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## Unit 3: System Software: The Operating System, Utility Programs, and File Management

### Operating System Fundamentals

**System Software** is the set of software programs that helps run the computer and coordinates instructions btw application software and hardware devices. It consists of the operating system (OS) and utility programs.

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- ↳ **OS** controls how your computer system functions (manages hardware, scheduling, coordination, application with CPU)
- ↳ **Utility Programs** perform general housekeeping tasks

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A multiuser operating system provides access to a computer system by more than 1 user at a time (example **UNIX**)

- ↳ Main Frames & Super Computers require mainframe operating systems

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**Microsoft Windows** is the most popular OS. The Mac OS, on Apple, and **LINUX** is an open source OS based on **UNIX**.  
An OS is designed to run on specific CPUs.

### What Operating System Does

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The OS provides a user interface that enable users to interact with the computer. Most OS today use a graphical user interface (**GUI**) → Features include windows, menus,

As the OS allows you to multitask, the OS controls the timing of the events on which the processor works.

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The OS uses **RAM** as a temporary storage for data processor needs. If RAM is full, OS allocates least necessary files to virtual memory.

Programs called **device drivers** facilitate communication

All software applications need to interact with the CPU. For programs to work with CPU, they must have code that CPU recognizes. Rather than having blocks of code appear in each application, OS includes blocks of code to which software apps refer. These are called **application programming interface (APIs)**.

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## Starting Your Computer

When you start your computer it runs through **boot process**  
↳ 4 Steps: (1) The **BIOS** is activated when user powers on the CPU. (2) In the **POST** check, BIOS verifies that all attached devices are in place. (3) The OS is loaded into **RAM**. (4) Configuration and customization settings are checked.

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## The Windows Interface

In Windows 10, Start Menu provides access to computer's apps.  
↳ you can customize, common to have virtual desktops

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## File Management

The C: drive represents the hard drive and is where most programs and files are stored. **File Explorer** is the main tool for finding, viewing, and managing the contents of your computer.

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5.10 The Recycle Bin is the temporary storage location for deleted files.

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File compression reduces the size of a file by temporarily storing components of a file and then when the file is extracted (uncompressed) the removed components are brought back into the file.

**Task Manager** is used to exit nonresponsive programs. **Disk Cleanup** also removes unnecessary files.

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**Disk Defragmentation** rearranges fragmented data so that related file pieces are unified.

**File History** automatically creates a duplicate of your hard drive and copies it to another storage device such as an external hard drive.

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**System Restore** lets you roll your system settings back to a specific date (restore point) when everything worked.

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Windows Ease of Access Center includes tools that help adjust computer settings for those users with disabilities.