Ministry of Higher Education and Scientific Research
University of Babylon
College of Materials Engineering

Software Components

Lecture 4

Prepared by:

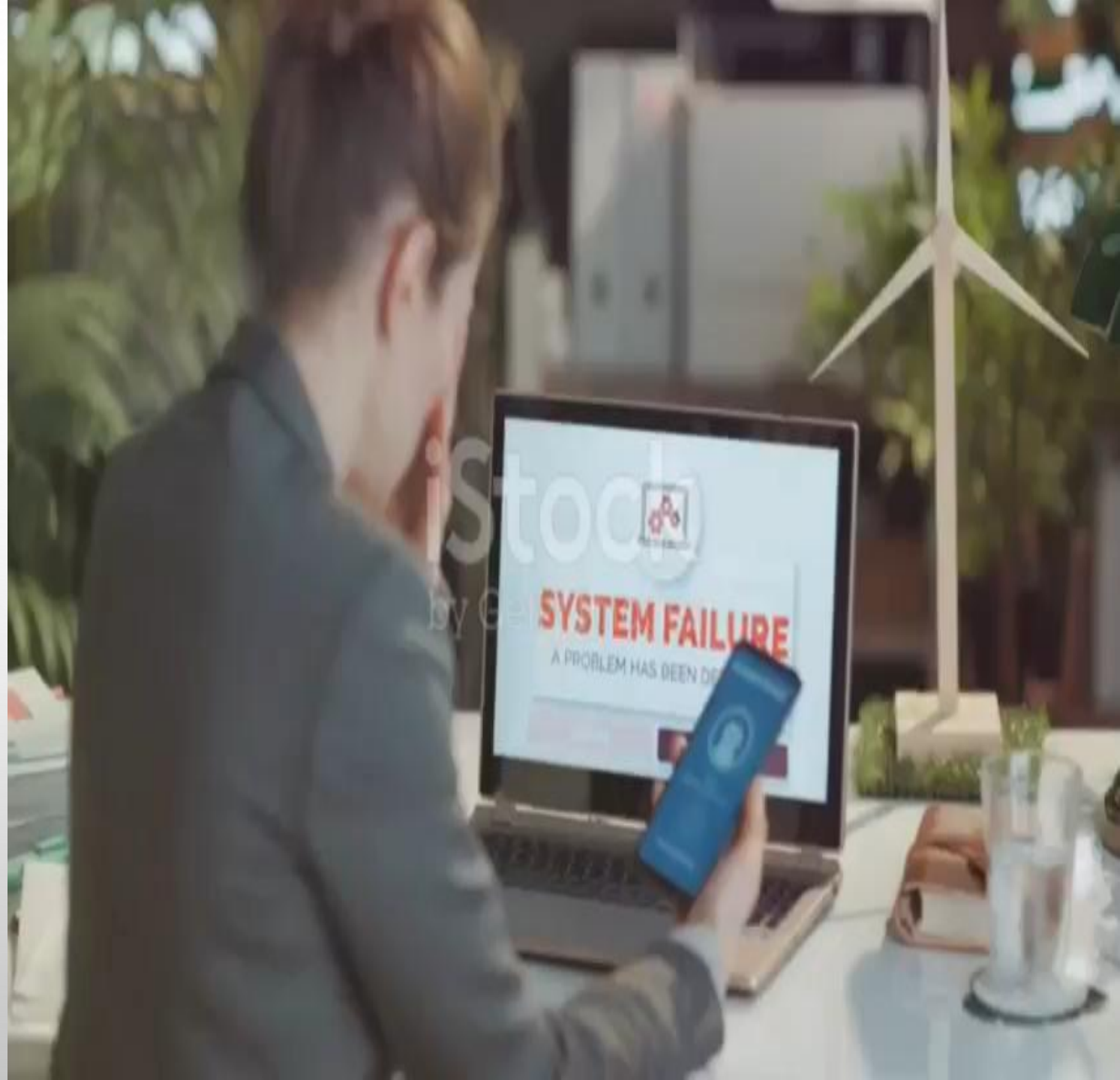
Assist. Lecturer Areej Abdulkareem AbdulRaheem

٠٧٧٣٢٠٨٤٧٧٠

https://classroom.google.com/c/ODU3NTY3MDEyMDg0?cjc=t56x3f7y

Mat437.a.abdulkareem@uobabylon.com

Introduction



Software

A general term used to describe a set of integrated computer operations to solve a specific mathematical problem or perform a statistical operation. It also refers to any single program or a set of programs, data, and stored information. There are two types :

1- System Software

2- Application Software.

FIRST: SYSTEM SOFTWARE

It is a set of programs that manage and control computer resources and provide a platform for running application programs. It is simply the foundation upon which everything else on a computer works.

Types of system software

- Operating System
- Device Drivers
- Utilities
- Firmware
- Language Translators

Operating System (OS)

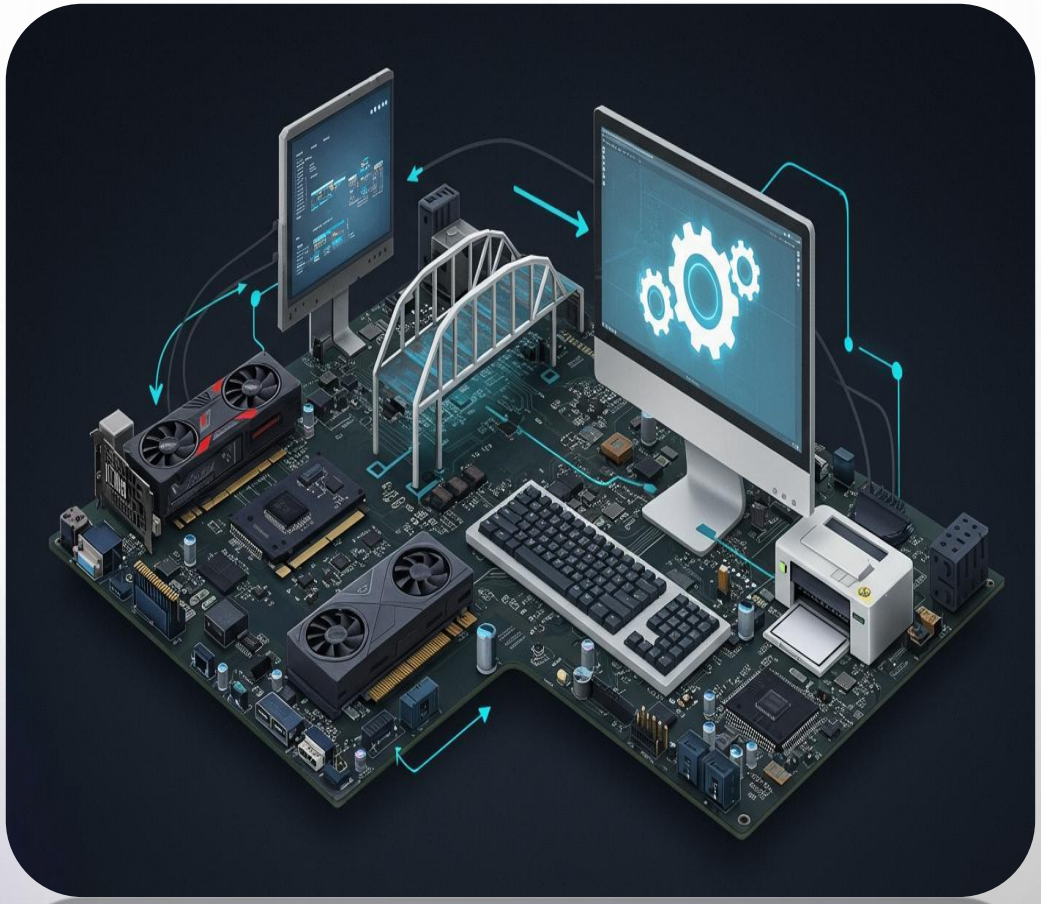
It is a set of software responsible for managing resources, and the software acts as an intermediary between the user and the computer hardware.

Types of operating system

- **Microsoft Windows:** The most common and well-known operating system.
- **MacOS :** Apple's operating system for its devices, known for its security and high performance.
- **Linux :** An open-source operating system known for its stability.
- **Unix :** Used on large servers and supercomputers.
- **Android:** An open-source operating system from Google, the most widely used globally.
- **IOS/IPadOS:** Apple's proprietary operating system for iPhones and iPads.

Activity 1

Define operating system ?



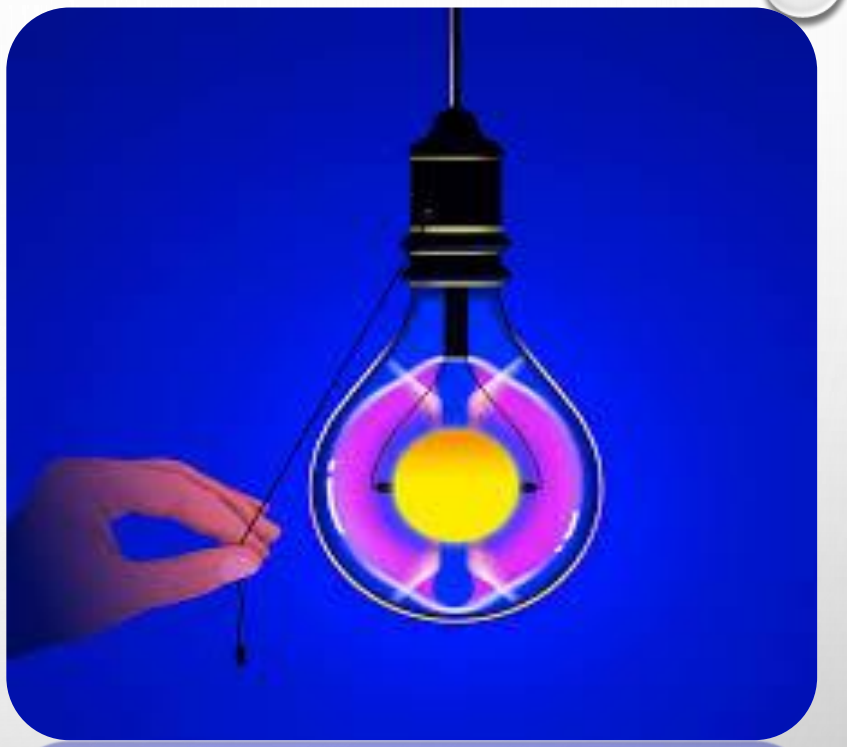
Benefits Of The Operating System

- **Resource management :** Allocates RAM and CPU time to different applications to ensure smooth operation without interference.
- **User interface (UI) :** Provides a **Graphical User Interface (GUI)** or **Command line Interface (CLI)** that allows users to easily interact with the device.
- **Multitasking :** Enables running multiple programs simultaneously, such as browsing the internet while listening to music.

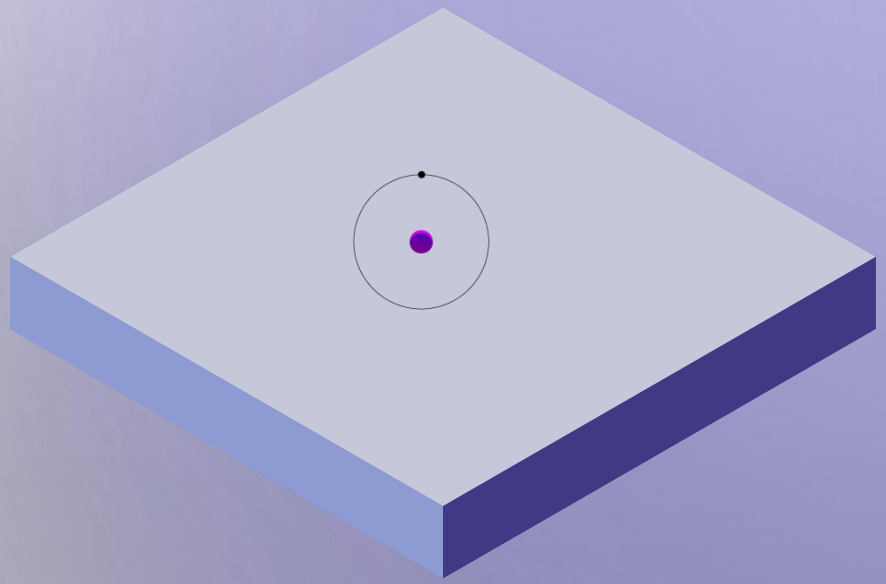
- **File management:** Organizes the storage, copying, moving, and deletion of files and folders on the hard drive.

- **Security and protection:** Protects data from unauthorized access and prevents applications from crashing the system.

- **Prior device management:** Connects the device to its peripherals, such as printers, monitors, and keyboards (Input/Output Devices).



Device Drivers



These are essential middleware programs that act as a bridge between the operating system and the hardware, enabling communication with various devices such as printers, scanners, and graphics cards.

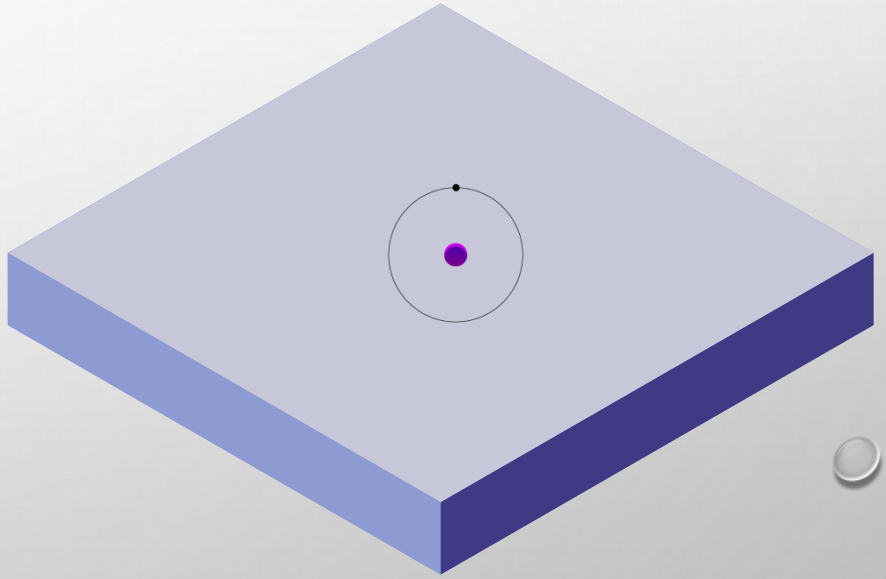
They function as translators, instructing the system on how to interact with a specific device.

Activity 2

How many system service programs do you know?

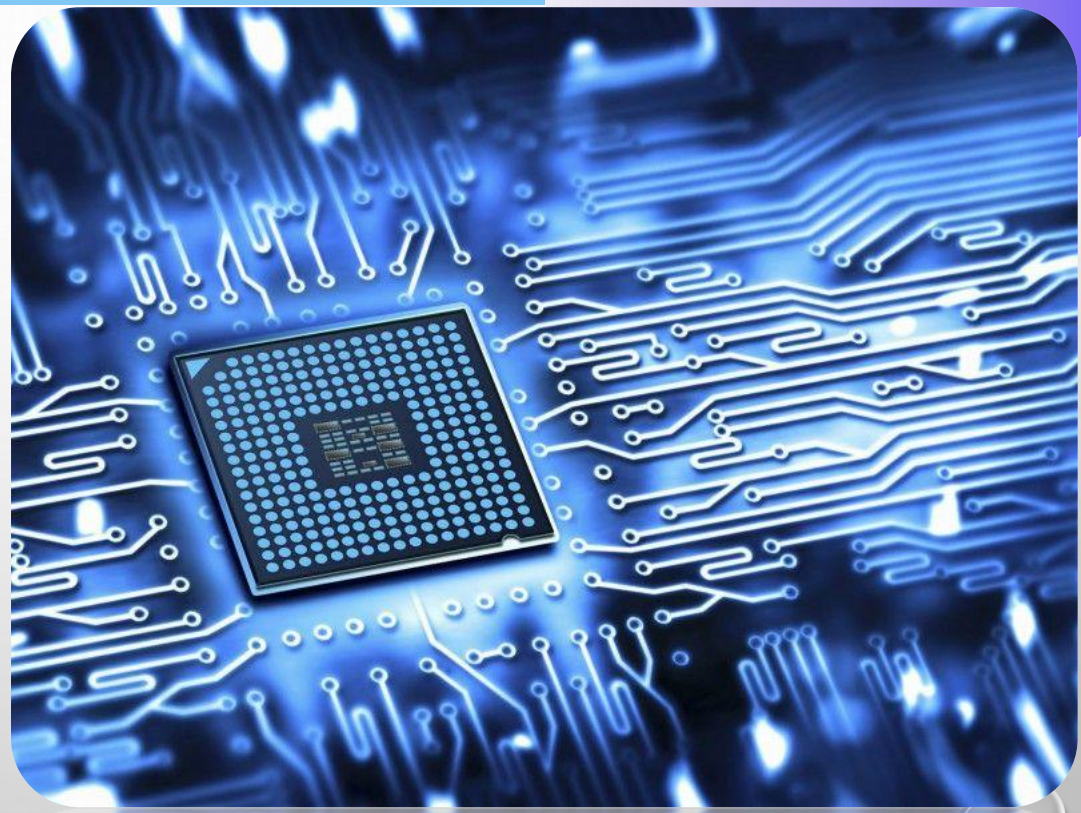
Utilities

These are helper programs that assist in managing and maintaining the system, such as (file management tools, antivirus, and compression tools).



Firmware

It is a type of software that is directly embedded in electronic devices (such as phones, computers, modems) to provide them with the basic instructions necessary to operate them and communicate with other devices. It acts as a link between the hardware and the software. It is considered software embedded in the devices and provides the basic instructions for operating the device, such as BIOS, UEFI.



Language Translators

These are programs that convert the programming language that programmers write in, such as (C++ or (Java), into machine language that the computer understands and provide features such as instant translation, voice, text, and camera translation.

System software functions

- Memory allocation, CPU management, and input/output control.
- Allows users to interact with the computer and perform tasks.
- Provides an environment for running application programs (such as word processors, games, and browsers).
- Provides security measures to protect the system and data from malware and other threats.

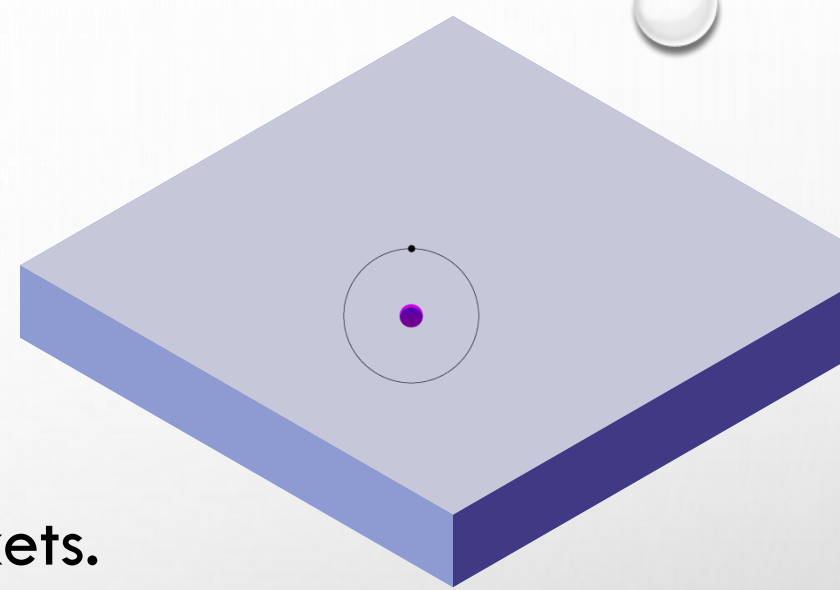
SECOND: APPLICATION SOFTWARE

It is the second type of software, which is the software used by programmers to perform specific tasks, such as word processing, internet browsing, or playing games, in addition to word processing programs, spreadsheets, database programs, graphic design programs, games, and smartphone applications.

Application software functions

- Web application development.
- Integrated server development.
- Desktop application development.
- Mobile application development.

The importance of application programming



- Automating processes and streamlining operations.
- Expanding user reach across all platforms and markets.
- Enhancing customer engagement.
- Improving user experience and empowering them to complete transactions.
- Analyzing data and making strategic decisions.

Activity 3

1- List the types of software .
2- Write the basics of the following abbreviations (OS , GUI , CLI).
3- What is Application software functions ?

CONCLUSION OF LECTURE FOUR

In this lecture, we learned about software, its types, functions, and importance.

SOURCES

- Computer Basics by Al-Khader Ali Al-Khader
- Technology in Action by Alan Evans, Kendall Martin, Mary Anne Poatsy.

Thank you