Linux Commands

Linux Command	Description
cd «folder name»	Change directory – Move into the specified folder
cp «old file» «new file»	Copy – Make a copy of an existing file. Two files remain.
mv «old file» «new file»	Rename a file. One file remains.
cat «filename»	Display or create files

ls	Lists the files in current folder.
	    This command needs to use a lower-case L.
	Options:
	    -a List all files, including hidden ones.
	    -d List directory names only, not ordinary files.
	    -l Show long listing with extended information.
	Examples: ls ls -l ls -la

gcc «c file»	GNU C Compiler
gcc «c file» - o RunName	GNU C Compiler. Ex: gcc lab1.c -o lab1 (Then use *lab1* instead *a.out*)
mkdir «folder name»	Creates a new directory with the specified name
pwd	Print name of current/working directory.
rm «filename»	Delete a file.
vim «filename»	Opens the specified file in the "vim" text editor

"vim" text editor command Reference Guide

File Commands:
:q!   To exit VIM and abandon any changes you have made to the file.
ZZ   To exit VIM saving any changes to the file and return to the shell prompt.
:wq   To exit VIM, write the changes to the file, and return to the shell prompt.

Alternate ways of entering VIM:
vim file-name   Edit named file.
vim + n file-name   Edit named file starting at line n.
vim + file-name   Edit named file starting at last line.
vim + /string file-name   Edit named file starting at first occurrence of string.
vim -r file-name   Edit named file starting at first occurrence of string.

Various VIM Modes:
Command mode - Commands that require a colon (:). In Command Mode you
        may use the arrow keys to move around.
Insert mode – Type **i** for **i**nsert mode**.** To leave Insert Mode, press **Escape.**
          - Type **a** for **a**ppend mode**.** To leave Append Mode, press **Escape.**

VIM Cursor Movement Commands:
SpaceBar   Forward one character position.
l   Right (forward) one character position.
h   Left (backward) one character position.
j   Down to same position in line below; moves left to last position.
k   Up to same position in line above; moves left to last position.

w   Forward to first letter of next word.
W   Forward to first letter of next blank-delimited word.
b   Backward to first letter of previous word.
B   Backward to first letter of previous blank-delimited word.

Return   Forward to beginning of next line.
0   Back to beginning of current line. (It's a zero.)
$ End of current line.

(Back to beginning of current sentence.
)   Ahead to beginning of next sentence.
{   Back to beginning of current paragraph.
}   Ahead to beginning of next paragraph.

H   Home, or left end of top line on screen
M   Middle, or left end of middle line on screen.

L   Lower, or left end of lowest line on screen.
G   Last line in work buffer.
*n***G**   Indicated relative line *n* in buffer.

Ctrl-U   Up half screen.
Ctrl-D   Down half screen.
Ctrl-F   Forward (down) almost a full screen.
Ctrl-B   Backward (up) almost a full screen.

Inserting Text:
i   Insert before Cursor
I   Insert before first nonblank character on line.
a   Insert after character.
A   Insert at end of line
o   Insert on next line down (open a line).
O   Insert on next line up (open a line).

Deleting Text:
x   Character at cursor.
X   Character following cursor .
dw   To end of word.
dW   To end of blank-delimited word.
db   To beginning of word.
dB   To beginning of blank-delimited word.
d *then* **Return**   Two lines; current and following.
dd   Current line.
d0   To beginning of line. (Use zero)
D   To end of line.
d)   To end of sentence
d(To beginning of sentence.
d}   To end of paragraph
d{   To beginning of paragraph.

*Changing or Replacing Text***:**

r	replace character at cursor.	cc	Current line.
R	Replace characters until Escape is pressed.	c0	From beginning of line to cursor.
		c$	To end of line.
		C	To end of line.
cw	To end of word.		
cW	To end of blank-delimited word.	c)	To end of sentence.
cb	From beginning of word to cursor.	c(	From beginning of sentence to cursor.
cB	From beginning of blank-delimited word to cursor.	c}	To end of paragraph.
		c{	From beginning of paragraph to cursor.

Undoing an Edit:

u   Undoes the most recent change. Must be out of Insert Mode.

U   Restores the current line to the way it was before making changes.

vim Search Commands:

/string followed by Return   Search forward in work buffer.

?string followed by Return   Search backward in work buffer.

                n   Find next string in same direction.

                N   Find next string in opposite direction.

vim Search string special characters:

^   Beginning of line.

$ End of line.

.   Matches any character

\>   Match the end of a word.

\<   Match beginning of word.

[ ]   Match any character within brackets.

y{   To beginning of paragraph.

vim Yank Commands:

Command	Text "yanked"
yw	To end of word.
yW	To end of blank-delimited word.
yb	To beginning of word.
yB	To beginning of blank-delimited word.
y *followed by* **Return**	Two lines, current and following.
yy	Current line.
y0	To beginning of line. (Use zero)
Y	To end of line.
y)	To end of sentence
y(	To beginning of sentence
y}	To end of paragraph.

vim Put/Paste Commands:

Paste is used after delete or yank to recover lines.

p   Paste below cursor – lower case

P   Paste above cursor – upper case

"2p   Paste from buffer 2 (there are 9)

Copy & Paste = Yank & Put
Cut & Paste   = Delete & Put

Logging on to *athena*

Logging in from home on a Windows machine.
Download PuTTY or another terminal program to your computer.
Open PuTTY.
In the box labeled Host Name, type: **athena.ecs.csus.edu**
Click on Open (lower right of the window).
You will get a window to **athena** with a prompt to "Log in as".
Enter your User Name.
Enter your Password. (Password will NOT show as your type it.)
You will now have a prompt such as the one I got**: [bielr@athena ~]>**

Logging in from home on a Mac machine.
Open up a terminal/console window and type the following:
      ssh yourECSname@athena.ecs.csus.edu
Press Enter.
When prompted, type "yes" to accept the server's key.
Then enter your password. (Password will NOT show as your type it.)

The Flow of Operations in creating a program

*To copy a file from the instructor – **Non Mac** Users*:

Type: **cd csc60**   to put you in the directory/folder where you will do your work.
If it is your first time to work on this assignment, create a directory/folder for this work.
      Type: **mkdir labX**   (where X is the assignment number)
      Type: **cd labX**   (to move to the new directory/folder)

Type (to copy the instructor's files):
cp /gaia/home/faculty/bielr/files_csc60/TheFileName .
   ^space   *space & then dot ^*

*To copy a file from the instructor – **Mac** Users*:

I will include copies of the files on the Canvas assignment page that you may copy directly to your Mac. This avoids logging into athena just to get files.

To start writing a program:

Type: **vim TheFileName.c**

To exit vim**:**

:wq   To exit VIM, write the changes to the file, and return to the shell prompt.
:q!   To exit VIM and <u>abandon</u> any changes you have made to the file.

To compile the program**:**

Type: **gcc TheFileName.c**

Type: **gcc –lm TheFileName.c**   [NOTE: **"-lm"** is only needed when you use **math.h]**

To run the program: Type: **a.out**

Find your file to upload it to Canvas:

1. ***Using File Transfer software, move your files from athena to your own computer***
   Minimize the athena window so you can see the icons on your screen.

   Open up your file transfer software. Examples: WinSCP, filezilla, Cyberduck
   Navigate so you have:
   - your own computer folder in one sub-window
   - your athena folder in the other sub-window
   - drag the needed file from the athena window to your computer window.

   Open a browser, get to Canvas, and upload the file from your computer.

2. ***Using email (pine) move your files from athena to your own computer***

   On athena, the email software called **pine.** Email the file from athena to yourself.

3. ***Mac Users***
   If you have a Mac computer, use <u>**scp**</u> to transfer the file. There is documentation on the
   Reference section of Canvas that will guide you step by step through the process.