Monday, 1 August 2022

Variables

* A variable is a symbolic name that is a reference or pointer to an object.

* Variables are containers for storing data values.

* These are the reserved memory locations for storing values.

Global variables

A global variable is a variable that is accessible throughout the program, i.e globally

That means, any function or method in a program can use it.

It is declared outside of all functions

Stored in fixed memory locations

Do not automatically clean up

Local variables

A local variable is accessible to the current scope only. i.e locally.

That means, a temporary variable used in a single function definition.

It is declared within a function or code block.

Stored in stack which is dynamic in nature

Automatically cleans up data stored in it.

Creating variables :-

* Python has no command for declaring variables.
* A variable is created and memory is allocated to it when you first assign a value to it.

Syntax :

```
variable_name = value
```

Example :

```
Num_1 = 10
```

Naming conventions :-

* A variable name must start with a letter or the underscore (_)
* A variable name cannot start with a number
* A variable name can contain only alphanumeric characters and underscore and not any special
* symbol [A to Z and a to z and 0 to 9 and _]
  Variable names are case-sentitive.

Valid variable names	Invalid variable names
① number_1	① 1number
② _number	② num@
③ Number1	③ num 1

Date: YOUVA

* In python, variables do not need to be declared with any particular type.
* Its data type get changed according to the value assigned to it.

For example :-

```
x = 10    # ''' variable 'x' is created with 'int' type. '''

x = "ABC" # ''' now 'x' will be over written and now contains data of type 'str'. '''
```

Type casting :-

To specify the data type of variable, type casting is used.

Syntax :

```
var = datatype (value)
```

Example :

```
x = str (ABC123)    ... x = "ABC123"
y = int (123)       ... y = 123
```

Checking data type of variable :-

To get the datatype of variable type() function is used.

Syntax :

```
type(variable)
```

Example :

```
x = 100

type(x)
```

Case sensitive :-

Variable names are case sensitive.

For example :-

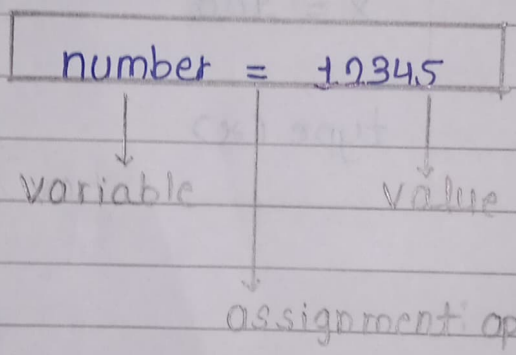
```
a = "ABC"    #__lowercase a
A = 123      #__uppercase A
```

'a' will be different from 'A'.

Assigning values to variables :-

* The "=" operator is used to assign values to variables, it is known as assignment operator.
* The operand at left side of "=" operator is the name of variable.
* The operand at right side of "=" operator is the value assigned to the variable.

For example :-



Python allows to assign a single value to multiple variables ~~at~~ simultaneously.

For example :-

```
x = y = z = 10
```

It also allows to assigne values to multiple variables simultaneously, it can take different forms,

for example :-

```
x, y, z = 10, 20, 30    #1

x = 10 ; y = 20; z = 30    #2

a = [10, 20, 30]

x, y, z = a    #3
```

The third form is also known as unpacking.

Python allows to print multiple variables in one line, it takes following form.

for example :-

```
print ( a + b + c )    #1
print ( a, b, c)    #2 for integers
```

* This method works properly with string.
* In case of integers, it will perform addition.
* If datatypes of variable are different, error is shown