Lab 1

You will be using **syccuxas01.pcc.edu** as your Linux programming environment. You can log on to it using **PuTTY**. Connect to port 22 via an SSH connection. Your username will be the same as your username on MyPCC and D2L. Your password will be your pcc G number with capital G.

In order to develop software in the Linux command line environment, you will need to learn to use a variety of tools. You should start with these:

cd	go into a directory
mkdir	make a directory
rmdir	remove an empty directory
rm –r	remove a directory and everything in it (be *careful* with this)
ls	list files and directories in a directory
cp	copy a file
mv	move a file or rename a file
cat	display a text file
less	display a text file that's longer than your window
rm	remove a file
passwd	change your password

You will need to learn a text editor. There are three possibilities:

nano	easier to learn for starters, but you should learn one of the following two powerful ones instead.
vim	a powerful text editor with code-oriented features
emacs	more powerful than vim, but a steeper learning curve (actually the programming language LISP masquerading as a text editor)

I will provide support for learning vim. I have never used emacs, so I can't provide support for that.

Things to do:

- Log on to **syccuxas01.pcc.edu** and change your password.
- Get familiar with file system related unix commands
    - Create a directory **cs162** in your home directory:
      ```
      mkdir cs162
      ls
      ```
    - Go inside **cs162:**
      ```
      cd cs162
      ls
      ```
    - Create a directory **lab1**
    - Go inside **lab1**
    - Copy **~gd.iyer/files/hello.cpp** into **lab1** directory:
      ```
      cp ~gd.iyer/cs162/labs/lab1/hello.cpp hello.cpp
      ls
      ```
- Use g++ to compile your hello world program and run it
    - Compile hello.cpp and call the executable myhello
    - Compile hello.cpp and call the executable myhello
      ```
      g++ -o myhello hello.cpp
      ```

      If you use c++11 featurs in your program:
      ```
      g++ -std=c++11 -o myhello hello.cpp
      ```

    - Run myhello
      `myhello` or `./myhello` if . is not in your PATH environment variable
    - Remove the executable
      ```
      rm myhello
      ```

    - Run myhello
      `myhello` or `./myhello` if . is not in your PATH environment variable
    - Remove the executable
      ```
      rm myhello
      ```
- Bundle your lab1 together in a tar ball, email it to yourself and extract from the tar file. Your future projects will be much bigger than one source file, so it's necessary to create a tar file to bundle everything together for delivery.

    - Create a tar file of lab1 directory
      `cd ..` (you should be in the parent directory of lab1)
      ```
      tar cvf lab1.tar lab1
      ```
      `ls` (you should see lab1.tar)

    - Email it to yourself, check email and save the tar file
      ```
      mailx -s "lab1 tar file" -a lab1.tar your-login-name
      ```

You can type the message. A single period '.' at the beginning of a new line will send the email.

To check email:
mailx

Typing the message number, e.g. 1, allows you to view the message
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To save the file:
w message-number e.g. `w 1`

If you have an empty message body, the tar file will be saved as message number, e.g. 1 in the current directory.

If you have a message body, it will ask you to accept the file name or to give it a new name.

After viewing the message, it will be saved to mbox in your home directory. In order to view the message again, you need to use:
mailx –f

- o Extract from the tar ball and it will rebuild the lab1 directory. You can test this in a temporary directory
  tar xvf lab1.tar

- Start learning one of the text editors.
  - o nano is an easier one to learn
  - o For vim, type **vimtutor** at the command line prompt.
  - o Edit hello.cpp to make it do fancier things other than just saying "hello", compile and run it.

- Lab 1 submission
  - o Run the following command when you are in cs162 directory
    ls –R lab1 > lab1.txt
  - o ftp lab1.txt to your local machine and upload it into lab 1 dropbox