**DATA TYPES & ARITHMETIC**

**..Variables & Data Types...**//Headline

Programming is all about manipulating data like numbers, characters and names

Let's say you want to write a program that add two numbers in order to add the two numbers first you must save them in memory variables

But what is a variable?

**"The story of a variable"**

A programming variable is a container in computer memory that can save any type of data that the programmer specify it can save number like 1,2,3,4 or a character like 'c','a','f' or even a full name like "Mahmoud Mustafa".

**Now let’s forget about that definition and create our own...**

**"A Hot Day!"**

You reach home after a long hot day at school and you drank a cold fresh orange juice after drinking you still Thirsty so you refill the same cup with an apple juice and drank it.

You can think of the programming variable as a cup and the different juices as data... A cup can hold any kind of juice and variable can save "hold" any type of Data

**So a variable is simply a data container.**

**“Be the compiler”**



Try to guess the output of this program

**Output>>8**

**The output is simply the addition of 5 + 3 which is 8 now let’s know how we got this answer...**

**“How can you eat an elephant? One bit at a time”**

As simple as this program seems to be but in order to fully understand it you need lots of programming knowledge that we will cover throughout the chapters of this book after each chapter you will gain more knowledge and bit by bit you will be able to build very complex programs all on your own but for now let’s focus on what we want to learn in this chapter and we will intentionally ignore some of the command in the program as they are out of this chapter scope we will cover them in later chapters.

**We will focus in this part of the code**



**We can easily observe that:**

\*First\_number is a variable that stores the data 5

\*Second\_number is a variable that stores the data 3

\*The output is simply the addition of the two numbers

**The first and second line are variable declaration and assignment**

**Declaration:** writing down a variable name is called declaring a variable in the previous program we had two variable declaration “frist\_number” & “second\_number”

**\*ignore the int for now\***

**Assignment:** assignment meaning to assign a value for the declared variable “giving it a value” to use later in the program in our previous program the two variables are assigned the values 5 & 3 accordingly

**The third line is an output statement that print the addition result of the two variables**

**But what is the word “int” before each variable?**

*Will that is the story of data types.*

**//lost**

**“C++ like everything to be organized“**

Remember that hot day when you drank the apple juice after the orange? The taste might be a bit strange from the orange’s leftovers

You may don’t mid drinking in two different juices in the same cup but the C++ like everything to be organized

//lost

**“The C++ rules”**

\*Each new declared variable can hold one and only one type of data

\*the programmer must always specify the type of the variable before the name of the variable

//lost