



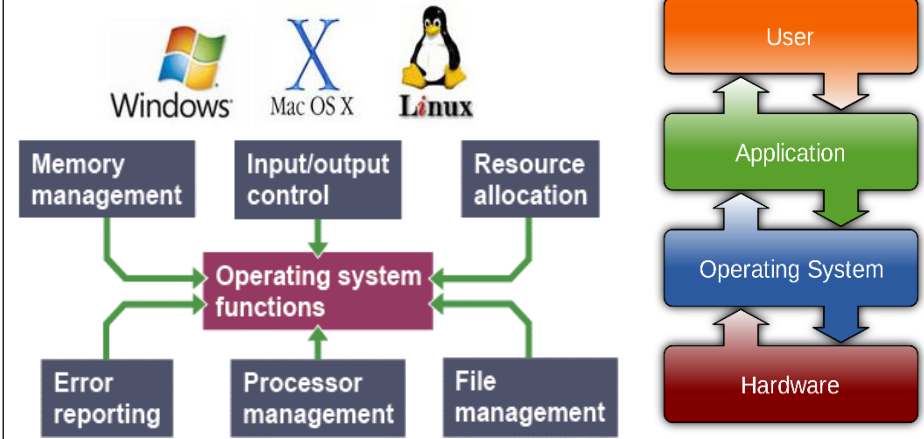
# Computing GCSE – 1.7a

J276/01 – Operating Systems

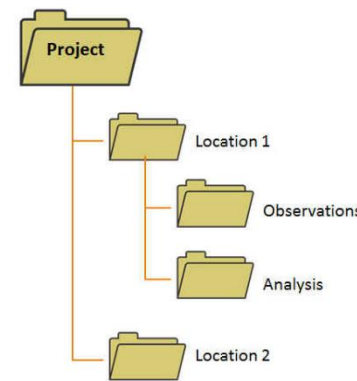
## KEY VOCABULARY

Operating systems (OS)	Collections of programs that tell the computer hardware what to do.
User interface	The means of communication between the user and the computer. These are typically either <i>command line</i> or <i>GUI</i> .
Command Line	The most simple form of user interface where users type commands into a prompt
Graphic User Interface (GUI)	Most modern computers have a GUI, which uses icons to represent the programs and files. The user runs the programs through a touch-screen or mouse-controlled pointer
Voice Command	Increasingly users are able to speak commands to devices such as Google Home and Amazon's Alexa
Memory management	The OS controls available memory, moving programs to and from secondary storage to RAM
Multitasking	Often users have more than 1 program running at once. In reality, each CPU core can only carryout 1 task at a time, but the OS alternates between the programs to make it appear that multiple tasks are running simultaneously
Peripheral management	Computers must communicate with a range of external devices such as printers, monitors and scanners (peripherals). The OS uses <i>drivers</i> to correctly pass data to the device and ensure correct function.
Drivers	A driver is a piece of software which provides communication between the CPU and a peripherals device
User management	Multiple users can have accounts on the same computer, each with their own files, settings and applications, protected with passwords. The OS will ensure that only users who are granted permissions can use files or programs belonging to other users.
File management	Computers store files and data in hierarchical folder systems. This is efficient and allows for quick navigation

## Operating Systems

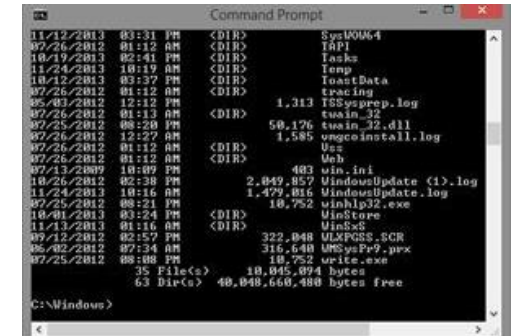


## File Management



## User Interface

### Windows Command Prompt



### Apple Graphical Interface





### KEY VOCABULARY

Utility Software	Utility software supports the OS by performing a limited and specific task. They are used to manage specific actions of the system, or undertake maintenance operations.
Encryption software	In order to keep data secure, especially against outside threats, data must be encrypted. Encryption software uses complex algorithms to encode data so it cannot be read without the private access keys.
Disk Defragmentation	Over time, through multiple updates and saves, files will become split up and distributed over the platters. It takes longer for the files to be accessed, slowing the machine down. Defragmentation reorganises the files' parts to bring them together. See fig 1.
Data Compressions	Allows files to be made smaller by removal of empty space or through compression algorithms (lossy or lossless) – see KO2.6b
Back Up	In case of hardware failure or other computer problems, data should be copied to external media so that it can be restored if lost or damaged.
Antivirus	Continually scans the system to find, quarantine, and clean any file infected with viruses.
Anti-malware	Continually scans to identify any malicious software from being introduced to the system.

### TYPES OF BACK UP

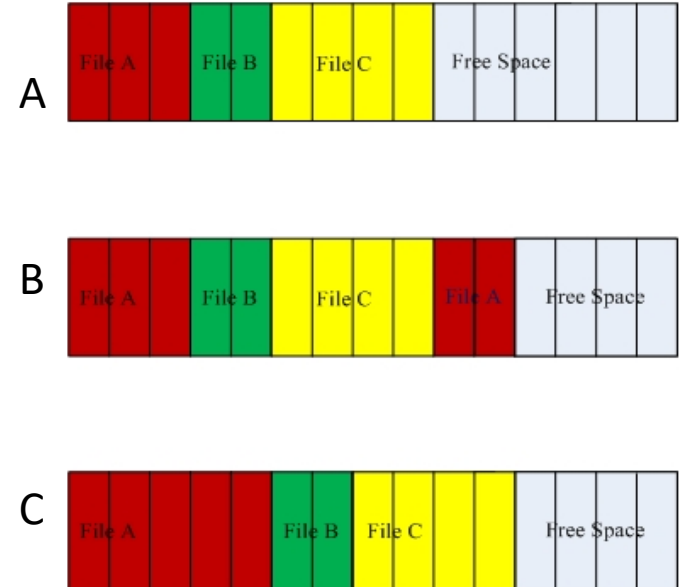
	Description	Positives	Negatives
<b>Full</b>	All files and folders are backed up every time	Only requires last back up to restore; quickest to restore	Requires the most space on back up drive; slowest to back up
<b>Incremental</b>	Only new files or files that have been changed since the last back up are copied	Faster to back up; requires less space; does not store duplicate files	Slowest to restore; needs at least one full back up to start

### DISK DEFRAGMENTATION:

Over time, as new files get added, old ones deleted and files increase through use, the parts of files get separated around the HDD. (A to B) This separation causes computer slow-down.

In order to improve performance, disk defrag applications shuffle file parts back into order, and moves all free space to the end of the drive.(C)

This improves data access times and overall system performance.



A computing joke... get it?

