University of Duhok

Computer Skills

Department of Mathematic

First Year

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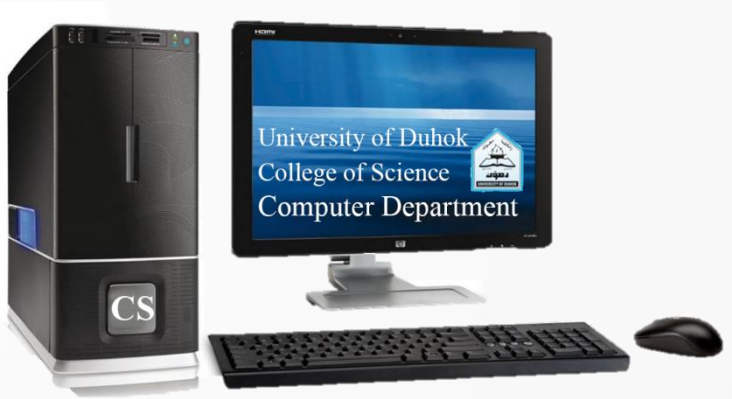
IT Lecture 3 - Software



Software

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- **Software** is a collection of instructions (the program) that enable a user to interact with the computer or perform specific tasks for the computer.
- Software types include:
  - Operating system
  - Applications
  - Utilities

Operating system software

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- Series of programs that organise and control a computer.
- It is the most important software that runs on a computer.
  - Provides an interface so that the user can communicate with the computer
  - Communicates between software and hardware devices
  - Organises the storage and retrieval of information
- It manages the computer's memory, processes, and all of its software and hardware.
- Manages the smooth running of programs running in RAM by allocating the required resources.

Popular operating systems

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- **Types of OS according to their manufacturer**
- Microsoft Windows is the most widely-used OS
- OS2 is an OS created by IBM
- Macintosh (MacOS) was created by Apple
- MS-DOS was the precursor of Windows but text-based
- Linux is a popular alternative open-source OS
- Unix is another OS used in companies or universities

Examples of Operating system

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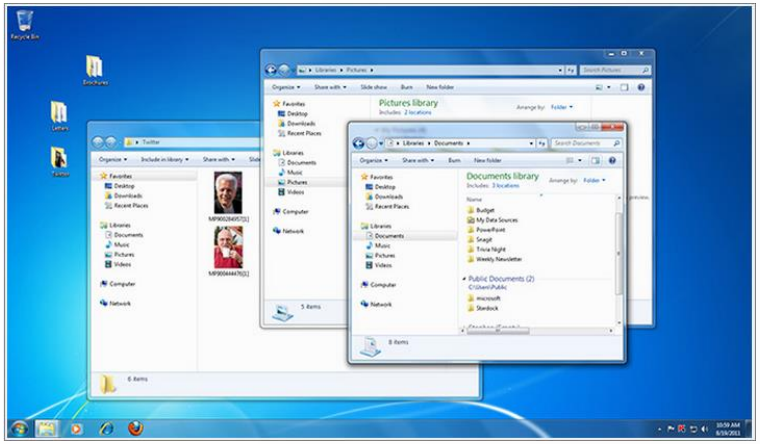
Microsoft Windows



Apple Mac OS X

Linux

Unix

Operating system software

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- **Types of Operating System according to their purpose**

1. Real-time operating system
2. Single-user, single-task
3. Single-user, multi-tasking
4. Multi-user
5. Multi-processing

Real-time Operating System

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- A real-time system has well-defined, fixed time constraints. Processing must be done within the defined constraints, or the system will fail.
- Usually, they have little or no user interface, preferring to spend their time monitoring and managing hardware devices, such as robotic arms.
- A real-time operating system is a multithreads operating system that aims at executing real-time applications.

Real-time Operating System-Cont.

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- The main objective of real-time OS is their quick and predictable response to events.
- They have an event-driven , time-sharing design or both.
- An event-driven switches between tasks based on priorities or external events while time-sharing switch tasks based on clock interrupts.
- It controls scientific experiments, medical imaging systems, home-appliance controllers

Single-user, single task OS

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- As the name implies, this OS is designed to manage a device so that one user can effectively do one thing at a time.
- The Palm OS for Palm handheld computers is a good example of a modern single-user, single- task OS

Multi-tasking Operating System

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- A multitasking operating system is a system that is created to perform multiple tasks and processes at the same time.
- In this Operating system, multiple software run at the same time and they function efficiently,
- for example windows OS .

Multi-user Operating System

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- It allows multiple users on different computers or terminals to access a single system with one OS on it.
- These programs are often quite complicated
- It manages the necessary tasks required by the different users connected to it.
- The users will typically be at terminals or computers that give them access to the system through a network, as well as other machines on the system such as printers.
- A multi-user OS differs from a single-user OS on a network in that each user is accessing the same OS at different machines.

Multi-processing Operating System

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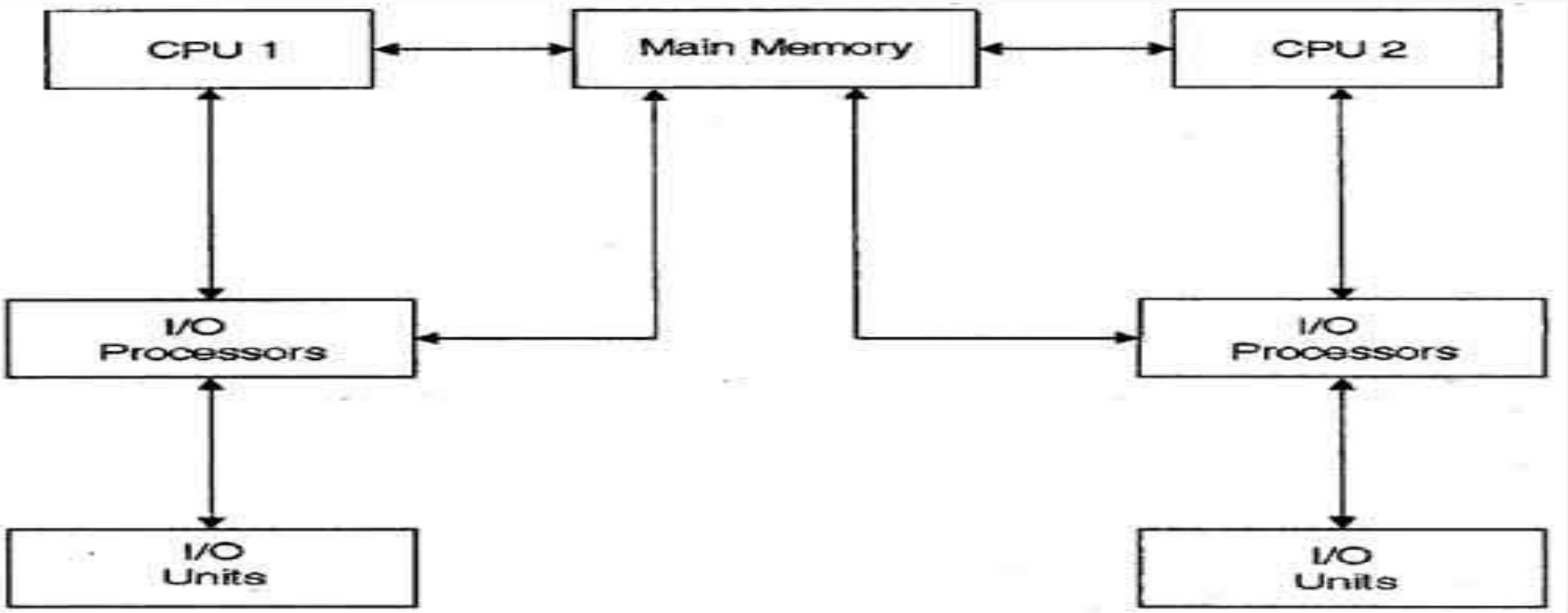
- Multiprocessing OS refers to the use of two or more central processing units (CPU) within a single computer.
- Multiple CPUs are in a close communication sharing the computer memory and other peripherals devices.



Application software

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- Is also known as an **application** or an **app.**
- Is computer software (instructions) designed to help the user to perform singular or multiple related specific tasks.
- They direct the hardware to perform specific functions.
  - Microsoft Office (e.g. Word, Excel, Access etc.)
  - graphic editors (e.g. Adobe Illustrator, CorelDRAW etc.)
  - Web Browsers: Internet Explorer, and Google Chrome.
  - Games, Media Players, Gadgets(widgets):calendars, calculators.

Utility software

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- Programs that let you do your work efficiently and securely, for example
  - backup software
  - File compression software
  - anti-virus software
  - compilers

Software Sources

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- Types of Software According to Source

1. **Commercial Software:** any software you buy, which is usually licensed to the user, will have various conditions connected with its use.
2. **Shareware:** software that is distributed freely via internet or CDs for a tryout a period before making the purchase. After that, some functions may be disabled. Paid-up users may get additions and free updates.
3. **Freeware:** software that is distributed freely. No payment is expected. Authors may ask for feedback to improve the next version. It is copyright software.
4. **Public Domain Software**: its ownership has been relinquished to the public, freely available and without any copyrights.

Any question

THANK YOU

NETWORKS