

Unit 9.- Hardware and Software

9.1.- What is computer science (Informática)?

Computer Science: the techniques and knowledge necessary to automatically process information and data using a machine, such as a computer.

Bit: the smallest unit of information on a computer. It only can be 0 or 1.

Bit multiples:

- Byte: is a set of 8 bits. Example of Byte: 10101010.
- KiloByte . 1KB = 1024 Bytes.
- MegaByte. 1MB = 1024 Kbytes.
- GigaByte. 1 GB = 1024 Mbytes.
- TeraByte. 1 TB = 1024 Gbytes.
- PetaByte. 1 PB = 1024 Tbytes.

9.1.1.- Binary Code

Computers use a two digits code for making numbers, because they only understand 0 and 1.

9.2.- Computer components: page 29

- a) Hardware: the physical components of the computer: circuits, wiring, monitor, keyboard, etc.
- b) Software: the set of programs that make it possible to use a computer.

9.3.- Hardware

Main components of the hardware are:

Central Processing Unit or CPU

The main component in a computer, it is the brain of the computer. It performs instructions and processes data, and it also controls the whole system. It is also called microprocessor, and it is an electronic chip.

Memories: page 30

To store data and programs the CPU is processing. There are two memory types:

- ROM memory: it stores the start program of a computer. It only can be read and it can't be erased, even when the machine is turned off.
- RAM memory: it stores programs and data we are using, it is the user memory. It can be read and written, but it is erased when the computer is turned off.

Peripheral devices: they put information into the computer or take it out. There are three types:

- a) input devices: put information into the computer: keyboard, mouse, microphone, web cam.
- b) output devices: take information out from the computer to the user: monitor, printer, speakers.
- c) Input/output devices: they perform both tasks at the same time: router, fax, camera, external disks, touch screen, hard disk.

Storage Devices:

They store and save user information and programs which are not erased when we turn off the machine. Its capacity is bigger than the RAM memory. There are several types:

- a) Magnetic: like the hard disk or disk drive, and a floppy disk.
- b) Optical: such as a CD, DVD or a blue ray
- c) Solid State: special memories that not lose data when they are turned off, like SD cards or USB memory sticks.

9.4.- Software (page 34):

The set of programs that make it possible to use a computer. There are two kinds of them:

- Operating systems: they allow us to communicate with the hardware, they translate our language to the binary language the computer understands. It handles devices: keyboard, mouse, screen, disk, it arranges information into folders and files. It installs new hardware and software, and set up users and passwords.
- Applications: they perform an individual task: word processing, drawing, internet, games, graphics.