

# 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:

*"OK", "Start Over", "Options", and "Help"*

- Click on *"Options"*, and select *"Session"*.
- Under *"Session"*, select *"Java Desktop System"*.
- Type your *CS username* in the space provide and click *"OK"* or just type the enter key.
- When prompted, enter your temporary password *cpssc123* to complete the login procedure.

# Setting Your Password

## 1. Select a good password:

NOTE: Only the first eight (8) characters of the password are meaningful. (e.g. password = password1234)

- 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:

- Method 1: Menu Shortcut
  - Click on the "Launch" control
  - Click on the "Applications" control (see image):
  - Select "Utilities"
  - Select "Terminal"
- Method 2: Command Execution
  - Click on the "Launch" control
  - Click on the "Run Application" menu :
  - Type "xterm" in the entry field.

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**

## Setting Up Mozilla Email

You have an email account for Computer Science that is separate from your university email account. This email account is your CS username + @cs.clemson.edu. You can use Mozilla to check your CS email account for class-related email notices.

1. Click on the "Launch", "Applications", "Internet", "Mozilla" (you may be prompted to create a new profile. If you do this, it's a good idea to use your username as the profile name.)
2. Inside the browser window, click on the "Window" menu and select "Mail & Newsgroups"
3. Select "email account" for setup
4. Type your username"@cs.clemson.edu"
5. Type "mailhost.clemson.edu" as your incoming and outgoing email servers
6. Make the account name your username.

## Forwarding CS Email

If you would prefer to have your CS email forwarded to your University account, do the following:

1. In your home directory (see "Managing Files and directories" for more information), create a file named `.forward` (Yes the `.` is important.)
2. Insert your full email address for your University account, e.g. `someuser@clemson.edu`. Do not put any extra lines, space, or punctuation marks in this file.
3. Until you delete the `.forward` file, all mail addressed to you at the CS department will automatically be forwarded to the account you specified in the file.
4. **Class announcements will be sent to your Clemson University mail account. If you don't read this account or you forward it to some account in which your mailbox is full, you will miss important announcements related to class.**

# 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 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 *Launch* and then *"Run Application..."*.
- Type `gedit` to start the gedit text editor.
- 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`.

# Desktop Shortcuts

If you wish to have a desktop shortcut for launching applications you use frequently, such as *gedit*, *xterm*, or *mozilla*, follow these steps:

- Right click on the desktop and choose *Create Launcher*.
- Fill in the required fields in the dialog box that appears
- Choose an appropriate icon and click *OK*.

You may also add a launcher to the "panel" at the bottom of the screen by right clicking on the application name in the launch menu structure

## Writing a C Program

Using *gedit*, you are going 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

- In a web browser go to `http://www.turingscraft.com/`
- In the upper right-hand corner, click `register`.
- Select `STUDENT` and click `continue`.
- Enter the correct code for your professor:
  - Professor Westall: Section 301: CLEMSO-7053-2656
  - Professor Lowe: Section 302: CLEMSO-1891-2657
  - Section 303: CLEMSO-6909-2658
- 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 connect 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`**