Welcome!!

Caroline Cahill
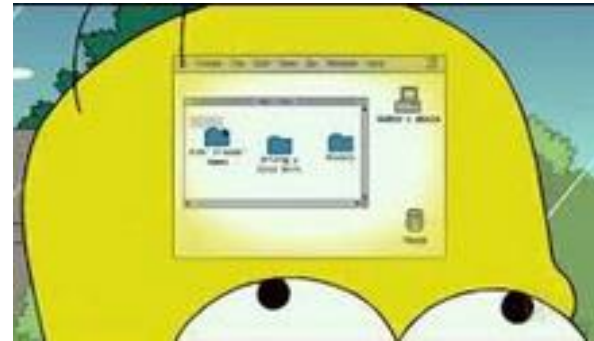
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Computer Systems

- 10 Credit
- Split between Frank & I

- Caroline's Assessments:
  - 35% Assignment 1 based on Shell Scripting
  - 25% Exam: On-site, 20th December;
    - all hand-workings, calculations in the written booklet to be submitted as part of your assessment.

Module Overview: (Available on Handbook)

- Identify and explain the role various hardware components play in a computer system.

- Use an operating system on a chosen computer architecture.

- Demonstrate an ability to configure systems using the command line.

- Describe the memory management, process management and file management components of a modern operating system.

- Explain basic concepts and theory of networked operating systems and virtualisation.

- Configure a contemporary operating system (within a virtual machine environment)

- Demonstrate competency in a limited set of utilities provided by a contemporary operating system.

- Complete basic automation tasks using scripting.

Computer Systems & Networks

logic · computer organisation · os · networks · interfaces · sensors

10 Credits
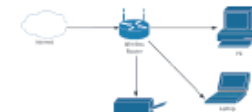
Topics (subject to changes)

Week1	Week2	Week 3	Week 4	Week 5	Week 6
•Computer Architecture	•Shell Scripting	•Number Bases	•Boolean	•Operating Systems Concepts	•Introduction to computer networking •Introduction to virtualisation

Week 7	Week 8	Week 9	Week 10	Week 11	Week 12
•Shell Scripting 2	•Physical Layer protocols and Addressing; Network Layer protocols and Addressing	•Transport and application layer protocols	•Wireless Protocols WIFI, Bluetooth; MQTT and Messaging	•IoT Cloud Platforms	•IoT Architectures and Applications

Calendar - Semester 2

Semester 2		S	M	T	W	T	F	S	Modules
September		2	3	4	5	6	7	8	
	1	9	10	11	12	13	14	15	comp sys & database
	2	16	17	18	19	20	21	22	comp sys & database
	3	23	24	25	26	27	28	29	comp sys & database
October	4	30	1	2	3	4	5	6	comp sys & database
	5	7	8	9	10	11	12	13	comp sys & database
	6	14	15	16	17	18	19	20	comp sys & database
	7	21	22	23	24	25	26	27	comp sys & database
November	reading-week	28	29	30	31	1	2	3	
	8	4	5	6	7	8	9	10	comp sys & database
	9	11	12	13	14	15	16	17	comp sys & database
	10	18	19	20	21	22	23	24	comp sys & database
December	11	25	26	27	28	29	30	1	comp sys & database
	12	2	3	4	5	6	7	8	comp sys & database
		9	10	11	12	13	14	15	
		16	17	18	19	20	21	22	
		23	24	25	26	27	28	29	

2018 Onsite Sessions
21 September
22 December (written examination)

Computer Systems & Networks — logic · computer organisation · as · networks · interfaces · sensors — 13 Credits

Databases — entities · tables · rows · sql · er · nosql — 5 Credits

We'll use the Ubuntu Operating System

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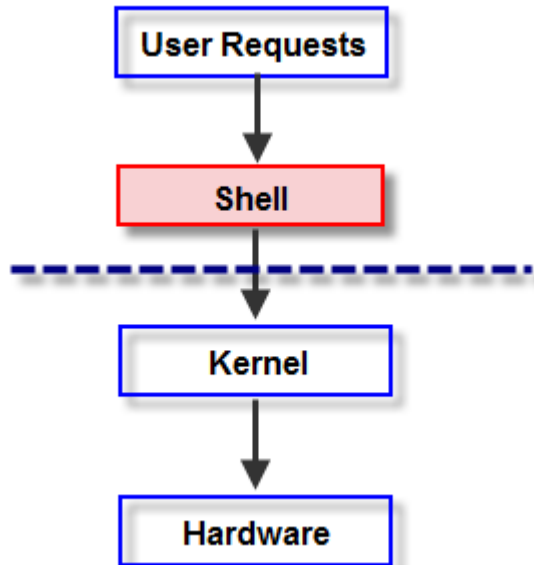
Linux Basics

- 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

User Requests

Shell

- -

Kernel

Hardware

- 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
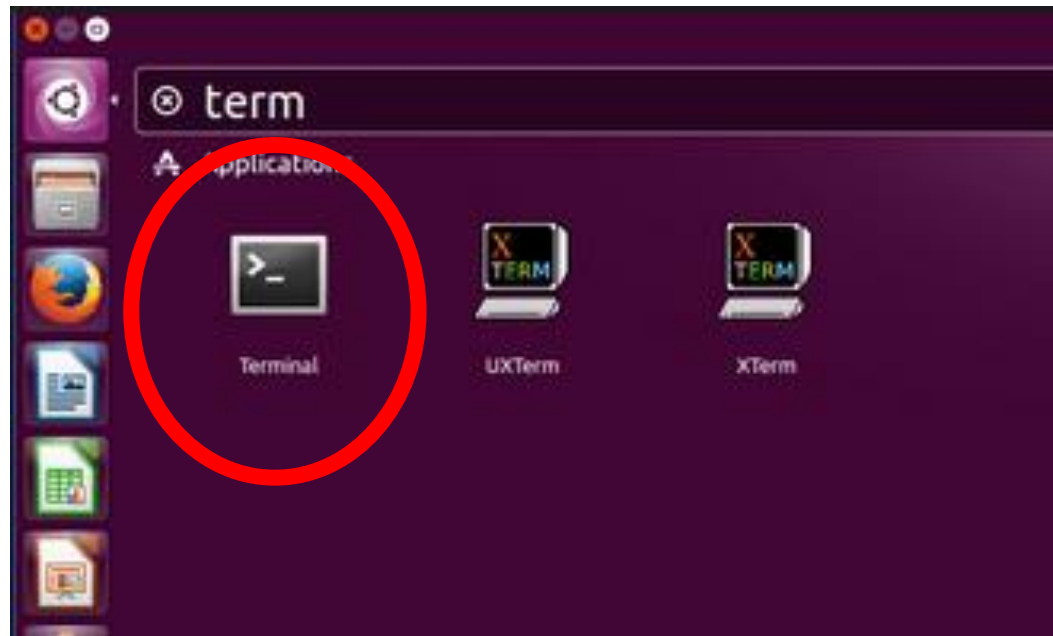
- Open Terminal now

Which Shell is your system using?

- You can find your system default by echoing the variable:

echo $SHELL

- To close a shell, simply type:

exit

5 Most Frequently Used Shells for Linux

|	
ls	*this is lowercase L, not the no. 1*
ls –l	
clear	
ls usr	shows you what?
cd usr	*brings you into the usr directory*
../	*brings you up one directory level*
cd usr/bin	*where are you now?*
pwd	*Where are you??*
../../	*brings you up two directory levels*
cd /	*returns you to your home directory*

Try these commands

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
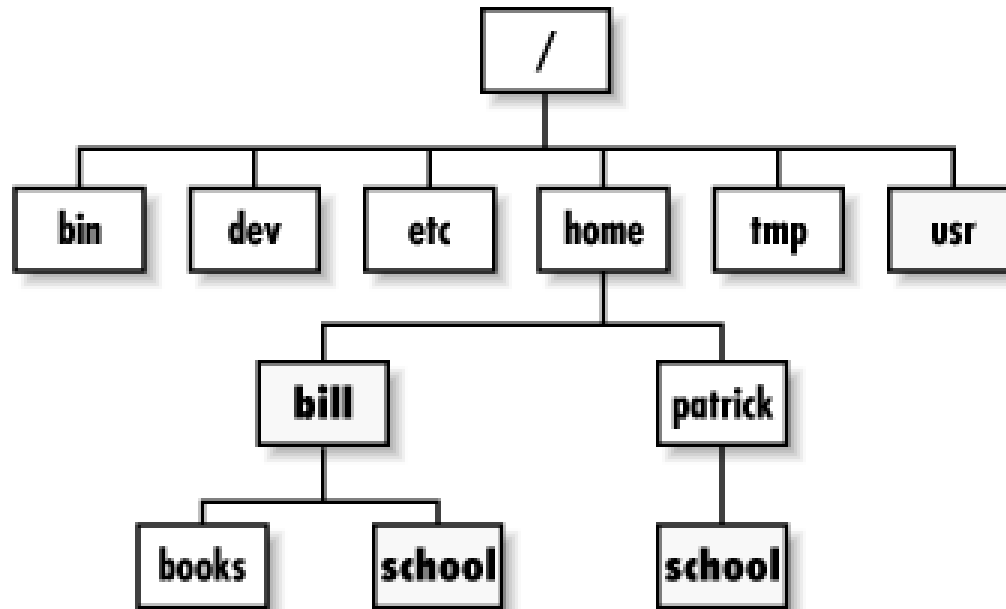
- Type the *ls* command

Basic file & directory exercise

- From home, create a new directory called ***OnSiteJune18***

- Inside this folder create two subdirectories ***temp1*** *and* ***temp2*** using ***mkdir*** command
- Check they're there

- Use ***cd*** command to move into ***temp2***
- Use ***touch tempAnyFile*** to create a "tempAnyFile" in temp2 directory

Solution:

```
caroline@caroline-VirtualBox:~$ pwd
/home/caroline
caroline@caroline-VirtualBox:~$ mkdir OnSiteJune18
caroline@caroline-VirtualBox:~$ ls
1To50            index.html        semester2
bin              lib               semester3
Desktop          linuxtutorialwork temp
docs             multNums          tempAssn
Documents        Music             template
Downloads        noToDigits        Templates
examples.desktop OnSiteJune18      ubuntuclassroom
hello.java       Pictures          Videos
helloWorld       Public            whowhen
caroline@caroline-VirtualBox:~$ mkdir OnSiteJune18/temp1 OnSite
June18/temp2
caroline@caroline-VirtualBox:~$ ls OnSiteJune18
temp1  temp2
```

Tree Structure of your new directories and files
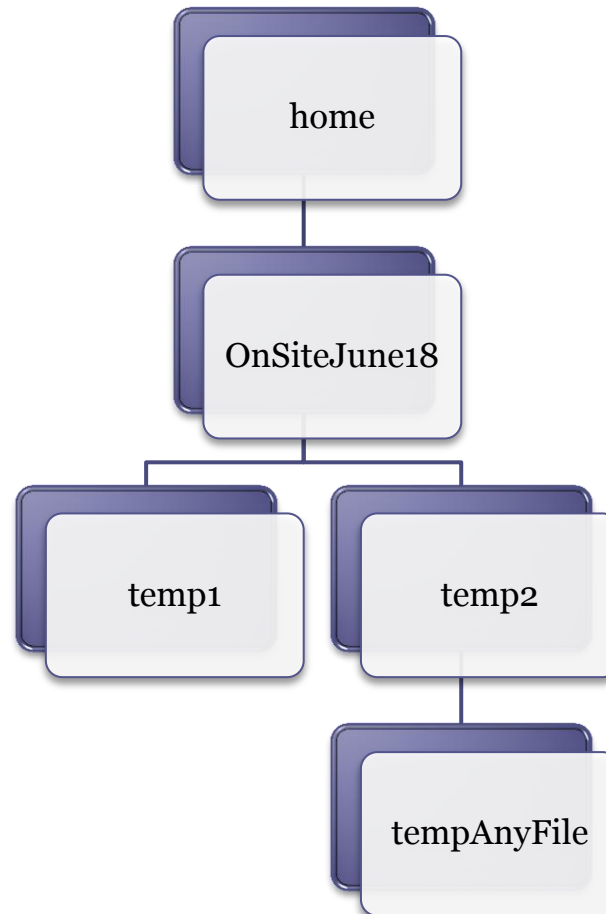
- Return home – how can you check that you're home?

- From home, delete the empty *temp1* directory
  - You'll need full path and the *rm* command
  - Do you get an error? Try adding the –r argument
- Check it's removed

- Check that the *tempAnyFile* exists

Solution:

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