A Beginners Intro to Linux Terminal

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What we will be covering

This session is aimed at people who have little/no experience with using Linux and especially the Terminal. I will be covering the following topics:

- Directory Navigation in Terminal
- File manipulation
- Input and Output to the Terminal
- Accessing the internet and downloading packages
- Putting it all together
- Other Miscellaneous commands that i think are useful

The things learned in this tutorial will not just help with programming club but also with your entire university career.

What is the terminal

Terminal is the linux command line interface, also called a shell. It allows you to access operating system functions and also various user programs stored on your computer.

Downloading Packages

sudo apt update
sudo apt upgrade
sudo apt install <package name>

Directories

There are a lot of important directories in Linux but today we are just going to focus on the home directory. The home directory is the default directory you start in when you open a terminal, its absolute path in the system is

/home/<username>

but it also has a ”shortcut”:

~/

There are two other shortcuts **./** and **../** which refer to the current and parent directories respectively.

Navigating Directories

There are 4 important commands when it comes to interacting with directories:

- **ls [args]** - list directory contents, use **-a** argument to see hidden files and **-lh** arguments to see file permissions and sizes.
- **cd [path/to/directory]** - change directory, can use the **./** and **../** shortcuts to make navigation a bit easier
- **pwd** - prints the absolute path to the current directory
- **mkdir [path/to/new/directory]** - makes a directory with the given name in the current folder can also make directories in subfolders if you specify the path

Maniputating Files

- **cp [args] [source] [destination]** - copies the contents of a given file into another file. Use argument **-r** if you want to copy a whole directory.
- **mv [args] [source] [destination]** - moves file from one directory to another, also supports **-r**
- **touch [path/to/new/file]** - makes a new file
- **nano [path/to/file]** - a text editor, allows you to edit files in the terminal. Functions in the editor are done with keyboard shortcuts, the most important are **ctrl+o**(save) and **ctrl+x**(exit) (ctrl is referred to as M in nano)

Manipulating Files 2

- **cat [file]** - prints the contents of the file specified
- **rm [args] [path/to/thing]** - deletes the file specified, if you want to delete a directory use the flag -r. BE CAREFUL this command can be dangerous
- **grep -e [pattern] [file]** - returns lines in the specified file that contain the specified pattern

I/O (Input Output)

Commands need input to produce outputs, Linux handles inputs and outputs in the terminal by using the **Standard Streams**.
There are 3 standard streams, **stdin** (standard In) , **stdout** (standard out), and **stderr** (standard error).

Stdin

Standard in can be considered all input from the keyboard. Its how the terminal recieves input from the user.

Stdout

Standard out is the terminal output, when you type commands or run programs and they produce output, they are writing that output to the standard out stream.

Redirection

- **echo ”<string>”** - prints whatever you want to stdout
- **> and »** - Allows you to redirect the output of a command to a file, single is overwrite and double is append
  USAGE: **echo ”secret” | secrets.txt**
- Pipes **|** : Used to redirect the stdout of command to the input of another(not the same as stdin)
  USAGE: try **echo ”hello” | cowsay**

The internet!

- **ping [hostname or ip address]** - sends a ”ping” message to the ip, telling you if that server is on or not
- **ip a**
- **host [hostname or ip]**

using git

what is git and how to use it?
https://rogerdudler.github.io/git-guide/

Putting it all together

I have a small task id like you to do so you:
Use cowsay and fortune* to make the cow say your fortune and write to a file IN ONE COMMAND, then use a command to print the contents of this file to stdout and take a screenshot and post it in the server.

*this will not be installed