An operating system is software that manages a computer system.

### Manage resources:

#### Manages peripherals such as input and output devices

• Communicates with and sends data input/output to a printer/monitor/other valid input/output device.

#### Manages printing using spooling

• Data is stored in a gueue and is printed when printer is free. Can carry on working/ or log off when waiting for job to print.

#### Manages backing store

• Ensures that data is stored and can be retrieved correctly from any disk drive.

#### **Manages memory (RAM)**

• Ensures that programs/data do not corrupt each other and that all programs and data including itself is stored in correct memory locations.

#### Manages processes

• Ensures that different processes can utilise the CPU and do not interfere with each other or crash.

#### Manages security

- Allows creation and deletion of user accounts.
- Allows users to logon and change passwords.

#### Manages multitasking

- Allows a user to seemingly perform more than 1 task at a time
- Tasks are allocated a time-slice by the CPU

#### **Manages Interrupts**

- · Hardware interrupts are generated when a key is pressed or when the mouse is moved
- Software interrupts are generated by a program requiring disk input or output.

# **Operating Systems Knowledge Organiser**

#### **Provides a user interface**

The operating system provides a user interface by:

- allows copying/deleting/moving/sorting/searching of file or folders
- allows access to system settings such as hardware
- provides a command line interface
- allows users to have more than one window open
- provides a graphical user interface (Windows, Icons, Menus, Pointers)
- provides user with errors/help messages
- allows customisation of interface, e.g. change desktop background/layout
- allows user to switch between tasks (programs/windows)

#### **Graphical User Interface (GUI)**

- Windows/icons/menus/pointers
- Easy to navigate / uncomplicated
- Uses large amount of memory & disk space



#### Touch sensitive

- Very intuitive/ Easy to use
- · Screens easily damaged

#### **Command line interface (CLI)**

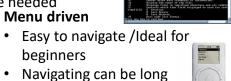
- Quick to use if you know commands
- Little memory and storage needed
- Only suitable for experts

# Menu driven

## beginners

#### Voice driven

- Quick /Hands free
- May misunderstand voice commands



Human-computer interaction (HCI) To allow a person and a computer system to communicate, an interface is required

### **Utility software**

- File transfer transfers data from one location to another. (e.g copying a file from one folder to another)
- Formatting prepares a disk for use. All files may be erased ready for new data to be stored.
- Compression making a file size smaller. Allows more data to be stored on the disk and speeds up data transfer (e.g via email).
- System backup makes a copy of data to prevent data loss.
- System restore (roll back) replaces lost or corrupt data with an earlier backup
- Defragmentation Re-arranges/puts fragmented (split) files back together to speed up disk access.
- Control panel gives the user control of software and hardware features. Enables the user to change settings e.g sound, device, display settings.
- Virus scanning -checks files for viruses
- <u>Firewall</u>-monitors incoming/outgoing network traffic
- System monitoring monitors resources like CPU usage and amount of free RAM
- Task management provides information about processes currently running
- Disc scanning and repair detects and repairs physical errors on the disk

# Must Know

# Should know

# Top of the class

#### **Know it:**

- Identify the <u>3 key ways</u> an operating system manages a computer system
- List the key ways is which an operating system manages resources
- Explain what an interface is
- Explain what HCl is.
- Give examples of different user interfaces

### **Grasp it:**

- Describe using keywords and with an example, the FOUR ways in which an operating system manages resources
- List 5 utility software programs
- Describe 2 utility software programs explaining their function
- State advantages and disadvantages of different user interfaces

#### Think it:

- Describe the functionality of the operating system in providing a user interface
- Describe the features provided by a GUI
- Describe 2 reasons for using a CLI.
- Describe 1 drawback of using a CLI.
- Describe 5 utility software programs explaining their function
- Explain advantages and disadvantages of different user interfaces