CSCI 1300 Introduction to Programming [Fall 2014]
Instructor: Boese
Recitation 1

Linux

Objectives

- Work in the Linux environment
- Log in to Moodle
- Zip files
- Practice submitting in Moodle

Important Note: Some of you might need to schedule interviews during weekend and for that you will need access to engineering center. We need your name and buff one card number for this. Click on the link below:
https://docs.google.com/forms/d/19h1u9NEHlJagOTIVsRVTQofnueOtHohBMZzKS6aoQps/viewform
Enter your name and ID card number as it appears on your buff one card. Make sure to hit submit when you're done.

If you do not have the VM installed yet, you can pair up with someone else during the recitation. There are install sessions to help you set up your computer on this site: https://foundation.cs.colorado.edu/sde/ or download from the web at: https://foundation.cs.colorado.edu/sde/vm-reqs.html and follow the instructions for setting up.

Lab 1: How do I use a VM/Linux?
The VM has an operating system (OS), just like any other computer. The OS is called Linux, and while it might look unfamiliar to you, it is just like Windows or OSX or Android. Also, just like any other computer, there are features of the VM that will be useful in learning programming. The features that we will use primarily this semester are:

- File System: Directories and files are found here. Directories are shown as orange/manilla folders. Your Dropbox folder can be found here.
- Terminal (black square with some white text): This is the command line interface that allows you to navigate the VM without using the graphical interface. The terminal provides you the ability to do everything on your computer using words (i.e. commands), not clicks.

- gedit (notepad with a pencil): A plain-text editor (e.g. notepad or textedit).

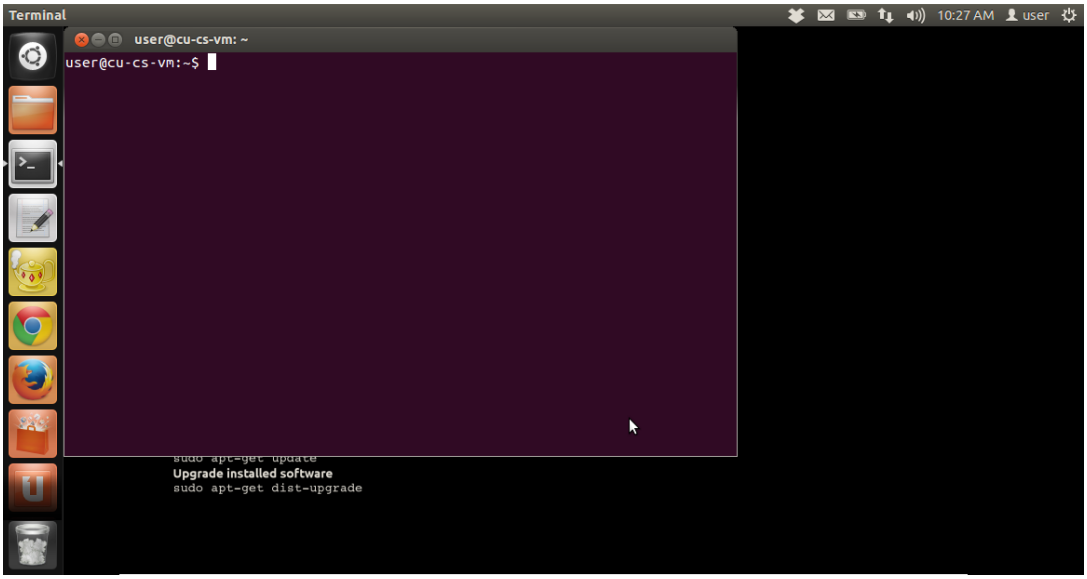
- Geany (lamp with jewels): An IDE (Integrated Development Environment) for developing source code.

- Code::Blocks (4 squares): Another IDE.

- Firefox (globe with a fox): A web browser (e.g. internet explorer or safari).

How do I use the Terminal?

Now open the terminal (black square icon with some white text). If you don't have a laptop, partner up with a neighbor so you can step through this with them. Here is what you should see:



You see `<somethingA>@<somethingB>:~$`

SomethingA = what your name is (the account name/your login name). VMs have a default one, such as "user" in screenshot above.

SomethingB = what your computer's name is. The VMs should have the same one.

~/ (i.e. everything else before the $) = your current directory (**think of a directory as the folder you're currently in**).

~ is shorthand for the current user's home directory.

$ = end of prompt for entering a command.

File browsing using the terminal is like using windows explorer or like clicking on folders and navigating to different folders on your laptop. In the terminal, instead of clicking on folders we use words to tell the computer what we want. If we want to go to a folder where we saved our last homework, we can do that through the terminal using just words and what we call **'commands.'**

Try these commands (type in the commands inside the boxes)

ls

(that's a lowercase "L" not an uppercase "i") stands for *list* and is used to 'list' or show you everything in the current directory.

```
cd
```

stands for *change directory* is just like changing folders. Commonly used as: `cd <name_of_directory>`

If you just type cd by itself, it returns you to your home directory (same as cd ~).

Note that there will always be a space between cd and the name of the directory that you want to navigate to and the name of the directory will **not** include the arrows displayed above..

Note: cd takes you places in reference to your current location. It's like going into a folder, and then clicking on a folder within that folder, and then clicking on another folder within that folder. You will always navigate deeper within that folder. To go up a directory, we use:

```
cd ..
```

Note: cd (and other commands) are case sensitive. 'dropbox' does not equal Dropbox. Make sure you type in directory names exactly as they are spelled.

You can see the full path of where you are by typing pwd:

```
pwd
```

Go to Dropbox.

```
cd ~
cd Dropbox
```

Now you are in your Dropbox directory. If you type 'ls', it will now display all of the files that you have in your Dropbox. ***Notice how the command line in your terminal now says <Dropbox> to reflect which directory you are in.***

```
ls
```

The "." = shorthand for current location.

You can also click on the up arrow key to scroll through the commands you just entered. It is a nice shortcut instead of having to re-type everything!

Want to learn more about linux commands?

http://community.linuxmint.com/tutorial/view/244 has a list of categorized linux commands.

Running a program in the terminal:

Download `Lab1.py` file from Moodle. Now we want to run this code in the terminal. Here are the steps we need to take:

1. Login to Moodle course. *(You can do this from the browser in your VM if you like).*
2. Download `Lab1.py` to your Dropbox folder.
3. Open a terminal window in the VM.
4. Go to the directory where you saved the `Lab1.py`. Remember the command for changing directory is "cd". If this file is in your Dropbox folder you need to type in "cd Dropbox".
5. Type in

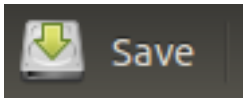
   ```
   python3 Lab1.py
   ```

   This executes your program. You should see the output from the program.

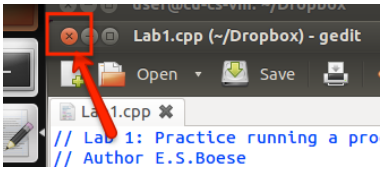
   If you get errors, ask the TA for help.
6. Type the following to open the file in the editor:

   ```
   gedit Lab1.py &
   ```

   gedit is the name of the application. The ampersand & allows the application to run in the background *(if you leave off the & then you cannot type anything more in the terminal window until you close the gedit application).*
7. Change the value of 'a' to be 7 instead of 2.
8. Click the Save button.

9. Switch back to the terminal window.
10. Run the program again.
11. Switch back to the gedit application and click on the x to close the gedit application.

12. Now zip your file. Zipping files allows us to compress multiple (or one) file(s) into one zip file. Name the file **`firstname_lastname_Recitation_1.zip`** where firstname and lastname are your names. Zip your files using the File System in the VM, selecting the file(s), and right-clicking for 'compress'.

13. Last step for this part is to submit your .**zip file** to Moodle in the "Lab 1 Submit".
14. Now show the TA your code, run the program, and show that you have correctly submitted it to Moodle.

To get credit for this lab exercise, show the TA your code and run your program and show that you correctly submitted it to Moodle.

Once you are finished with your labs for this week's recitation, you can work on your assignments. You cannot leave early - recitation attendance is taken. If you finish your assignments, start doing some exercises in the back of the chapters of the book.