LEARN

HOW TO

LEARN PROGRAMMING

Input:

Git, Frameworks, codes, php , C++,

**Output:**

Show the journey : Programming languages, tools, IDEs,

Show what is included : Syntax , frameworks, a lot of exercises

Don’t be frustrated : plugins, libraries, other tools,

Process;

Advice : How to stay motivated, How to stay focused,

JavaScript Programming

You remember a definition of a computer whereby you were told that a computer is an electronic machine that receives data, process data and gives out results.

What makes a computer do all those three main activities is the availability of both Software and Hardware. You were told that Hardware are all those parts of a computer that you can touch (tangibles) like keyboard, mouse, screen, cpu, etc. And software are all those parts of a computer that we don’t touch such as hopefully by now you have used Microsoft office programs such as Microsoft word, or you have played computer games but you have never touched what you can say this is Microsoft Word, but surely you can touch computer hardware like Screen and say this is Computer Screen.

All these years you have been using computers –both hardwares and softwares, but if you want to be a programmer, this means you are going to CREATE/make SOFTWARES.

You learnt how to use computer like how to hold mouse, you learnt how to use softwares such as Microsoft Excel. The time you learnt that you were learning how to use Software.

Learning programming is differently from learning how to use software, because you are not learning how to use a software, but to create a software that people will use.

For example, if you are learning how to use Microsoft Word , you simply learn which buttons to click so that you can make BOLD text or Delete a particular text.

But in programming you are going to learn HOW to make a BUTTON that when people click , it will delete or bold texts.

So programming deals mostly with HOW to produce a certain result or behaviour to a software that people are going to use.

However , your understanding and experience of using software will help you to remember common behaviours of programs so that when you create your own programs you will come to remember to put certain buttons or instructions to users of your software.

For example, if you are going to create a program that records all incomes of a person every month. You will quickly remember that your program should not only allow people to record their incomes , but also allow them to edit their incomes, or delete some incomes if they want because in your experience , you have seen some programs do not only receive records, but also allow people to do edit and delete.

And you will also remember that when you wanted to delete some records in certain applications, you didn’t just delete them, but after you hit delete, the program asked you if you were sure that you wanted to delete or not. If you clicked NO, the program didn’t delete, but if you clicked YES, the program went on to delete the particular item.

In programming you will learn how to make the program ask a user if he or she wants to delete, and you will need to program actions of deleting or not deleting based on users reply.

Back to our old definition of computer we saw that computer has two parts that make it possible to receive data/information, process –work on it, and produce results. Those parts were Hardware and Software.

You touch a mouse you hit a button , and there your email is sent to someone. The email service like gmail is a software, the software communicated with your mouse to make this activity of you sending email possible.

How do we write software then ? We use special languages that machines can understand. Machines can only understand 0 and 1, so we need to write in 0 and 1. However to simplify further, we have other languages that are not written in 0 and 1s , like JavaScript . But these languages that are not written in 0 and 1s are translated with special programs to 0 and 1.

Let’s simplify things, in our course thankfully we will just learn JavaScript which you can use English language to write instructions/codes that will do what you want users to see. You will put your programs to be run on web browsers like Chrome , which contain programs that will translate our JavaScript into languages that computer machines can understand.

We can therefore conclude that PROGRAMMING is the thinking of how to systematically arrange sets of instructions and writing those instructions so as to come up with a program that solves specific task or task.

PART 2

Our last session ended by concluding that PROGRAMMING is the thinking of how to systematically arrange sets of instructions and writing those instructions so as to come up with a program that solves specific task or task.

This understanding of what programming is, requires us to remember that we should know what steps are involved in order to solve a specific task. To understand what steps are involved is not enough, we must understand in what order those steps must be followed.

For example, let us think of a simple Program :

We want to create a program that will make a user be able to calculate sum of two numbers that he or she will put.

Put yourself in users position –just like old times when you were using programs, what do you expect the program to look like ?

1.You expect the program to ask you to put first number then to put another number, and hit a certain button and the result will appear.

But , now come back to a programmer’s side :

We need to think like this :

We give create a form using HTML which will have a place written First Number :…… and Second Number…. ,and another input box which will will put result after he or she has hit a button that will name CALCULATE SUM.

Programming part is when you actually manage to your user get result what he or she is doing, so let’s think the real programming task.

We need to collect all data that use puts, that is we need to store somewhere the the first number and the second number.

We need to do mathematic operation of SUMMING UP the two stored values of first number and second number.

We then need a way to put the result of SUMMING UP to where we said we will put so that the user can see it.

If we go on to think well about our program, we want to make sure that the user has inserted only NUMBERS because if he enters words for example, John and Bongi, how can we sum that ?

And what about if the user has not entered anything but wants result, should we just give him results or we should give him an alert message telling him or her that NO,WE ARE AFRAID YOU HAVE NOT DONE PROVIDED ALL NUMBERS REQUIRED.

In learning programming languages and actually doing the coding activity, what you will be doing is to use specific language words/system of writing all instructions, but the basic thinking and terminologies of programming will remain the same.

For example no matter what language you will you will, the need to store those two numbers will remain there. What will change is how to write specific instructions also we call codes to do that.

In programming , what we use to keep record or collect information is called VARIABLE. So, to rephrase what we said above we can say this : We need two VARIABLES one to record the first number and another VARIABLE to record the second number.

You can clearly see that we need two variables, some programs may need more than two variables. How will you remember which variable has what number ? Simple, give each variable a NAME. For example Var firstName, and Var secondName. The word Var before the actual name we want to use,is the way JavaScript identifies what you have written is a Variable.

Other languages use different ways to identify what is variable. For example in PHP we use dollar sign. So in PHP we would write $firstName, and $secondName.

Back to our old definition of a computer : an electronic machine that receives , process , and gives results/outputs.

We have seen how to RECEIVE data, we receive and keep data by using VARIABLES. But that’s not fun without doing anything with the data received. Right ?

Let’s learn the second part PROCESSING:

We can use Mathematical Operations to do something like to calculate SUM, PRODUCT, DIFFERENCE etc.

For example we can say :

We start by declaring our storage facilities – the variables. It is a polite way to inform our dear program that we will be using these variables in the near future to store data.

So we say

var firstname= 0;

var secondName =0;

var total=0;

After you have declared a variable with var, you can continue using the variable in your program without writing var.

total = firstName + secondName ;

Here we proposed to have a separate place (we called it var total) where we will keep result of the sum of our contents of the two variables.

Note here that when you write var firstname =0; what you are saying is that I am creating a place to keep the first name, this place at this moment holds a value of ZERO. Remember always the name of variable stays on the left, and what is inside the variable should stay on the right. Therefore in var total =0, we said we are creating a place to store total, this place for now has value of 0. But we later said var total = var firstname+var secondname, meaning that we now say the our variable total now stores the value which is equal to sum of values of firstname and second name.

You will work with variables most of the time while you are programming, therefore proper understanding of how to declare and put values in variables is very very important.

You can declare and assign values more than 0 depending on what you want your application to do.

Let’s do more examples on understanding what variables are and how to work with them.

You can declare variables to store text like var firstname =””, here we say the we have our variable called firstname but this variable has nothing in it. If it text you can’t put 0 to mean there is nothing. We put 0 for numbers only.

Quiz :

Consider the following variable declarations:

Var firstname =””

Var person =”Joachim “

Now if we set values ( To set values is said said to ASSIGN value to a variable) in the following ways :

Firstname =person;

Person=firstname;

What is the new values inside : var firstname ?, answer : Joachim, because you will remember that always variable name start in the left, and the value of that particular variable in the right. So writing firname = person , it is to say the variable firname has value of variable called person, but we already know the value of person is Joachim.

Now do this on your own. See the answer below..

We define and initialize our three variables as follows:

Var something=15;

Var first =20

Var second =300

We then assign values to the values as follows :

Second=first

First =second

Second=first+something

Question: What values are are in :- var something, var first, var second, var first ?

**Now to the process and outputting what was entered :**

We have so far dealt with the first part of the job of computer according to our living definition that A computer is an electronic device that RECEIVES DATA, PROCESS and OUTPUT information.

We saw that variables are what we use to RECEIVE data and store the data for future use.

The data received has to be processed and result be given to the user. In programming, the instructions ( we also call them CODE) that do the processing and outputting are called FUNCTIONS. In other programming languages they are called METHODS.

For example, we already asked our user to enter the first number and the second number, then we calculated the sum of the two numbers, we want now to tell the user what the result was. Here is the function we will use:

Var firstnumber= 10;

Var secondnumber =20;

Var total = firstnumber+secondnumber;

Alert(total);

In JavaScript, you can use the following functions :

Alert(), document.write()

However, not everytime you will use FUNCTIONS to output information from your application. JavaScript allows you to use INNERHTML property to replace contents already exist in a page with the output you have.

Before you use INNERHTML property you have first to indicate where you the output to go. To do this job of indicating where you want the output to go, you use:

Document. getElementByTagName()

Document.getElementById()

Document.getElementsByClass()

Document.getElementsByName()

Sometimes to output your results somewhere in a page you may use the following called DOM Property.

document.getElementById("name of ID of the place you want your output to go").innerHTML = HERE PUT THE OUTPUT THAT WILL BE WRITTEN.

Sometimes you may want

Actions : FUNCTIONS and talk about alert, prompt, document. write confirm getElementById

CONDITIONS : IF, IF ELSE

LOOPS

FUNCTIONS MADE BY YOU

ARRAYS

OBJECTS

Tenses in Swahili :

Pronouns in Swahili : I = Mimi, You = Wewe, We = Sisi, She = Yeye, He =Yeye, They = Wao , It = Yeye. Remember in Swahili we use YEYE to mean she, he , and it, so it depends on a sentence to know exact meaning of YEYE if it she or he.

In Swahili verbs are constructed depending on WHO does what. For example verb EAT in present continuous will be : for I = NInaKULA, for WE= TUnaKULA, for HE = AnaKULA, YOU = UnaKULA, for THEY = WAnaKULA.

You noticed standwa in the all sentences NInaKULA, TUnaKULA, AnaKULA, UnaKULA, there is that na in the middle. That na represent Present Continuous tense. If we want it to be PAST we change na to LI, for example I ATE becomes NIliKULA, We ATE= TUliKULA

Present continuous tense : We use NA