

Tikrit University

College of Computer Sciences & Mathematics

Computer Science Department



Computer Organization

First Stage Lecture -8

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System Software

● In the previous lectures we defined the computer system and we said computer system consist of :

- **Hardware** : All physical contents of computer are hardware. This form is given to all electrical and mechanical devices attached to the computer for the purpose of input, process, and storage and output operations. (we study it previously)
- **Software** : is a general term used for computer Programs. A computer program is a planned, step by step set of instructions that directs the computer what to do and how to do. (we will study in this lecture)



Computer Software

■ **Software** is a set of programs, which is designed to perform a well-defined function. A program is a sequence of instructions written to solve a particular problem.

■ There are two main types of software are :

➡ System Software

➤ Operating Systems

➤ Utility Programs

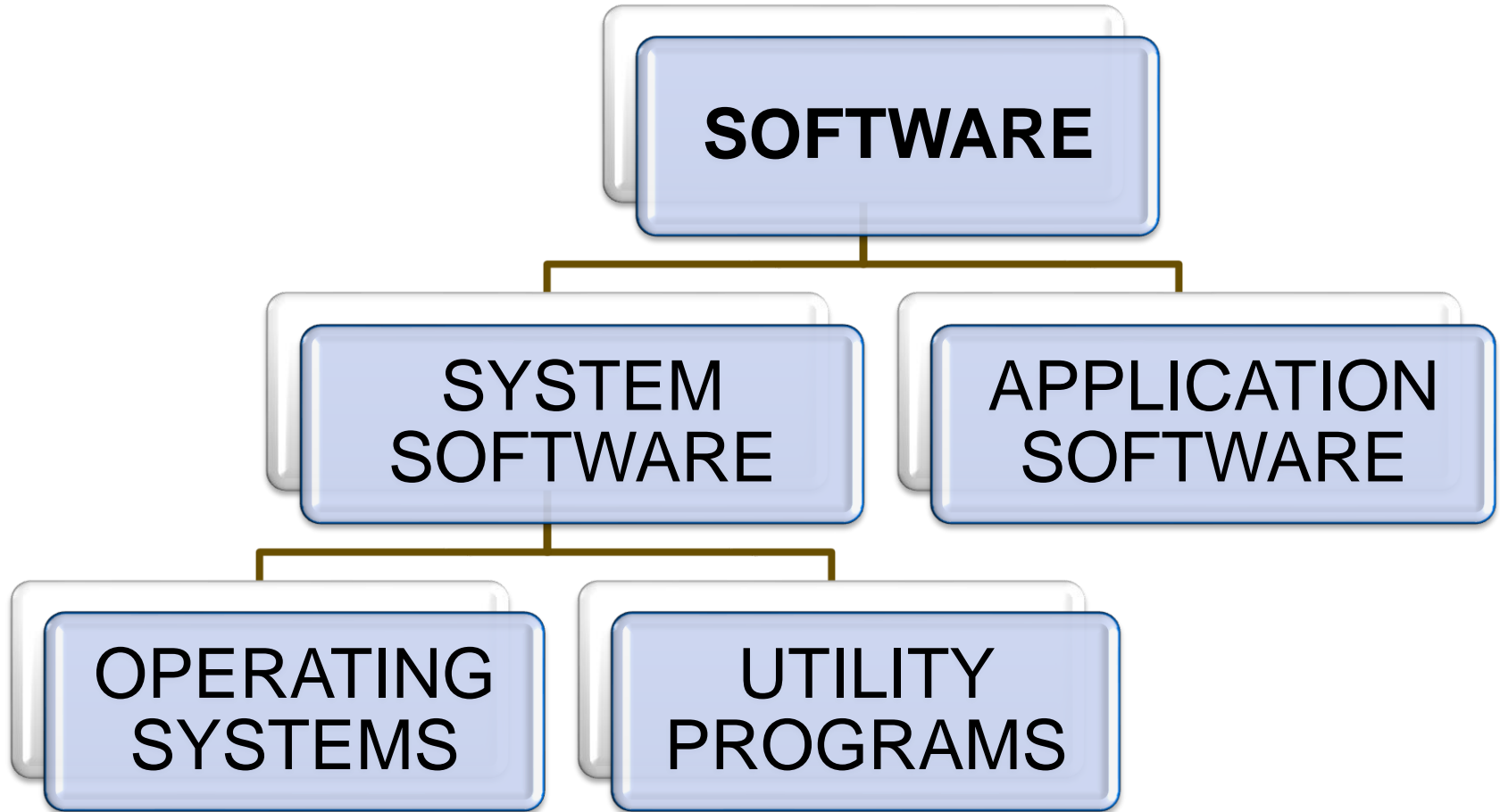
➡ Application Software



Computer Software



Types of Software





1 System Software

■ The system software is collection of programs designed to operate, control, and extend the processing capabilities of the computer itself. System software are generally prepared by computer manufactures. These software products consist of programs written in low-level languages which interact with the hardware at a very basic level. System software serves as the interface between hardware and the end users.

■ Some examples of system software are Operating System, Compilers, Interpreter, Assemblers etc.





System Software Functions

❖ System control programs

- controls the execution of programs, manage the storage & processing resources of the computer & perform other management & monitoring function.
- The most important of these programs is the operating system.

❖ System support programs

- provide routine service functions to the other computer programs & computer users: E.g. Utilities, libraries.
- Ex: Text editors, language translators such as BASIC interpreter.

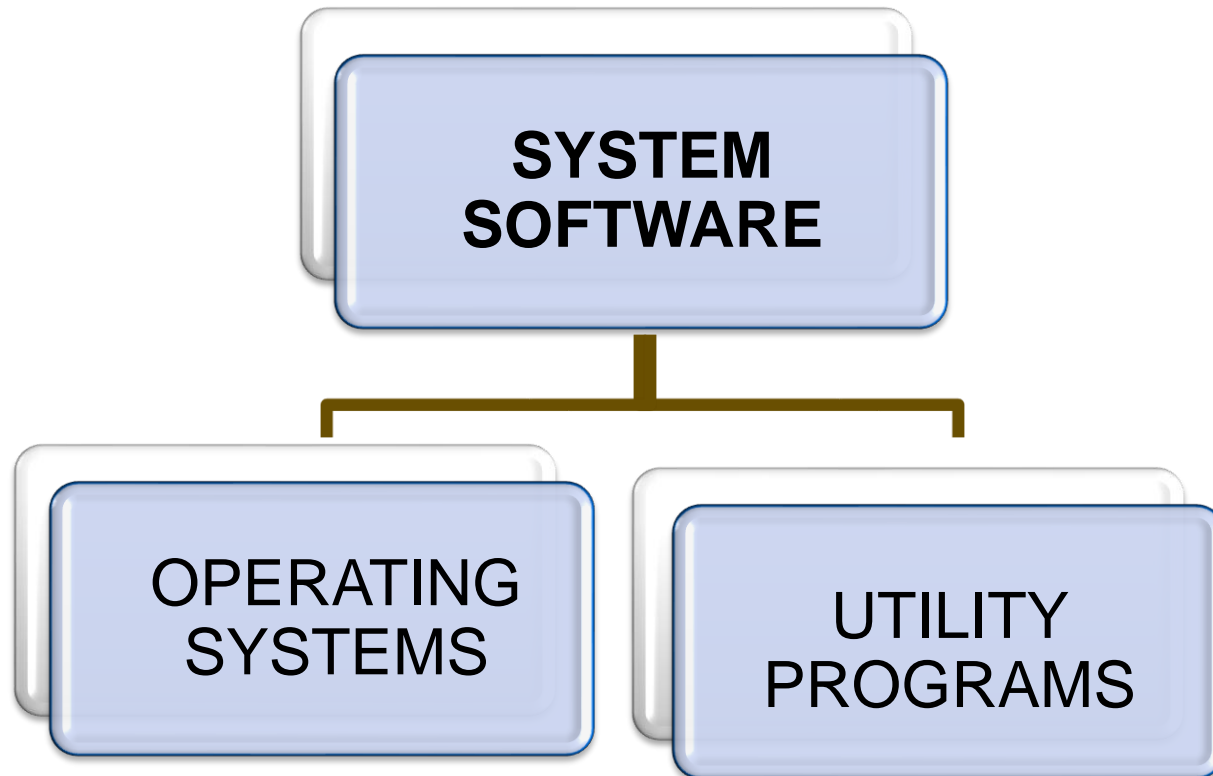
❖ System Development Programs

- They assists in the creation of computer programs. Examples of system development are programming language and language translations.



Types of System Software

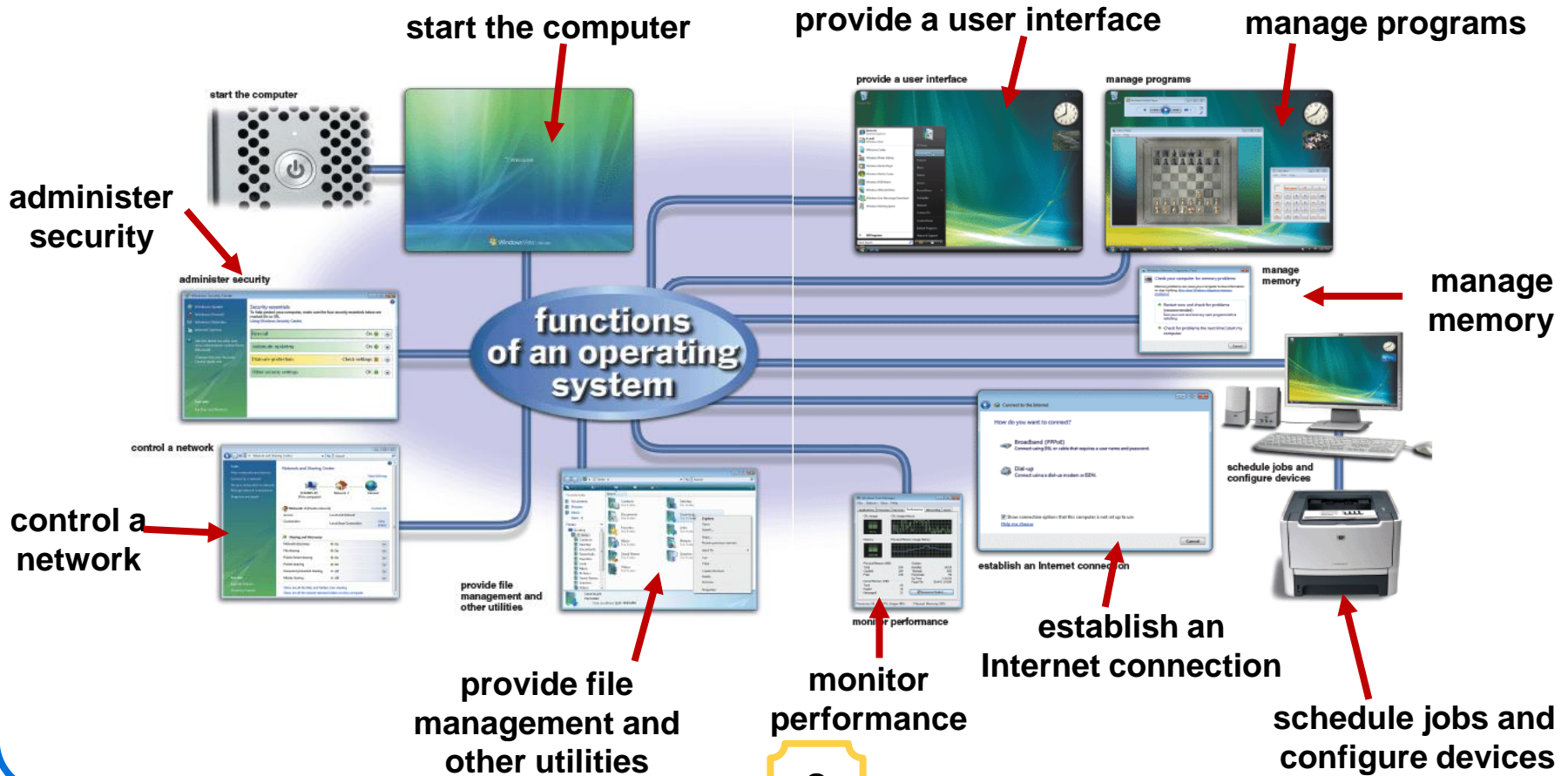
- There are two kinds of system software as following :





Operating System

- A set of program and sometimes called the platform that coordinates all activities among computer hardware resources.
- It has many function illustrate in the following figure :



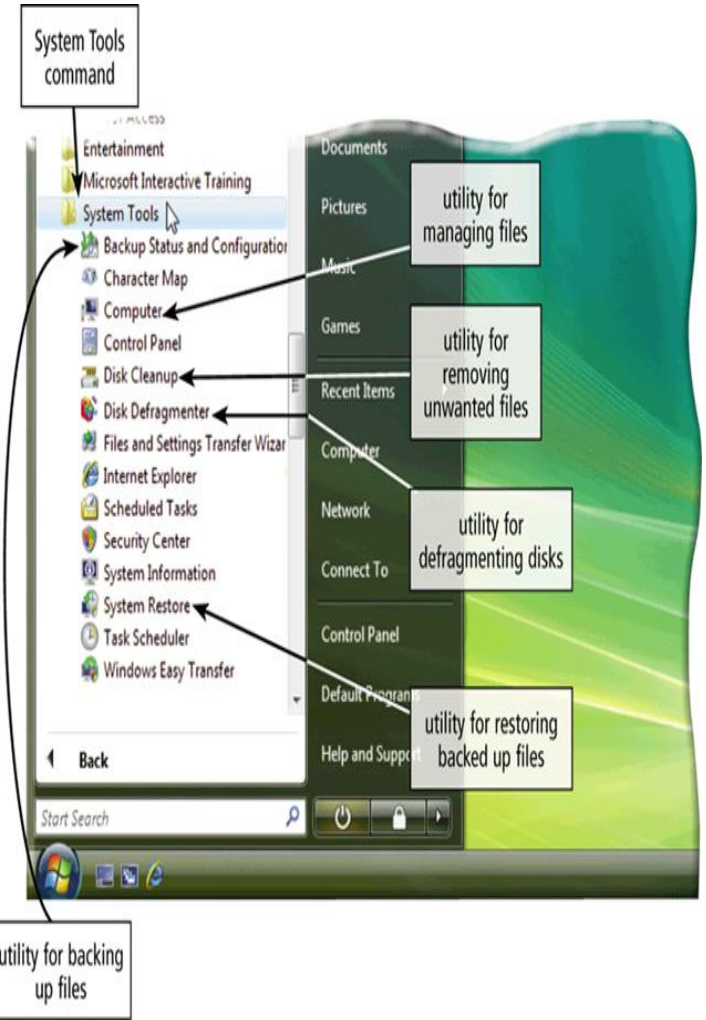


Utility Programs

◆ A utility program, also called a utility, is a type of system software that allows a user to perform maintenance-type tasks, usually related to managing a computer, its devices, or its programs.

◆ Utility programs are built-in to many operating systems or can be purchased separately.

◆ Functions provided include: managing files, searching for files, viewing images, uninstalling programs, cleaning up disks, defragmenting disks, backing up files and disks, setting up screen savers, securing a computer, etc.





Features of System Software

■ **Features of system software are as follows:**

- Close to system.
- Fast in speed.
- Difficult to design.
- Difficult to understand.
- Less interactive.
- Smaller in size.
- Difficult to manipulate.
- Generally written in low-level language.



2 Application Software

- Application software products are designed to satisfy a particular need of a particular environment. All software applications prepared in the computer lab can come under the category of Application software.
- Application software may consist of a single program, such as a Microsoft's notepad for writing and editing simple text. It may also consist of a collection of programs, often called a software package, which work together to accomplish a task, such as a spreadsheet package.
- Examples of Application software are following figure :





Features of Application Software

⊗ Features of Application software are as follows:

- Close to user.
- Easy to design.
- More interactive.
- Slow in speed.
- Generally written in high-level language.
- Easy to understand.
- Easy to manipulate and use.
- Bigger in size and requires large storage space.