that typescript file to Blackboard as Homework 1.

Background Preparation: Review the unix commands and vi commands introduced during Week 1 in class before starting.

Instructions:

The first step of this assignment is to familiarize yourself sufficiently with the vi editor that you will be able to create a hello world program in the C language. To do this, type the code below into a file named hello_world.c (replacing the text <insert name here> with your own name).

```
// CS 222

// Homework 1

// File: hello_world.c

#include <stdio.h>

int main()

{
   printf("Hello world!\n");

   printf("My name is <insert name here>.\n");

   return 0;

}
```

If you make mistakes, use the editor commands to fix them. Then save the file as "hello_world.c" (Note that all C program files should end with a .c extension.) When your program is complete, use the **gcc** command to be sure it compiles properly, and then run the resulting executable file. If there are errors or problems, review your program and fix them. Once your program runs properly, follow the instructions below to run it and create a script file to submit as Homework 1.

Submission:

You will submit a script file (hw1) containing a listing of your code (showing that it compiles without errors) and a run of the program after compiling. To create this file you will use the *script* command. This command echoes all input and output in the console window to the file. Follow this procedure to produce your submission file:

1) At the command prompt, type: script hw1

2) Show that you are logged onto mason. Type: uname -a

3) Show a listing of your code. Type: cat hello_world.c

4) Compile the code. Type: gcc -o hello_world hello_world.c

5) Run the code. Type: ./hello_world

6) End the script command by typing Control-d

Now you should be able to type "cat hw1" (without quotes) to verify that the file was created and contains the necessary information. Once you are sure the file is correct, submit this file (hw1) to blackboard as Homework 1.

** Note: This initial program was required to be developed on Mason. Please be prepared to continue to do this whenever required. In future, however, we may allow you to use other C environments with which to develop your code. However, you still must be sure it compiles properly on the Mason cluster. Therefore, if you decide to use a different development environment, you must be familiar with using sftp to transport your files to and from the Mason system.