**Computer Science 240**
Linux Introduction
Assignment for Lab 2

Nothing to hand in for this assignment, just complete the exercises before lab.

Do the exercises from a **machine booted to Linux** in the CS 240 lab (L037).

Use your **CS server password** to log in to the Linux machine.

Open a **Terminal** from the **Applications->System Tools** menu. You will see a window with a command prompt:
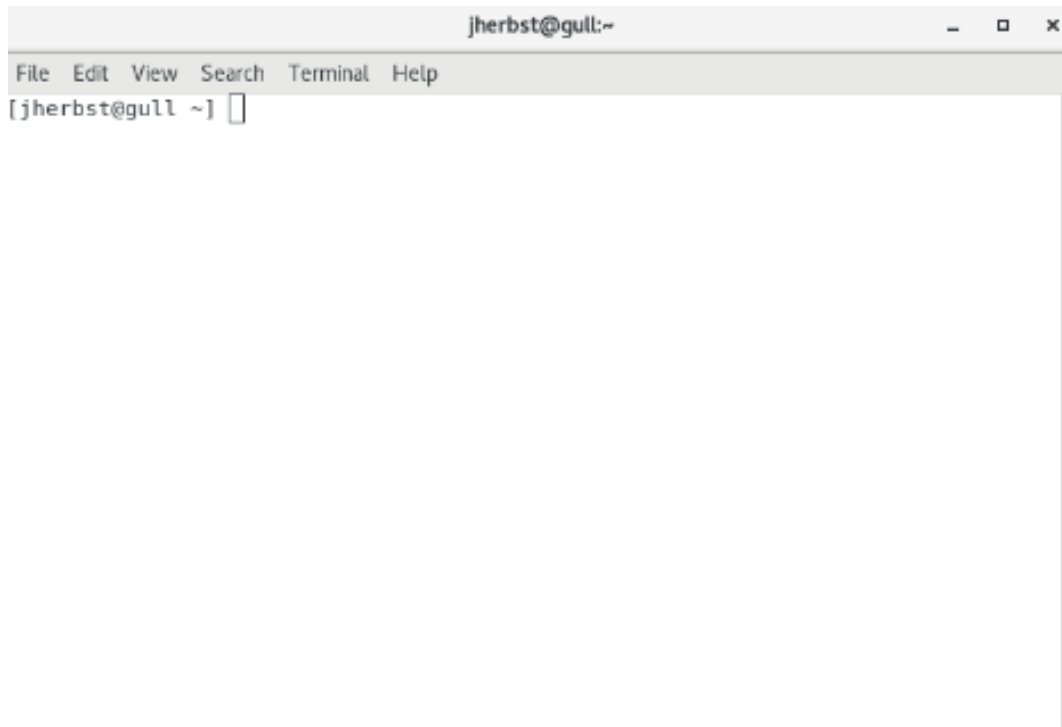
An **operating system** is the software which manages and controls all other applications and resources on a computer.

Our Linux machines use the GNU/Linux operating system, which combines the Linux kernel (the operating system core) with the GNU operating system utilities.   GNU/Linux is descended from the UNIX operating system.

Our version includes a graphical user interface, X Windows system, the Emacs editor, C compiler, and several other tools.

You will enter UNIX commands directly at the prompt in the Terminal window.

For each of the following,, enter the specified command and answer the stated questions:

1. Print your working directory (the directory you are currently in) by entering:

   pwd

2. Show (list) the contents of your working directory (the files and subdirectories) by entering:

   ls

Can you tell whether the items listed are files or subdirectories? (Hint, notice that different colors are used for different items).

3. Repeat the list command, but add an option to show **all** the contents of the working directory (some of the content was hidden in the previous command):

ls -a

What additional items do you now see listed?

4. Check the manual for all the different options for using the **ls** command.

man ls

 Google the **ls** command in the browser and note the information provided. You can always check for options and usage of commands with either **man** o by checking online sources.

5. Use another option with the *ls* command:

ls –l

Explain how using the *–l* option changes the display of the contents of the working directory:

6. Make a new directory called **cs240**.

mkdir cs240

7. Change your working directory to the new directory.

cd cs240

8. Echo your name to the screen.

echo wendy

9. Echo your name again, but this time *redirect* the echo into a new file named **test1**

echo wendy > test1

10. List contents of directory to see whether the new file was created or not.

ls

11. Use two different commands to display its contents to the screen:

more test1
cat test1
12. In the GNU/Linux environment, the **emacs** editor is commonly used to create and edit files. Open a new file named *lab2.c* file using **emacs** from the command line by entering:

emacs lab2.c

The .c suffix denotes a file containing a C program.

Edit your file so it contains the following (use your own names):

NOTE: If you copy and paste code from here to create your program, it may be necessary to re-type the quote marks to successfully compile the program.

```
 /*
  CS 240 Lab 1
  partner 1 and partner 2
 Hello World
 */
#include  <stdio.h>
 int main( ) {
   printf("Hello, World! \n");
   return 0;
 }
```

- Save the change by entering a **CNTRL-x**, and then a **CNTRL-s** (hold down the control key while entering the specified character). You should see a message at the bottom of the screen :

  Wrote /home/yourname/cs240/lab2.c

- Exit Emacs by entering a **CNTRL-x**, and then a **CNTRL-c.**

13. In the Linux environment, the GNU C (**gcc**) compiler is used to compile C programs.

- Enter the following command to compile the **lab2.c** program. The **–g** option produces debugging information, which we will soon learn more about). The **–o filename** option puts the executable result of the compile into the specified filename :

  gcc -Wall   --std=c99 -g -O -o lab2 lab2.c

  NOTE: You can also compile by using a **Makefile** (you will be directed how to do this on upcoming assignments).

- Execute the program by doing the following:

  ./lab2

14. Close the Terminal by entering:

  exit

Log out of the Linux machine before you leave the lab.