**7/13/2021**

**1/ How computers works:**

Diagram

Description automatically generated

* There are program files and data files stored in the hard-disk drive.
* The main memory runs the current running programs.
* Buffer take in the input and output instead of executing directly.
* **Why computer work on binary systems?** Because of electronics circuits => Control the chip. The chip control arithmetic math => ALU (Arithmetic Logical Units) => CU = Control units that control the main memory. Thus, computer works on binary systems since binary systems work with electronics.

**2/ What is Program?**

* **Program** = data and instructions operated on that data.
* Language of computer = binary = machine language
* Language of human = natural language
* So, we either learn machine language or computer learn natural language => not possible.
* Programming languages to communicate with machine languages. You will write procedure in programming languages.

**3/ Low levels vs High level language:**

* Low level = binary => Assembly
* High level = English like language = C++, C#

**4/ Compile vs Interpreter:**

* **Both** will
  + Check for errors.
  + Convert into Machine Code
  + Execute the program.
* **Compiler**: => C++
  + Does not involve in execution.
  + Convert programming code into machine code => exe files
  + Then you can run the exe files for n number of times that you want
  + Conversion only happens once.
* **Interpreter**: => JS
  + Involve In execution
  + For execution I must have the exe file (chrome.exe).
  + Chrome work as interpreter for JS => Chrome will run => Take in JS file line by line, convert each to machine code and **execute** it.
* **Compile** program runs faster.
* Easier to write**: Interpreter.**

**5/ OS:**

* Window
* Linux
* Mac OS
* It will provide service to the computer with the resource.