ComIT

INTRODUCTION TO COMPUTING

THE TOPICS

- Computing and Informatics

- Programming
  - ✔ Program
  - ✔ Language
  - ✔ Translation

IT AND COMPUTING

- Informatics is the science that studies everything related to the processing of information in electronic devices known as computers.

- It is the product of an increasingly frequent need in the human being, to be informed.

COMPUTING

- ¿And computing?

  In general terms, several authors agree that, at present, it refers to the same thing.

  Computer Science: The study of computers and computational concepts and processes

  - ✔ Computational Complexity
  - ✔ Programming Languages Theory
  - ✔ Graphic Computing
  - ✔ Operating Systems

Computer Science

- Computer Science is based on the fundamentals of:
  - ✔ Programming
  - ✔ Software development methodologies
  - ✔ Computers' architecture
  - ✔ Networking
  - ✔ AI
  - ✔ Some parts of electronics
  - ✔ Even the social impact of computer systems

- It is possible to understand by computer science the synergic union of all this set of disciplines.

COMPUTER

- It is a programmable machine, which can perform different jobs depending on the preparation given.
  - ✔ It has numerical and logical calculation capacity.

- It works like a robot, that is, it is totally conditioned to the orders of man.
  - ✔ It doesn’t work stand alone

- The computer does not reason or create solutions, but executes a series of commands that are provided.

PURPOSE OF THE COMPUTER

- The purpose of the computer is to help man solve problems.
  - ✔ Through programming, we get a computer to solve a specific problem.

- Just to think a little bit:
  - ✔ Can every problem be solved by a computer?

PROGRAMMING

- The preparation that is done to a computer so that it does what we want.

- The purpose of programming is to create programs.

PROGRAM

- It is an orderly sequence of instructions that carried out by the computer meet a purpose.

- Develop a program implies that we have to "talk" with the computer a language, which serves as a means of communication with the computer to indicate what we want to do.

PROGRAMMING LANGUAGE

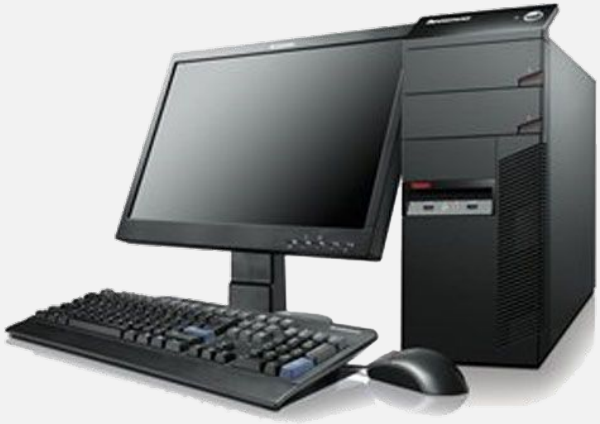
- It is the language we use to communicate with the computer in order to tell what we want to do.

- There are different types:
  - ✔ Machine language (1101 1001 0110..)
  - ✔ Assembler language Assembler
  - ✔ High-level language Java, .Net, C, etc.

TRANSLATION

- The computer can only understand machine language (its natural language).
- To understand another language requires a translation process.
- From other language to machine language.

TRANSLATION



PROGRAMMING LANGUAGE → *TRANSLATION* → MACHINE LANGUAGE

WHAT IS A PROGRAMMER?

- Person who makes computer programs.

- A programmer, computer programmer, developer, dev, coder, or software engineer is a person who writes computer software. The term computer programmer can refer to a specialist in one area of computer programming or to a generalist who writes code for many kinds of software. (Wikipedia)

The Command Line Interface

- An interface to give a computer commands to perform a task
- The commands given are interpreted by a program called the **shell**
- The shell works with the Operating System to execute the command

CLI Exercise

1. Navigate to the Home Directory
2. Create a new directory called Foo
3. Create a create a text file in Foo called bar.txt
4. Display contents of directory to confirm
5. Open bar.txt in a text editor and add some content
6. Return to home

Advanced:

- Display contents of bar.txt in CLI
- Copy bar.txt to another directory

GIT

- GIT is a Distributed Version Control System.
- Version Control Systems record changes to files or sets of files
- This allows programmers to track, manage and collaborate on applications
- All of this data that is important to GIT is stored in a data structure called a **Repository**

GIT Exercise

1. Install git
2. Set Global User configs
3. Create a local git repo
4. Add a new file to the repo
5. Add the new file to the staging environment
6. Commit the staged changes

Advanced

- Create a new branch in your repo
- Connect to a remote repo

Resources

- CLI
  - https://www.codecademy.com/learn/learn-the-command-line
  - https://www.vikingcodeschool.com/web-development-basics/a-command-line-crash-course
- GIT
  - https://git-scm.com/doc

THE END

QUESTIONS?