Fundamentos da Computação

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http://github.com/fsantanna-uerj/Fundamentos

Computador???


Webcam
Webcam
Speakers
Microphone
Monitor
Printer
Printer
Headphone

Dispositivos de Entrada e Saída (I/O)

PERIFÉRICOS DO COMPUTADOR

1 - DE ENTRADA (INPUT):

TECLADO

Mouse

Joystick

Webcam

microfone

Scanner

Mesa Digitalizadora

2 – DE SAÍDA (OUTPUT):

MONITOR CRT

Cristal Líquido

LCD

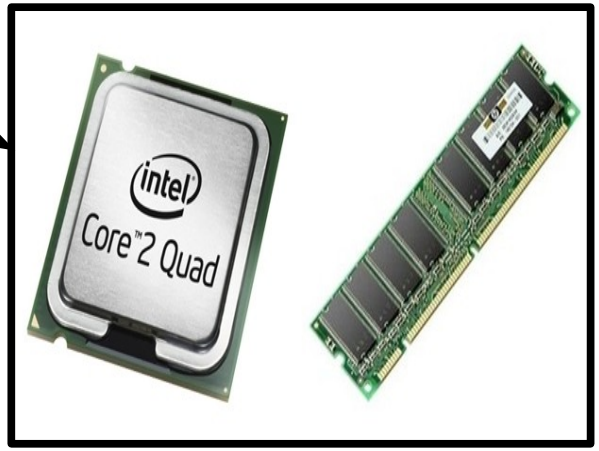
Projetor Multimídia

Impressora

Caixas de som

Dispositivos de Entrada e Saída (I/O)

Computador???



Computador é Programável

Hardware + Software

Hardware vs Software

The main difference between hardware and software are as follows:

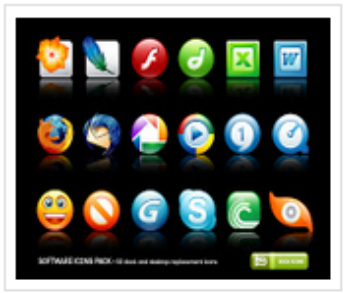
Hardware

1. Physical parts of the computer are called hardware.
2. You can touch, see and feel hardware.
3. Hardware is constructed using physical materials or components.
4.
5.
6.

Software é o que você xinga, hardware o que você chuta

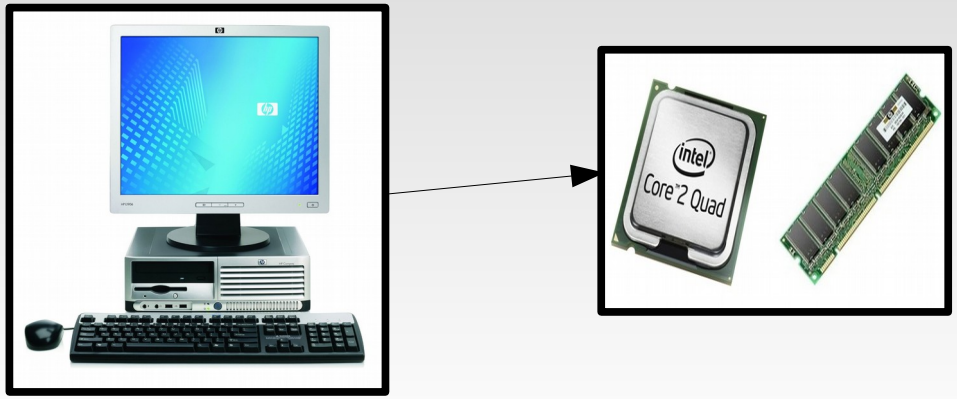
7. Hardware cannot be transferred from one place to another electronically through network.
8. User cannot make new duplicate copies of the hardware.

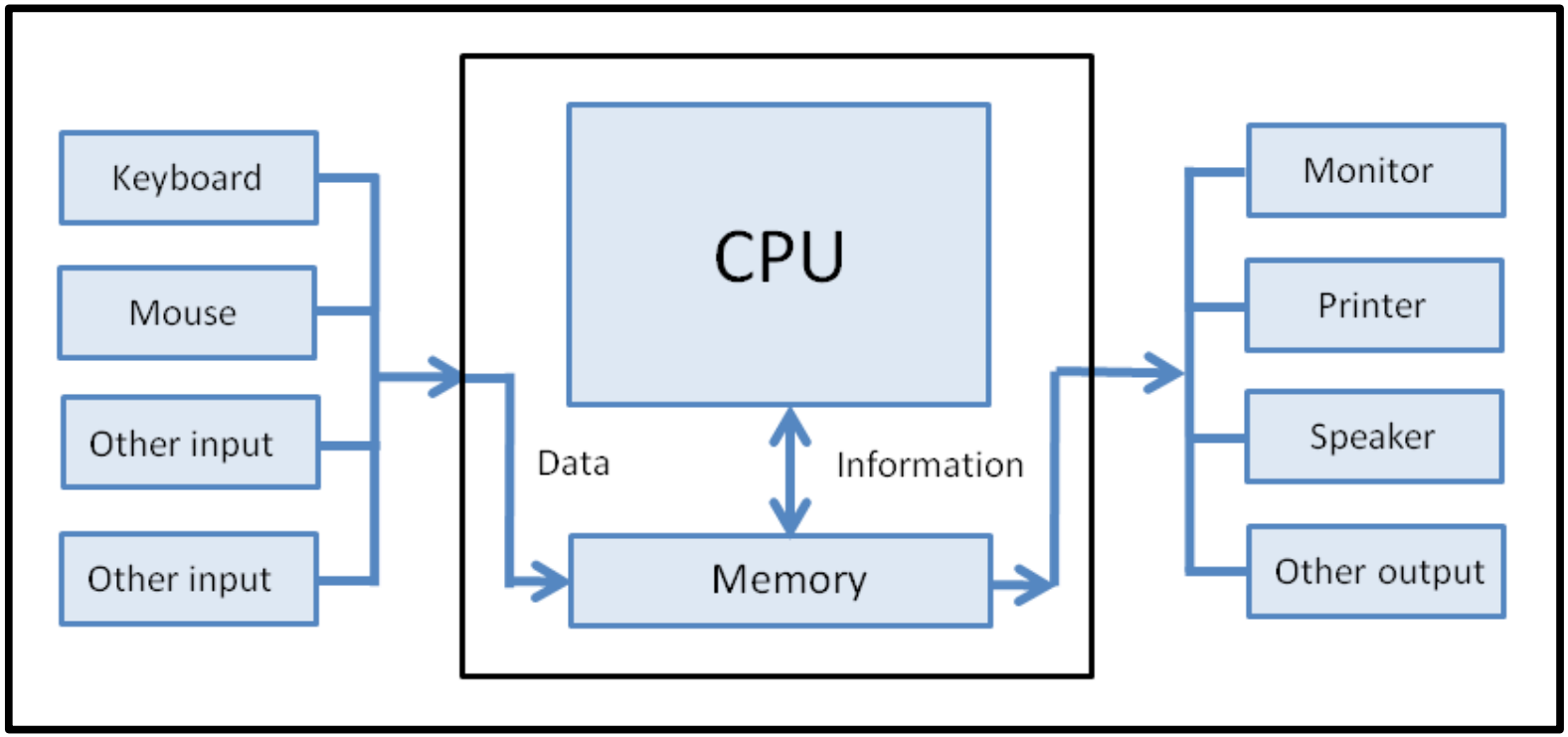
Software



1. A set of instructions given to the computer is called software.
2. You cannot touch and feel software.
3. Software is developed by writing instructions in programming language.
4. The operations of computer are controlled through software.
5. If software is damaged or corrupted, its backup copy can be reinstalled.
6. Software is affected by computer viruses.
7. Software can be transferred from one lace to another electronically through network.
8. User can make many new duplicate copies of the software.

Computador!


intel
Core 2 Quad


Keyboard
Mouse
Other input
Other input
CPU
Data
Information
Memory
Monitor
Printer
Speaker
Other output

Entrada e Saída

```
var integer x ← 25;
var integer y ← 25;
emit GRAPHICS_DRAW_PIXEL(x,y);

loop do
    var integer key ← await KEY_PRESS;

    if key = KEY_LEFT then
        x ← x - 1;
    else/if key = KEY_RIGHT then
        x ← x + 1;
    else/if key = KEY_UP then
        y ← y - 1;
    else/if key = KEY_DOWN then
        y ← y + 1;
    end

    emit GRAPHICS_DRAW_PIXEL(x,y);
end
```

Exercício 2.1

- Não deixar “rastro” ao movimentar o pixel

- https://fsantanna.github.io/pico-ceu/out/manual/v0.30/graphics/

Entrada e Saída

Classificação de "Sistemas"

(Berry 1989)

- Sistemas transformacionais
  - *"compute results from a given set of inputs"*
- Sistemas interativos
  - *"interact at their own speed with users or with other programs"*
- Sistemas reativos
  - *"interact with their environment, but at a speed which is determined by the environment, not by the program itself"*

- gcc, gdb, quake, md5, shell, zip, http, gui

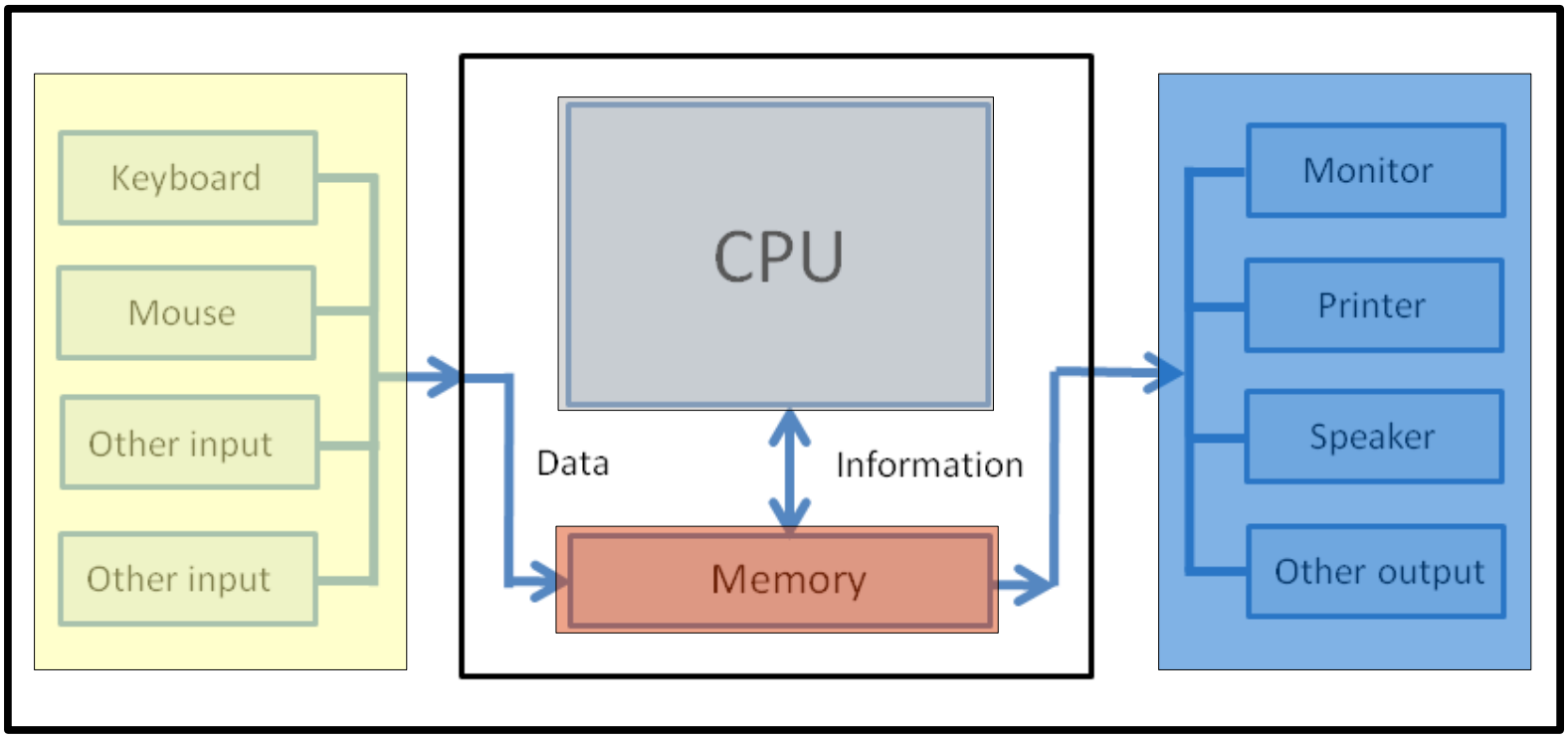
Escrita

x ←

```
var integer x ← 25;
var integer y ← 25;
emit GRAPHICS_DRAW_PIXEL(x,y);
loop do
    var integer key ← await KEY_PRESS;
    if key = KEY_LEFT then
        x ← x - 1;
    else/if key = <...> then
        <...>
    end
    emit GRAPHICS_DRAW_PIXEL(x,y);
end
```

Leitura

x



Exercício 2.2

- Movimentar dois pixels ao mesmo tempo
- Usar conjunto de teclas diferentes
    - como se fossem dois jogadores

- https://fsantanna.github.io/pico-ceu/out/manual/v0.30/input/