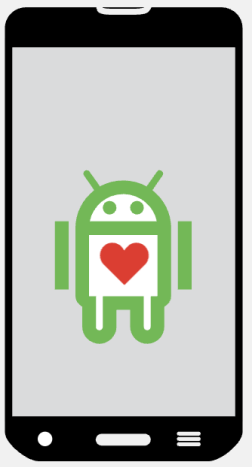
OS Intro



1. What OS is your computer currently using?

2. How much RAM[1] (primary memory) does your device have?

3. You can find out which processes are taking up CPU time by opening your **Activity Monitor** (Mac) or Task Manager (Windows). Can you find out how many processes are currently running eg:

   Screenshot your result here:

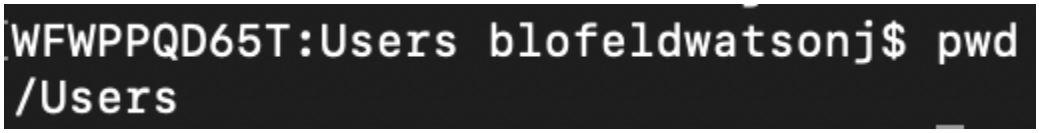
[1] Remember, RAM is **volatile**. If you turn off your computer, any unsaved data will be lost.

4. Which process is taking up the most RAM on your device at the moment?

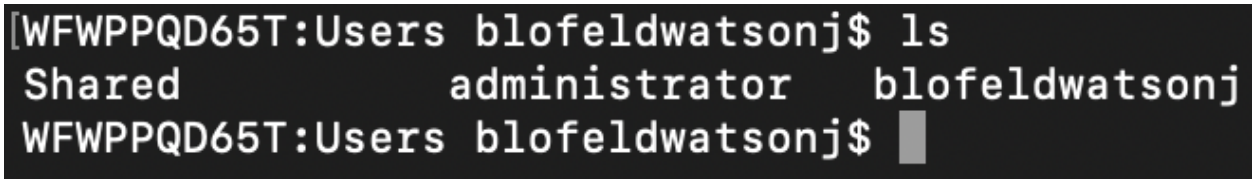
5. As you open and close programs on your device, your Operating System is constantly allocating and deallocating RAM. Try it. Open and close applications on your device and check out the Activity Monitor to see how much memory the operating system is allocating. Your operating system is an ace **Memory Manager**. When you run a program on your computer, it requests a block of memory and the OS allocates the required amount for that program. When the program closes, the OS deallocates the memory for other processes to use.

6. The operating system has to give a fair amount of CPU Time to each process. My machine is running more than 700 processes at once! So, the operating system is an expert **scheduler**, giving a fair amount of CPU time to each running process.

7. Open your terminal. Find out which folder/directory your terminal is currently in by typing **pwd** (Mac users):



Type **ls** to list the contents of the current directory:



Type **cd** to change to a new directory and then **ls** to list the contents of that directory eg:

```
[WFWPPQD65T:Users blofeldwatsonj$ cd blofeldwat
[WFWPPQD65T:~ blofeldwatsonj$ ls
 Applications
 Creative Cloud Files
 Creative Cloud Files  blofeldwatsonj@smis.ac.j
 16454f08c495f94.e
 Desktop
 Documents
 Downloads
 IdeaProjects
 Library
 Movies
 Music
 NetBeansProjects
 Pictures
 Public
 eclipse
 eclipse-workspace
 new-eclipse-workspace
 nltk_data
 WFWPPQD65T:~ blofeldwatsonj$
```

Now change to a directory which will allow you to create a file eg:

```
[WFWPPQD65T:~ blofeldwatsonj$ cd Documents
 WFWPPQD65T:Documents blofeldwatsonj$
```

Let's create a file with some text in it using the command line interface:

```
[WFWPPQD65T:~ blofeldwatsonj$ cd Documents
 WFWPPQD65T:Documents blofeldwatsonj$ echo "Hello" > greeting.txt
```

Now, list the contents of the directory. Is there a new file called ***greeting.txt***? Open it. What do you see?

8. Fortunately for you, you do not have to use the **Command Line Interface** to create, move and delete folders and files on your device. Your operating system provides you with a **Graphical User Interface**. For Mac users, the **Finder** tool is an example of this. You can quickly drag and drop files and folders, and perform a variety of file-related tasks quickly. Under the hood, your Operating System is handling the task. Yes, your operating system is also an expert **File Manager**. Use the GUI to delete **greeting.txt**

9. With the Activity Monitor visible on your screen, thrash the cursor left and right as quickly as you can for as long as you can! Does a process suddenly appear on the activity monitor's display?

   The cursor will require immediate attention by the CPU. If not, it won't move, which will be frustrating for the user.

   Actually, the Operating System **handles** this interrupt, prioritizing the process for the CPU to deal with..

10. Task 9 also shows that the Operating System acts as an interface between input/output devices and the CPU. It is an expert **I/O controller**.

11. Your Operating System also has an **Accounting** feature which summarises how hardware and system resources are being used by users, applications, and processes. This accounting function can be used by **IT administrators** to:

    - monitor resource usage
    - identify performance problems
    - enforce usage policies
    - (and in some systems) track usage for billing purposes.