

## Edexcel CS Specification:

The SLR2 Craig n Dave topic covers Edexcel specification topics 321 and 322:

<b>3.2 Software</b>	<b>3.2.1</b> understand the purpose and functionality of an operating system (file management, process management, peripheral management, user management)
	<b>3.2.2</b> understand the purpose and functionality of utility software (file repair, backup, data compression, disk defragmentation, anti-malware)

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### Content Clarification (321):

Know that the purpose of an **operating system** (OS) is to control the computer's hardware and software.

Know that **file management** is the process of organising, storing and retrieving files. Understand that:

- files are organised in directories, folders and sub-folders
- know common file handling functions such as save, open, rename and delete

Know that when a **program** is loaded into memory to be executed it becomes a **process**, and that at any single time multiple processes will be active.

Understand that the goal of **process management** is to share out finite resources (CPU and main memory) between competing processes.

- only one process at a time can have exclusive use of the CPU
- the OS uses a scheduling algorithm to prioritise processes
- processes are held in a queue while waiting their turn
- if the process allocated timeslot ends before completion, it is returned to the back of the queue

Understand how the OS shares main memory between processes, allocating each its own section of RAM, and uses a paging algorithm to swap processes between RAM and virtual memory.

Know that **peripheral management** involves controlling peripherals, such as the keyboard, monitor and printer.

Understand that the OS uses **device drivers** to enable it to communicate with peripherals, and that peripheral use interrupts to signal to the OS that they need immediate attention.

Know that user management includes:

- adding and deleting users
- granting access rights to applications, data and systems
- authenticating users' identity
- using permissions to control what users are allowed to do.

Know that the OS provides a **user interface**, and be aware of features of CLI, GUI and natural language interfaces.

### Content Clarification (322):

Know that **utility software** is a collection of tools that help maintain the functionality of a computer.

Know that:

- **file repair** software is used to repair/recover data from damaged/corrupted files.
- **backup** software automates the process of backing up files so that data can be recovered if something goes wrong. Understand the difference between full and **incremental backup**.
- **data compression** software reduces the size of files so that they take up less storage space and need less time to transfer. Be able to identify two reasons for using data compression.  
See also SP 2.3.2 which covers the two types of compression – lossy and lossless.
- **defragmentation** software is used to reorganise the data stored on a magnetic hard drive when it has become fragmented so that related pieces of data are stored contiguously.
- **anti-malware software** detects, quarantines and removes malware from a computer.

Know the difference between **signature**-based and **behaviour**-based detection. (See also SPs 5.3.1 and 5.3.2.)

Be able to select **appropriate utility tools** for a specific task.

[Content Clarification guide - issue 3](#)

