Informatics

**1.Operating systems**

* 1950s
* Batches of programs can be run by OS
* Computer program software to run operations
* OS usually provides a graphical user interface to help users interact with the computer
* Egs: Microsoft windows
* Linux
* IOS
* MAC OS
* Android

**Functions**

* Provides an interface for computer interaction
* Control of inputs and outputs
* [Interrupt](https://www.computerscience.gcse.guru/glossary/interrupt) and error handling
* Management of hardware and peripherals
* Management and loading of software
* File management (copy, save, sort, delete)
* Processor management for multitasking
* Memory management
* Security (access rights, user accounts, [firewalls](https://www.computerscience.gcse.guru/glossary/firewalls) etc)
* [Network](https://www.computerscience.gcse.guru/glossary/network) communication
* Control hardware devices. Tells them how to interact

Types:

* Batch OS
* Time sharing OS
* Distributed OS
* Network OS
* Real time OS
* Multiprogramming OS

**2.file systems**

[**https://www.guru99.com/file-systems-operating-system.html**](https://www.guru99.com/file-systems-operating-system.html)

* File format- organizing data inside a file
* Eg:
* text files
* Wave file: stores audio.
* BMP: bitmaps. Stores pictures. Each pixel in photo is combo of red, green and blue. They are mixed together to create any other color.
* All files stored in directory files
* Flat file system: all files stores at the same level.
* Hierarchical file system: used nowadays

**3.relative and absolute paths**

**Absolute paths:** begins at the root directory**.** Location of any file from the root directory. Unambiguous and easy to understand.

Relative path: relative to where you are currently located in the file system. accessing specified file name within the current working directory

**4. basic command line operations**

[**https://www.codecademy.com/articles/command-line-commands**](https://www.codecademy.com/articles/command-line-commands)

**5. CEU VPN network**

**6.Collaboration tools and version control (Git, Github)**

* Foster interaction between people
* Chat app
* Project management app
* Video conferencing tool
* File sharing program
* Gmail, dropbox, word are all CT

Benefits:

* Team visibility, everyone knows what theyre working on, transparency and accountability of tasks
* Track progress in real time:
* Enable full group participation: everyone contributes,
* Channel everyones strengths to overall success

**Git and Github**

* One strength of git and GitHub are great collaborative tools enabling you to share and co-edit codes and files with other researchers. Git and GitHub can also help you to move files between machines (your work desktop, your laptop, servers, …) and keep the files synchronized across these machines.
* [**https://searchitoperations.techtarget.com/definition/GitHub**](https://searchitoperations.techtarget.com/definition/GitHub)

**version control**

[**https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control**](https://git-scm.com/book/en/v2/Getting-Started-About-Version-Control)

[**https://ourcodingclub.github.io/tutorials/git/**](https://ourcodingclub.github.io/tutorials/git/)

**7. introduction to programming (types of languages, advantages, limitations)**

How you get computers to solve problems

Using computer as tools by people

Programs make computers work

Programming is a creative task

Giving computer a series of commands

Programming languages:

1. Procedural oriental language

Sequence of statements lead to a result

Linear top down approach

Contains a series of steps dividing the program into a procedure

Advantages:

Good for general purpose programming

Easy implementation

Large variety of books and courses available

Source code is portable and can be used on a diff CPU too

Program flow can be easily tracked

Disadvantages:

Code is often not reusable, may need to recreate code to be used in another application

Difficult to relate with real world objects

Importance given to operation rather than data

Data is expose to the whole program, making it not so secure

1. Object Oriented programming:

Treats data as a collection of objects