Basic Variable Concepts

Prerequisites: Basic programming knowledge is required.

In a computer we can create container to store some other values and sub-container(they ar e all value). Folders are the container that we used to store other related values either files and sub-folders. If you create a folder it is stored into your hard-drive. Our program also behave in a similar manner.

We all interact with a program and provide them with some information. But, how those a program store and interact with these information given by a user? A program in it self have created containers to store information of the user and display those information which are stored in the containers. These containers are called a `variables` in a program.

What is a Variable

Variable is store or container that hold a value inside a computer memory, These value can be a a name of a person, age of a person, bank-account balance, a truthy of a falsely value etc. The term `variable` means that the value can varies meaning it can change. But, not all the values of a variable can be change in the scope of the program some do not change their values when created, but in most case they do. For case of simplicity a variable also have some other things attached to it which are a name, and value.

In a strong-type languages like Java every variable most have a `type, name, value`. These is not the case for other programming language like python, JavaScript where a variable only have a name and a value.

In programming a variable have two stages:
Initialization, and Declaration stage

Initialization Stage

These stage is when a variable is given an initial value. In a more precise way it means when a container is created and it's content is provided.

Declaration Stage

These stage is when a variable doesn't have an initial value. A container is created and it's content is not provided.

Assignment

These happens automatically when you initialized a variable with the use of equals `=` sign which is called an assignment operator, and again if you want to assign a value to a declared variable.

Reassignment

Reassignment is the exact opposite of assignment. Reassignment happens when you have given variable a value and you then want to remove the old value and put in a new value(think of it as an update to a variable).

 It must have an initial value before you can actually reassignment it with a new value!

Variable in Strong Type and Lose Type Languages

Not all programming languages deal with variable the same way. As we know that there are two type of programming languages `strong, loosely or dynamic` types. Do not be taken by the name 'strong and loosely', I am not saying any language been powerful over the other. All languages their strength!

Strong Type Language

In a strong type language every variable most have a type(data type), name, and a value

Lose Type Language

In a lose type language a variable is not mandatory to have a type, a variable could have a number as it's value and it can change to another type like string.

Variable Been Constant

In a program when a variable is said to be a constant that means the variable value cannot be change at any given time in a program. Constant is good for identity number, student number thing that do not change or will not change. A constant variable has a special keyword that let the program knows about it, and these is different with programming languages.