Computer Science 101 - Lab 1

Introduction to Unix Systems and Codelab

How to login

On the login screen is a place to enter your user name, and four controls:

"Langauge", "Session", "Restart", and "Shutdown"

- These controls are generally not useful, but you might find "session" useful in rare instances of severe "desktop malfunction."
- Type your *CS username* in the space provided and then type the enter key.
- When prompted, enter your temporary password cpsc123 to complete the login procedure.

Setting Your Password

1. **Select a good password**:

   - DO NOT:
     - DO NOT use your login name, first name or last name. DO NOT reverse it, capitalize it, double it, or use it in any form.
     - DO NOT use all digits or all the same letter.
     - DO NOT use a word contained in an English dictionary, foreign language dictionary, or word list. This includes proper nouns.
     - DO NOT use words from a dictionary as described above as any suffix or prefix to a password, e.g. word! and ! word are bad.
   - DO:
     - DO use a password with upper and lower case letters mixed with numbers or symbols.
     - DO use a password that is easy for you to remember.
     - DO use a password that you can type quickly.

2. **Open a terminal window**:

   - Using the menu system
     Click on the "*Applications*" menu control in the top panel then,
     - Select "*Accessories*"
     - Left click "*Terminal*"

   The terminal is a very useful window. It is often useful to have mulitple terminal windows open at once. You can add an activation icon for it to your desktop or the top panel by repeating the above procedure but *RIGHT* click on *Terminal* instead of *left.*

3. In the new terminal window, enter the command *passwd*
4. When prompted, enter your current password (cpsc123)
5. Enter your new password
6. Re-enter your new password

7.REMEMBER YOUR NEW PASSWORD

Managing Files and directories

Creating directories

- Open a terminal window
- Enter the *pwd* command. (It stands for print working directory). The working directory should be "/users/*your_username*". This is also known as your *home directory*. Terminal windows open to this location by default. All your files and directories will will be kept in a directory tree with this directory as root.
- Enter *mkdir 101* to create a directory for your CPSC 101 files.
- Enter *ls* to list the contents of the current directory. You should see the new 101 directory.
- Enter *cd 101* to change to the 101 directory.
- Enter *mkdir lab1* to create a directory for today's lab.
- Enter *mkdir temp* to create a temporary directory.

Creating Files

- Select the *Applications control* on the top panel and then left click "*Text Editor*". This will start the *gedit* text editor. You may also want to create a *gedit* launcher on the top panel or on the desktop.
- You can use gedit to create and edit any type of text files including C programs. For now, create a file named *test.txt* and save it in 101/temp/.
- In a terminal window, cd to your 101/temp/ directory.
- Type ls to see if the test.txt is in the right spot. If it is not, go back to *gedit* and save it there now.
- Now in the terminal window type *pico test.txt.* This should open your file in a text-based editor. You can edit your files this way without *gedit*. Feel free to make changes.
- Use the commands at the bottom to save and exit.

Deleting Files and directories

- In the terminal window in the *101/temp/* directory, delete test.txt by typing *rm test.txt*
- Type *ls* and confirm the file is gone.
- Leave the temp directory by typing *cd ..* to return to the parent *101* directory.
- Now delete the temp directory by typing *rmdir temp*. Notice that files are removed with *rm*, but directories are removed with *rmdir*.

Writing a C Program

You are going use the *gedit* text editor to create a simple C program that will print the words "Hello, world!" to the screen. In the *gedit* window type in the following program:

```
#include <stdio.h>
int main()
{
   printf("Hello, world\n");
   return(0);
}
```

- After entering the above text save the file in 101/lab1/ as simple.c

Compiling a C Program

- In terminal window, cd to *101/lab1/*. Enter ls to confirm *simple.c* is there.
- To compile simple.c enter the command: *gcc simple.c*
- If there are errors, go back and confirm you entered the program correctly.
- If there are no errors, use *ls* to confirm that the compiled machine language program was created with the name *a.out*.
- To run the program enter the command: *./a.out* The *./* is used to tell the system that a.out is in the *current directory*.
- "Hello, world!" should print on its own line.

CodeLab

Registering

- Start the *firefox* web browser by clicking on the icon just to the right of the *System* menu control in the top panel.
- In the web browser go to *http://www.tcgo1.com/*
- For proper operation of codelab you will need to enable popup windows when *firefox* warns you that it has blocked on.
- Click *register for codelab*.
- Select *STUDENT* and click continue.
- Enter the correct code for your professor:
- Professor Lowe: Section 301: 2:30 M W
- Professor Westall: Section 302: 3:30 Tu Th
- Professor Srimani: Section 303: 11:00 Tu Th
- Select *Clemson* in the University list and click continue.
- Type your *Clemson University email address* (NOT .cs; NOT gmail; NOT hotmail) and click continue.
- Create a password and click continue.
- Accept the user agreement and click continue.

Using CodeLab

- Go to *http://www.turingscraft.com/* and click *login*.
- Type your *Clemson University email address* and *password* to login.
- On the Left menu, select *C CODELAB*, *ORIGINAL*, *QUICKSTART*, *Beginning*. You should see four (4) exercises.
- **Do all four (4) exercises: 10001, 10002, 10003, and 10004.**

Turn In Work

- Show your TA that you completed the four (4) CodeLab assignments.
- Turn in your simple.c.
  Use **sendlab.101.*section_number* 1 simple.c**

Optional: Accessing Unix From Windows

- Your laptop should already have Secure Shell Client (SSH) installed on it. Run SSH.
- Press *Enter* to open a connection dialog.
- Type a host name:
  - If you are on campus, you can use *gecko1.cs.clemson.edu*, *gecko2.cs.clemson.edu*, . . . *gecko24.cs.clemson.edu*. There are other systems as well you can connnect to.
  - (If you are not on campus, you will have to use *access.cs.clemson.edu*. Once you are connected, you must immediately type ssh *another_host*@cs.clemson.edu because *access* need to be kept free for incoming connections.
- Type your CS username and click *connect*.
- You may be prompted to confirm first-time connection to the server. click *Yes*.
- Type your password and click *OK*.
- You should now be logged onto a UNIX machine. You cannot use GUI tools such as *gedit*, however any text-based tools (gcc, pico, ls, . . .) are available.
- **When you are finished, log out using exit**