Computer Systems & Networks

Welcome!!

9.30AM-11.30PM THURSDAY 14TH 2019

Computer Systems & Networks

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Caroline Cahill (WIT Lecturer) ●
Caroline Cahill

Frank Walsh(Lecturer) ○
Frank Walsh

Computer Systems & Networks

10 Credit

Module delivery split between Frank & Caroline

Timetabled for TWO sessions per week

Draft Weekly Timetable Semester 2

|	MONDAY	TUESDAY	WEDNESDAY	THURSDAY	FRIDAY	
10:45						10:45
12:15	Computer Systems *Webinar* 12:15-2:00		Computer Systems *Webinar* 12:15-2:00	Database *Webinar* 12:15-2:00		12:15
2:00						13:45

+ Lab Support via ✳ slack *

* (9 hours live slack support)

# Module Overview: (Available on Handbook)

- Number bases used in Computer Science
- Boolean logic
- Computer system architecture
- Operating systems: Components, services, and utilities
- Memory and file management
- Scripting and shell programming
- Virtualisation and hypervisors
- Internet protocol suite
- Physical/network addressing
- Transport layer protocols
- Application layer protocols
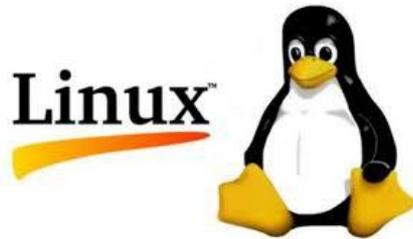- Wireless network protocols: LAN and PAN

Computer Systems & Networks
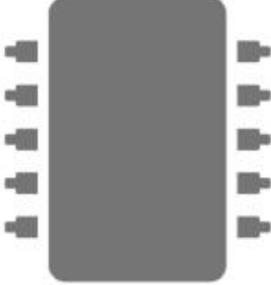
logic · computer organisation · os · networks · interfaces · sensors
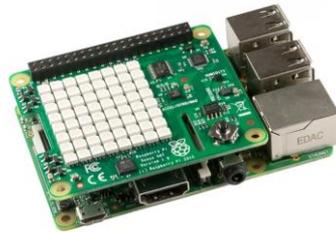
10 Credits
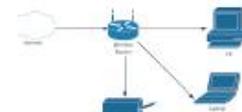
Development Tech (tentative)


```bash
#!/bin/bash
# This is a basic bash script.
a=Hello
b="Good Morning"
c=16

echo $a
echo $b
echo $c
```
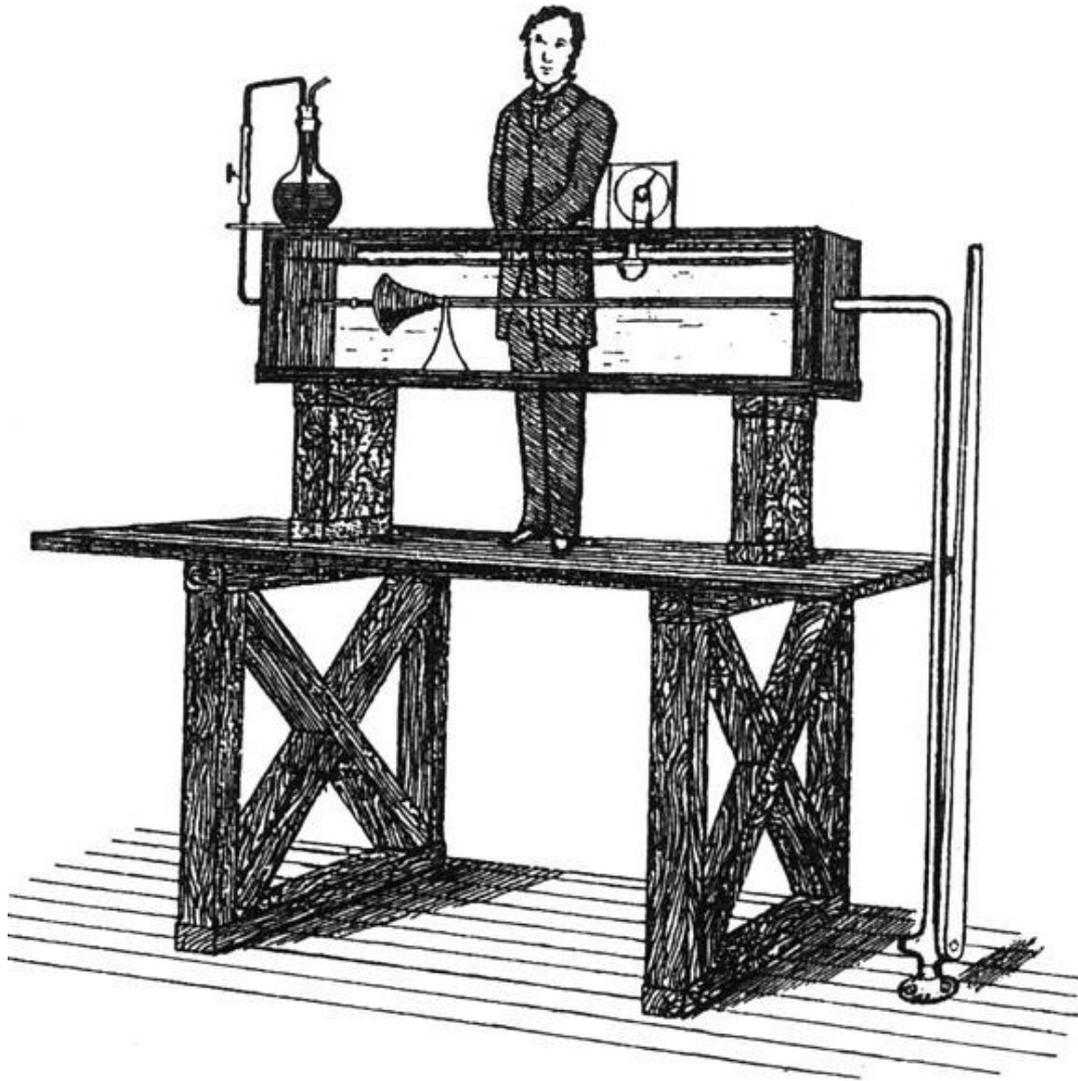
Assignment Structure

25% Exam
- ◦ On-site in December

75% Continuous Assessment
- ◦ 35% Assignment 1 (Computer Systems/Operating Systems)
- ◦ 40% Assignment 2 (Networking/Devices)

Ethos

Focus on practical skills

Good idea to stay current with module:

◦ Some lectures will require reading/viewing of talks before.

Experiment/build something interesting:

◦ You will have the opportunity to propose your own project!

We'll use the Ubuntu Operating System

Ubuntu for instance is very easy to use, as it's designed for newcomers.
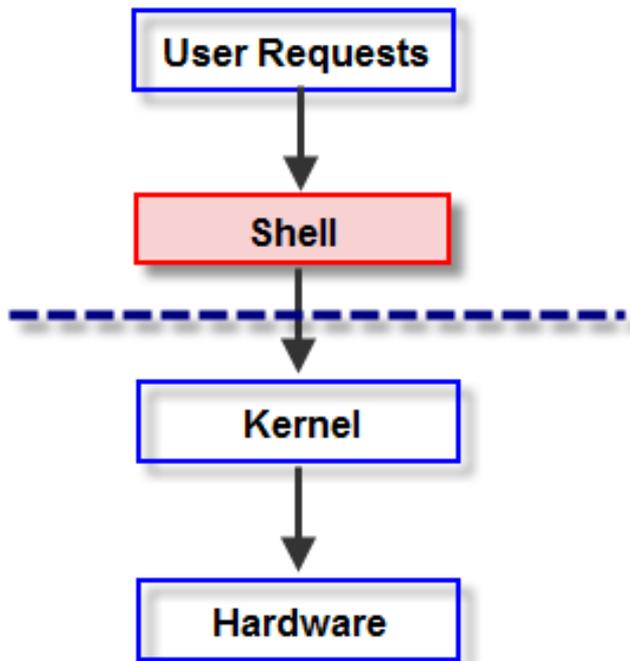
Linux Basics

Linus IS case sensitive

Caroline.txt is not the same as ***caroline.txt***

File & Directory naming conventions (NO SPACES!!!)

CarolineCahill is a good filename i.e. capitalising the first letter of each word
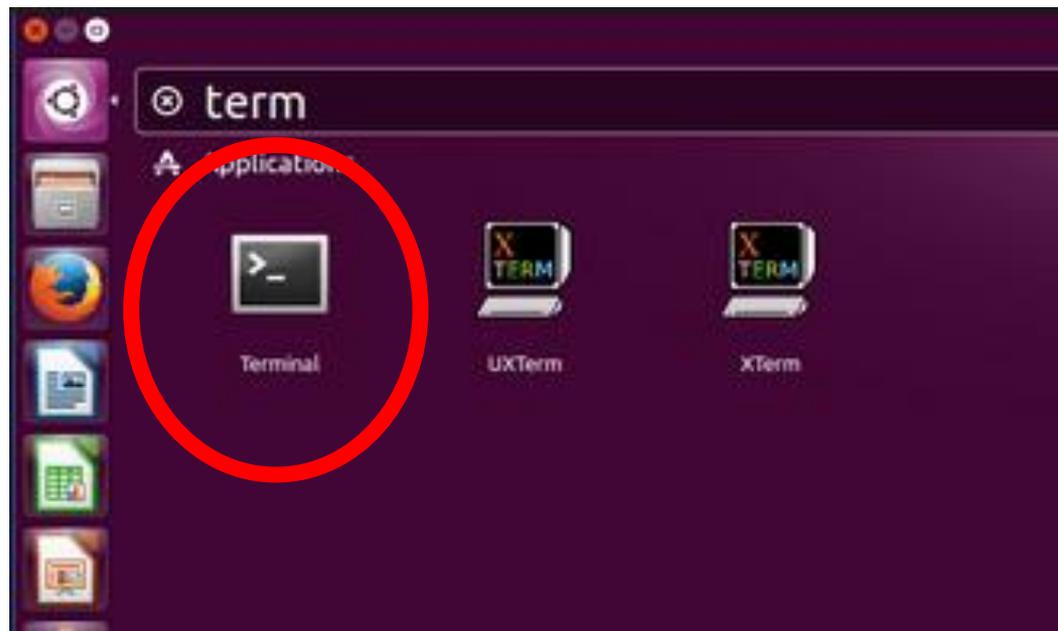
The Linux prompt (Shell prompt) ends with a **$** when logged in as a regular user

The Shell

In Linux, the shell is a program that interprets commands & acts as an intermediary between the user and the inner workings of the OS

Some Basic Linux Commands to try out inside your Ubuntu Terminal

- Open Terminal now

Which Shell is your system using?

Find your system default by echoing the variable:

echo $SHELL

To close a shell, simply type:

exit

Try out what happens if you type "echo $shell"

| 1. Bash Shell |---------| 2. Tcsh Shell |---------| 3. Ksh Shell |

| 4. Zsh Shell |---------| 5. Fish Shell |

5 Most Frequently Used Shells for Linux

ls *this is **lowercase letter L** and NOT the no. 1*

ls –l *again, this is lowercase L*

clear

ls **clear**

cls usr shows you what?

¨cd usr *brings you into the usr directory*

c../ *brings you up one directory level*

p cd usr/bin *where are you now?*

../pwd *brings you up two directory levels* *Where are you??*

cd / *returns you to your home directory*

Command Manual

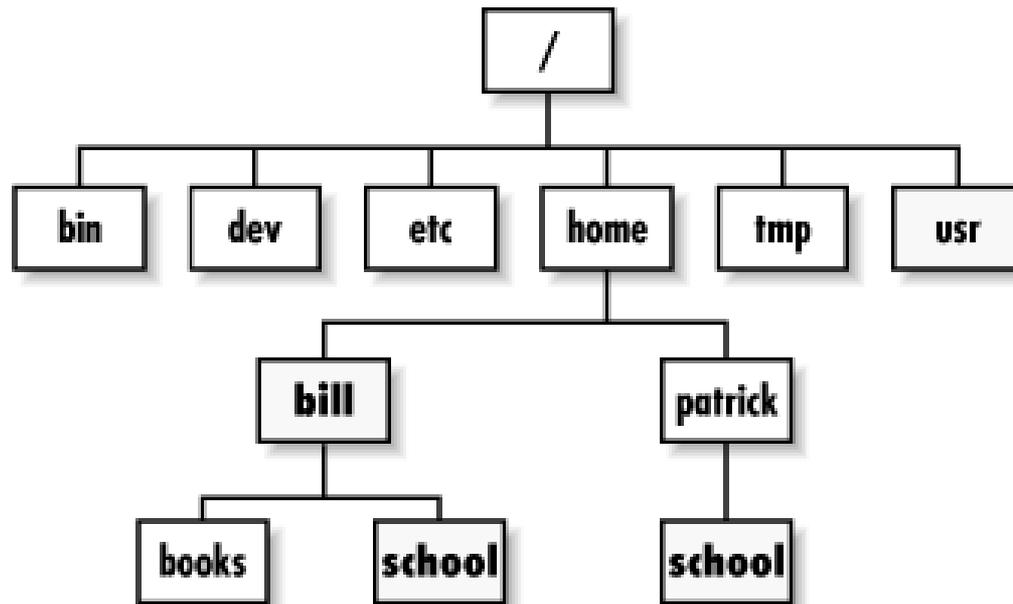Every command has it's own manual page

man <<command>>

Try it out:

```
caroline@caroline-VirtualBox:~$ man ls
```

```
caroline@caroline-VirtualBox:~$ man man
```

Directory Tree Structure

- Type the **Is** command

Basic file & directory exercise

1. From home, create a new directory called **OnSiteJune19**

2. Inside this folder create two subdirectories *caroline* and *frank* using *mkdir* command

3. Check they're actually created now.. [HOW??]

Solution:

Basic file & directory exercise

1. From home, create a new directory called ***OnSiteJune19***

2. Inside this folder create two subdirectories ***caroline*** *and* ***frank*** using ***mkdir*** command

3. Check they're actually created now.. [HOW??]

4. Use ***cd*** command to move to your ***frank*** directory

5. Use ***touch tempAnyFile*** to create a blank "tempAnyFile" in the ***frank*** directory
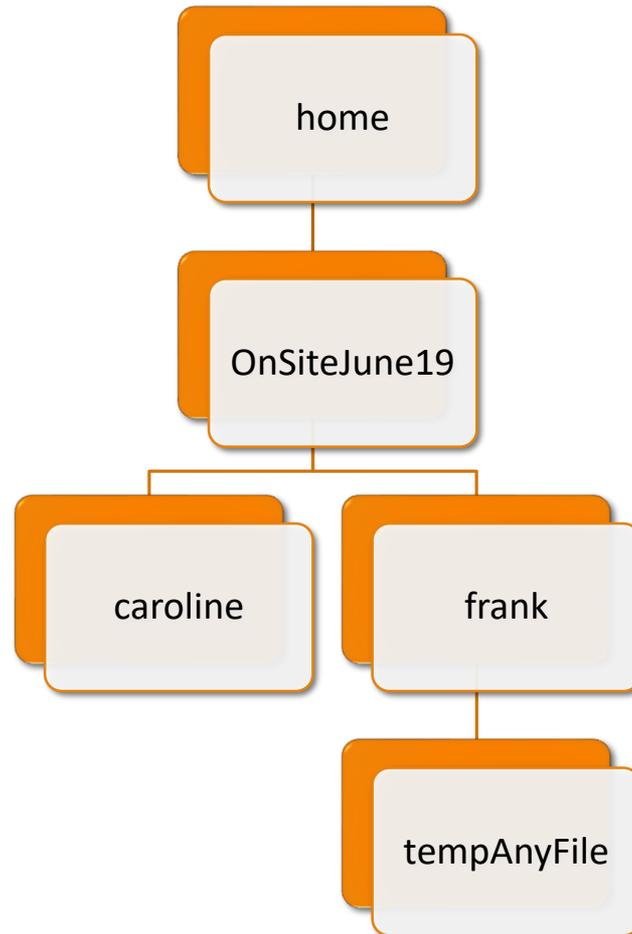
Solution:


```
caroline@caroline-VirtualBox:~/OnSiteJune19/frank$ touch tempAnyFile
caroline@caroline-VirtualBox:~/OnSiteJune19/frank$ ls
tempAnyFile
caroline@caroline-VirtualBox:~/OnSiteJune19/frank$ pwd
/home/caroline/OnSiteJune19/frank
```

Directory Tree Structure: what does yours look like?
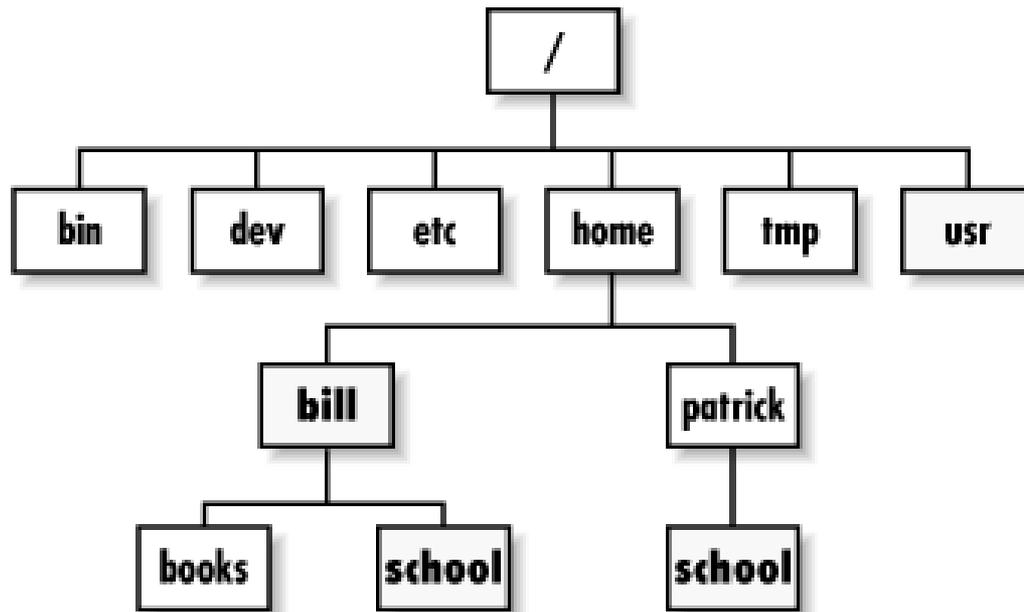
- Based on this hierarchy, can you visualise how your filesystem looks?

Solution:

1. Return home – how can you check that you're home?

2. From home, delete the empty *caroline* directory

   ◦ You'll need full path and the *rm* command
   ◦ Do you get an error? Try adding the –r argument

Check it's removed

3. Check that the *tempAnyFile* exists

Solution:


```
caroline@caroline-VirtualBox: ~
caroline@caroline-VirtualBox:~$ pwd
/home/caroline
caroline@caroline-VirtualBox:~$ rm OnSiteJune18/temp1
rm: cannot remove 'OnSiteJune18/temp1': Is a directory
caroline@caroline-VirtualBox:~$ rm -r OnSiteJune18/temp1
caroline@caroline-VirtualBox:~$ ls OnSiteJune18
temp2
caroline@caroline-VirtualBox:~$
```

Don't forget Linux IS <u>case sensitive</u>!!!

cd usr

IS NOT THE SAME AS

cd Usr

Be mindful with creating your directory names etc., make good use of **ls** to see the correct names