An Introduction to Linux

CS101

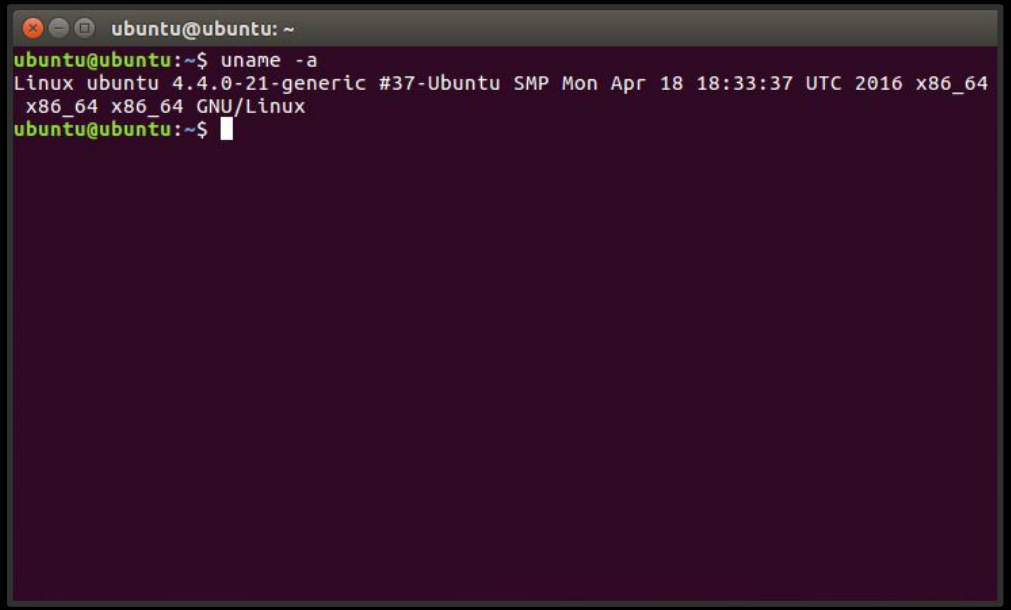
What is Linux?

Linux is a family of operating systems like Windows or macOS, but it is free (as in food) and open source (the source code is publicly available).

All of the lab machines in UTCS run on Linux (Ubuntu with the GNOME Desktop Environment, if you want to be specific).

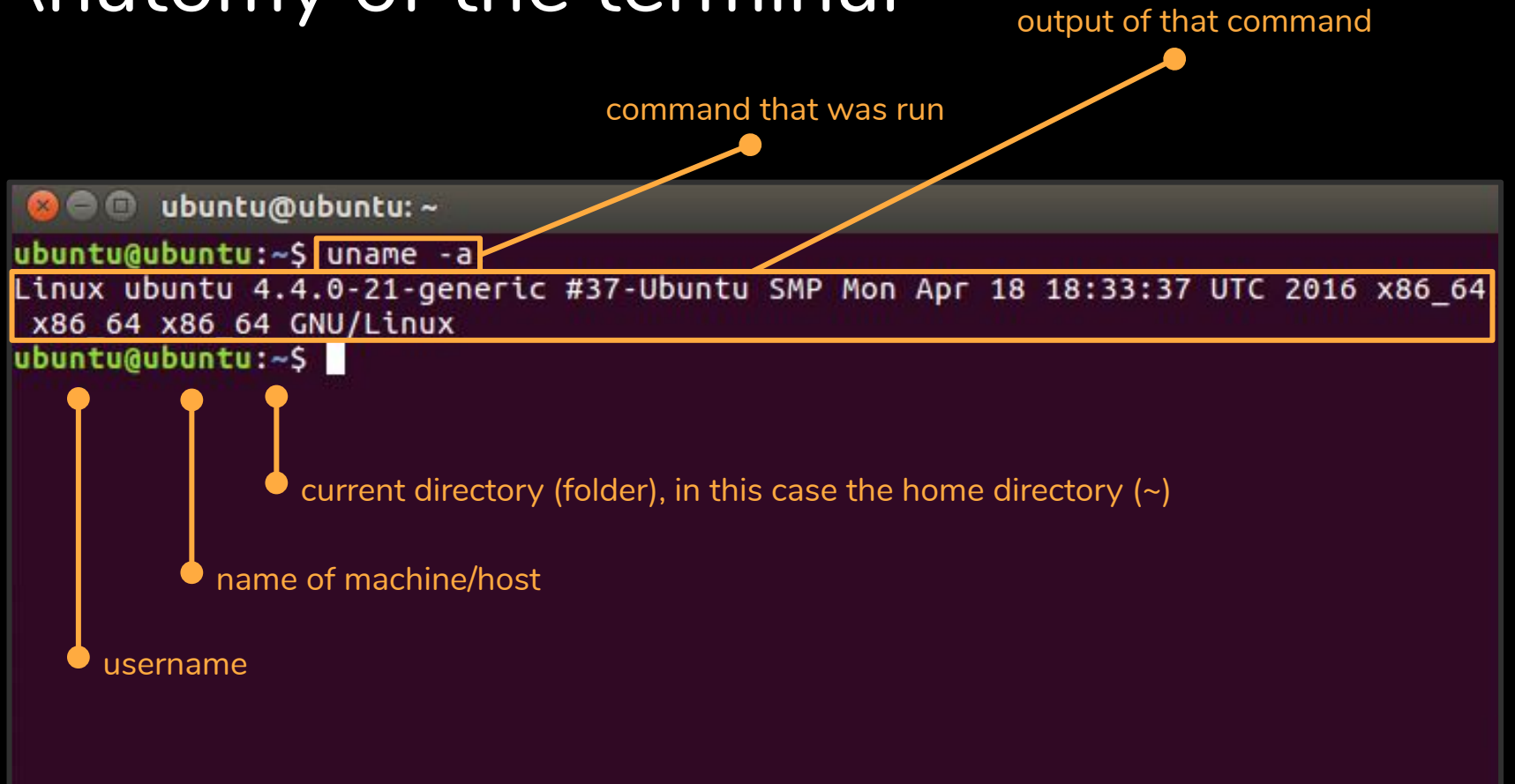
The command line / shell / terminal /...

These words all *technically* have different definitions, but most of the time, people use it to refer to the same thing: the program where you type in commands to interact with your computer.



https://askubuntu.com/questions/506510/what-is-the-difference-between-terminal-console-shell-and-command-line

Anatomy of the terminal



Some vocab

Directory	Folder
Home Directory	The ‘main’ folder for your user, usually represented with ‘~’
Root Directory	The topmost folder of your filesystem, usually represented with ‘/’
Host	The machine you are connected to
Root/Superuser	The ‘admin’ user, has no restrictions (on the lab machines, this is the department, on your own machine it’s you!)

Basic commands

`ls`	**L**i**s**t the files in your current directory
`pwd`	Show your **p**resent **w**orking **d**irectory
`cd [a]`	**C**hange **d**irectories to [a], cd by itself returns to ~ (home)
`touch [a]`	Make the file [a]
`cat [a]`	Print the contents of [a] (technically it's made to concatenate files but it's mainly used to print the contents)
`mkdir [a]`	**M**a**k**e the **dir**ectory [a]
`mv [a] [b]`	**M**o**v**e file/dir [a] to file/dir [b] (also used to rename)
`cp [a] [b]`	**C**o**p**y file/dir[a] to file/dir [b]
`rm [a]`	Remove the file [a] (to remove a folder, add -rf flags)
`man [a]`	Show the **man**ual pages for the command [a]

Anatomy of a Linux command

command

The command to be run, in this case, remove.

flags

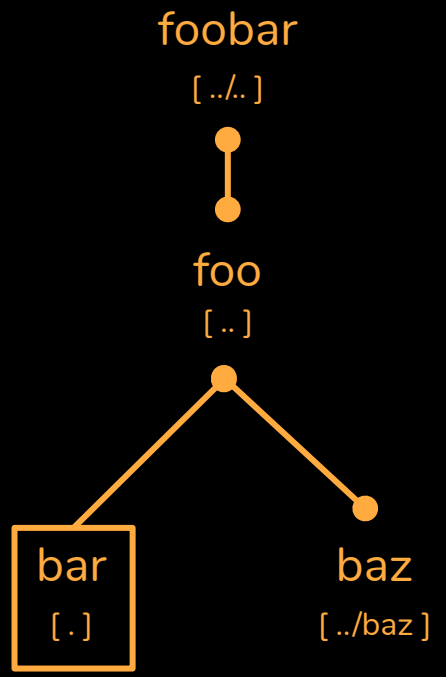
Optional settings you can turn on for this command. They are always preceded by a '-'. Here the 'r' means recursive (delete all sub-directories and files) and the 'f' means force (don't confirm that I want to delete these files).

arguments

The inputs the command needs. Here, these are the files/dirs to delete. Arguments are separated by spaces

Directories

`.`	Present working directory
`..`	Parent directory of present working directory
`cd ..`	Move up a directory to parent directory
`ls ..`	List contents of parent directory
`ls ../bar`	List contents of sibling directory foo



Chaining commands

`foo && bar`	Run ‘foo’ command, and if it finishes successfully, then run ‘bar’
`foo; bar`	Run ‘foo’ command, and then run ‘bar’, whether or not ‘foo’ finished successfully

A challenge!

0. Log into lab machine
1. Navigate to home directory
2. Make a directory called **`test`**
3. Navigate into **`test`** (and check your present working directory)
4. Make a file called **`foo`**
5. Run **`echo ‘hello’ > foo`** to put ‘hello’ into the file **`foo`**
6. Copy the file **`foo`** to the file **`bar`**
7. List the files in the directory to check you have two files
8. Move the file **`bar`** to the file **`baz`** to rename it
9. Remove the file **`baz`**

Questions?

Thanks for coming!