**Introduction to Programming**

* Program – is a set of instructions given to a computer to do some tasks
* Computer only read machine codes, so program translates your instruction (in your language) to machine code (binary format - 1, 0).
* IDE is used to write code, debug, run and produce result. -NetBeans, IntelliJ, Visual studio
* Syntax is programming grammar. It is unique for each language.
* IDE helps you identify syntax error and will not let your code run unless you fix it.
* Programmers keep track of their progress (the progress of the program they are running) by looking at the console. The console outputs the result.
* Compute already knows how to use simple arithmetic.
* Concatenation means adding strings together – during this, it is a good practice to put space before and after your string.
* **Variables** : something that store information and can be reused later. It has a type, a name, and the type of information they store. There are different types, but the most common types are integers, strings, float, Boolean, Doubles and Char’s.
* CamelCase is the way of naming variables in which the first word does not start with a capital letter, but the other words start with capital letter. e.g., camelCase. Using camelCase helps to improve readability and also during debugging.
* **Arrays** : is a list of something (integers, strings, or other arrays). An index is used to identify and call the item in the array. It starts with 0. You can either create and populate an array at the same time or you can create an array first (its size) and populate it later with its content. Sizes are fixed and final once define. The type of array (if strings, integers, etc) must also be defined. Arrays in Array is called 2D-Array.
* **Loops** : is a statement that is used to run certain instructions repeatedly.
  + **For loop**: This is best for carrying out instructions numerous times. It contains 3 parts (an integer, a conditional statement and an operation that modifies the integer value after the instructions in the loop are completed).
  + **For each loop (For in loop in python)**: used for iterating through and entire lists or array.
  + **While loop** : will continually carry out its instruction while a conditional statement is true.
* Errors : 3 types, syntax, runtime, and logic errors.