ALMUSTAQBAL UNIVERSITY
Department of Radiology Technologies

Operating System and Graphical User Interface (GUI)

lecture Four

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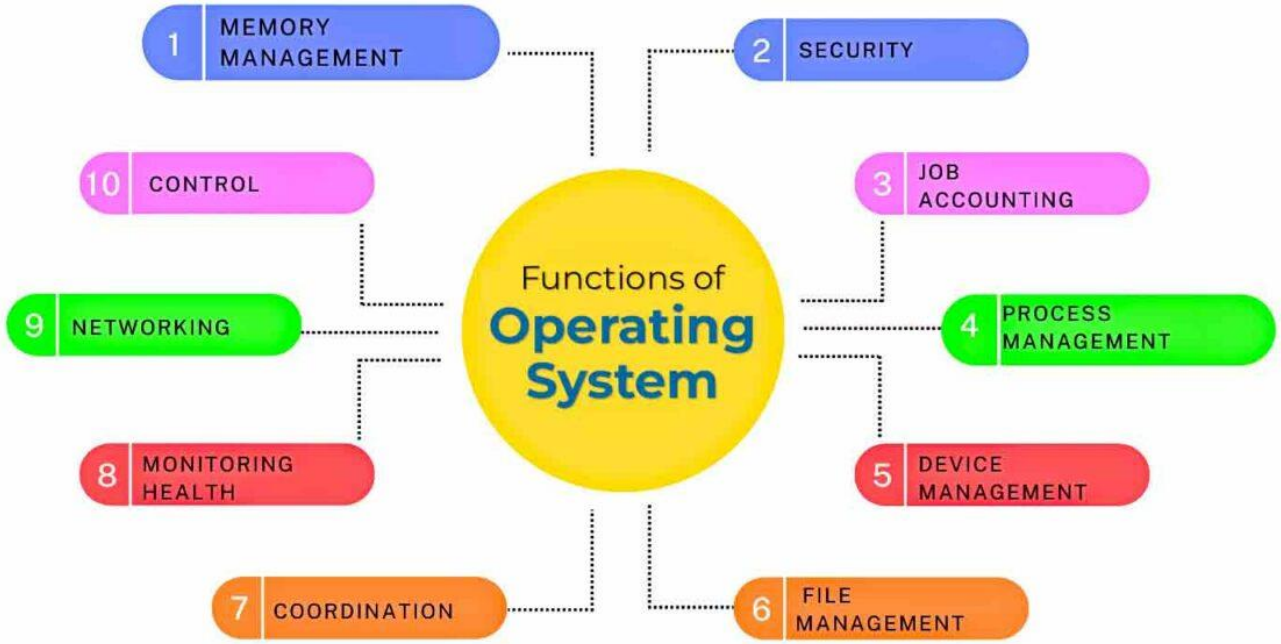
What is an Operating System?

An **Operating System (OS)** is a foundational software layer that manages computer hardware and software resources. It provides essential services to computer programs and enables efficient and fair resource utilization. The OS acts as an intermediary between users and the computer hardware, enabling smooth and efficient interaction.

jaro education



*Logic Mojo

Key responsibilities of an operating system include:

Process Management: Scheduling and controlling running programs.

Memory Management: Allocating and deallocating memory to applications.

File System Management: Organizing, storing, and retrieving data.

Device Management: Managing communication with peripherals like printers and keyboards.

Security and Access Control: Safeguarding data and ensuring authorized use of resources.

What is a Graphical User Interface (GUI)?A Graphical User Interface (GUI) is a user-friendly interface that allows users to interact with a computer system through visual elements, such as windows, icons, and buttons, instead of typing commands in a text-based interface. GUIs are designed to make computers accessible to non-technical users.

Features of GUIs:

1. Windows: Individual areas where tasks are performed.
2. Icons: Graphical representations of files, applications, and tools.
3. Menus: Organized lists of commands and options.
4. Pointing Devices: Hardware like a mouse or touchpad used for navigation.
5. Buttons and Controls: On-screen elements for performing actions, such as "Submit" or "Cancel."

Benefits of GUI:

Ease of use for beginners.

Intuitive navigation through visual aids.

Enhanced productivity via multitasking in different windows.

Basics of Common Operating Systems

There are several popular operating systems in use today, each designed for specific purposes and user groups:

Microsoft Windows

Widely used OS, popular in homes and businesses.

Features:

1. Start Menu for accessing applications and settings.
2. Taskbar for managing open programs and quick access to system tools.
3. Compatibility with a vast array of software and hardware.

macOS

Developed by Apple, mainly for Mac computers.

Features: 1- A sleek and intuitive GUI known as the **Dock**.

2- Strong integration with other Apple products (e.g., iPhone, iPad).

3- Robust security features.

Linux : An open-source OS available in various distributions (e.g., Ubuntu, Fedora).

Features: 1-High customization flexibility.

2- Strong use in servers, scientific computing, and programming.

3- Free and community-driven development.

Android and iOS

Operating systems for mobile devices.

Features: 1- Android is more customizable and open-source.

2- iOS is known for its smooth user experience and security.

The User Interface

The **user interface (UI)** bridges human interaction and digital devices. It ensures that users can effectively communicate with software through intuitive design and functionality. UIs can be classified into two main types:

Command-Line Interface (CLI)

Text-based, requiring users to type commands.

Advantages: Precision and low resource usage.

Disadvantages: Steeper learning curve and limited usability for non-technical users.

Graphical User Interface (GUI)

Visual and interactive, featuring graphical elements like windows and icons.

Advantages: User-friendly and more accessible.

Disadvantages: Higher system resource requirements.

Using Mouse Techniques

The mouse is a vital tool in navigating GUIs. Below are common mouse techniques and their functions:

Pointing and Clicking:

Move the pointer over an object and press the left mouse button.

Example: Opening files or selecting options.

Double-Clicking:

Quickly pressing the left mouse button twice.

Example: Opening applications or folders.

Right-Clicking:

Pressing the right mouse button to open context menus.

Example: Accessing options such as "Copy" or "Rename."

Dragging and Dropping:

Click and hold the left button to "grab" an item, move it, then release the button to "drop" it in a new location.

Example: Moving files or icons.

Scrolling:

Using the scroll wheel to move vertically or horizontally within a document or webpage.

Example: Browsing a long webpage.

Hovering:

Holding the mouse pointer over an item to view tooltips or additional information.

Example: Hovering over icons to see descriptions.

Thank you for listening