

Subject: Variables

Overview

Variables are boxes which save the data we enter for us. By declaring a variable we form a box for ourselves, then when we need it, we can recall the data from the box and use it. We can use the data in the boxes we formed when we need it by recalling them again and again.

In order to perform an action the first thing to be done is to store that data. When we want to perform an action we recall the data from the storage and perform the required actions. In the programming languages, we use the variables in order to express the data in the storage. To sum up; they are the declarations that we make for storing the data processed in the programming language inside the storage of the computer.

Activity

Suppose that we have two numbers and we add these two numbers and say the result. The action that we must perform will be formed from the steps similar to the ones below.

- say a number (3)
- say another number (5)
- add these two numbers (3+5)
- say the result (8)
- $3+5=8$

When a number is said, we stored that number to a part of our memory. And when the second number is said we also recorded it to another part of our memory. In the next stage we added the two numbers using the addition method that we had learnt before.

At the end we recorded these values that we added to another part of our memory. Then we said this result we stored aloud.


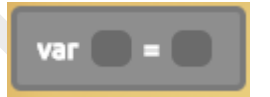
Consider that the numbers that will be added for this action change continuously. Now here at this point variable declaration gets involved. As in the example above, we declared two different variables and stored the numbers in


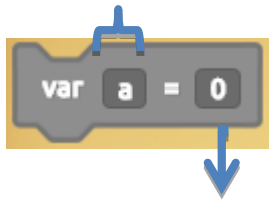
these variables. In other words; we put the numbers into the boxes. And when we want them we recalled these numbers and used them.

Commands to be Used

The variables they will use in order to complete the tasks and their usage forms.

Blocks and Button icons to be used in the training about this subject

Block	Explanation
	The name of the variables may be letters such as a,b,c or words in a similar way. The important thing is to use the name which we use to indicate the variable in the beginning in the same way when we recall it. <u>Sample usage (Python):</u> a=5 forward(a)
	<u>Sample usage (Javascript):</u> var a = 5 forward(a)

BLOCK	
Usage	Explanation
	<p style="text-align: center;">Variable name</p>  <p style="text-align: center;">Value given to the variable</p>

PYTHON	
Usage	Explanation
<pre>a=4 forward(a)</pre>	

Erraneous writing forms

Python		
<pre>a=3 forward()</pre>	<pre>a3 forward(a)</pre>	<pre>a=3 forward(a)</pre>
Why is it wrong?	Why is it wrong?	Correct form:
Formed variable is missing because it is not being used within any expression.	It is required to be used with an equal sign in the form of "a=3" while the variable is formed and value is transferred.	It is correct due to the declared variable used with the equal sign in the form of "forward(a)".

JAVASCRIPT

Usage	Variable
<pre>var a = 4 forward(a)</pre>	

Erraneous writing forms

JavaScript		
<pre>var a = 4 forward()</pre>	<pre>vara=4 forward(a)</pre>	<pre>var a = 4 forward(a)</pre>

Sample Solution: Scene 23

Algorithm

- Start
- declare variable a
- give variable a value 5
- 3 times within Repeat
 - move "a" square forward
 - Turn right

Block



Python

```
a=5
repeat 3:
  forward(a)
  turn(right)
```

Javascript

```
var a = 5
repeat(3){
  forward(a)
  turn(right)
}
```