# WEEK 5 - Computer Software

## I. Software categories: System software vs Application software

**What is Software?**
Software - is the collection of data, a set of programs, procedures, routines and instructions that tell a computer or electronic device how to run, work and execute specific tasks.

Software can be classified into two major categories:

- **System Software**
- **Application Software**

**System Software**
is the general category of software that allows the computer hardware to function and serves as the underlying platform for applications to run.

**Functions:**

- Controls and manages hardware components
- Provides a user interface (e.g., desktop, icons)
- Manages memory and storage
- Enables other software to run

**Examples:**

- Operating Systems (Windows, Linux, macOS)
- Device Drivers
- Firmware
- Utilities

**Application Software**
This is the kind of software you are probably most familiar with — also called programs or apps, they are packages that usually have a specific purpose and you use to accomplish a certain goal.

**Functions:**

- Enables users to accomplish real-world activities (typing, calculating, designing, communicating)
- Converts user commands into actions that the system software executes

**Examples:**

- Microsoft Word (word processing)
- Microsoft Excel (spreadsheets)
- PowerPoint (presentations)
- Adobe Photoshop (image editing)

## II. Operating System

the software that supports a computer's basic functions, such as scheduling tasks, executing applications, and controlling peripherals.

**Main Functions of an Operating System:**

- Managing files and directories
- Controlling input/output operations
- Handling memory and storage
- Scheduling tasks and managing processes

**Types of Operating Systems**

**a. Single-user vs Multi-user**

- **Single-user OS:** Allows only one user to operate the computer at a time.
  *Example:* Windows 10, macOS
- **Multi-user OS:** Allows multiple users to access the system simultaneously.
  *Example:* UNIX, Linux Server

**b. Open-source vs Proprietary**

- **Open-source OS:** The source code is freely available for modification and redistribution.
  *Example:* Linux, Ubuntu, Fedora
- **Proprietary OS:** The source code is owned and controlled by a company; requires a paid license.
  *Example:* Microsoft Windows, macOS

## III. Utility programs

utilities are small programs that often come with or tightly integrate themselves into the OS to perform specific OS tasks. Utility software helps maintain or configure a computer. Many of these are installed at the same time as the OS but they can also be added afterwards.

**Common Types of Utility Programs:**

- **Antivirus Software:** Detects and removes malicious software.
  *Example:* Avast, McAfee, Windows Defender
- **File Management Tools:** Help organize, copy, move, or delete files.
  *Example:* File Explorer, Total Commander
- **Compression Tools:** Reduce the size of files for easier storage or transfer.
  *Example:* WinRAR, 7-Zip, WinZip

## IV. Application Software: Productivity Tools

Productivity software helps users accomplish everyday office and academic tasks efficiently.
Common Productivity Tools:

- **Word Processor:** Used for creating, editing, and formatting text documents.
  *Example:* Microsoft Word, Google Docs
- **Spreadsheet Software:** Used for organizing data, performing calculations, and creating charts.
  *Example:* Microsoft Excel, Google Sheets
- **Presentation Software:** Used to design and deliver slide-based presentations.
  *Example:* Microsoft PowerPoint, Google Slides