

Python Basic Variables and Data Types

Introduction

In this class, The types of variables and data were discussed along with what they are and what their roles and usages are in python. This was the second class covering the first segment of the whole course.

Basic variables & Types

A python Variable is a reserved memory or array to store values and elements which gives data to the computer for processing. This acts like a container that stores input from the user and changes according to the user's command.

Example:

A = 5 & B = 2

Here, "A" & "B" are variables and "5" & "2" are values of those variables which are stored there with the assignment operator (=)

There are few rules for declaring variables in python. Which are,

- A variable name must start with a letter or the underscore character. (a, name, name, var)
- A variable name cannot start with a number. (lname, 1_name) (num1, name1, name_1)
- A variable name can only contain alpha-numeric characters and underscores (A-Z, 0-9, and) (First-name) (First_name)
- Variable names are case-sensitive (age, Age and AGE are three different variables) (Name, name)

There are important suggestions or tips on assigning value to variables and those are,

- Declare a meaningful variable name instead of a random single letter
- Mind the letter cases as python is case sensitive
- Variable names should be relevant to the problem/program

To assign a value in the variable, We use the Assignment operator (“=”)

Example

A = 10 | We assigned the value “10” in the variable called “A”

B = 5.5 | We assigned the value “5.5” in the variable called “B”

C = ABC | | We assigned the value “ABC” in the variable called “C”

There are multiple data types such as text, numeric, mapping, set, sequence, boolean, binary but here below, We can also see multiple types of data in these 3 variables.

Here in A = 10, “10” is an integer class, a numeric type of data. This means it’s a number which is an integer.

Here in B = 5.5, “5.5” is a decimal number or a float class another numeric type of data. This means it’s a number but not an integer, but a decimal number.

Here in C = ABC, “ABC” is a string class or text type of data. This means it’s like a constant and mathematical operators like sum, subtraction, multiplication, and division will not work on it. To use it, We will have to slice it or do catenation.

Specifications of data types

<i>Data types</i>	<i>Specification</i>
int	%d
float	%f
str	%s

Data type conversion

Let, A = 24 Here, “24” is an integer but if we assign the value to a variable using double quotation like this, B = “24”, Then this new “24” is a string.

A = 24 | print(type(A)) => <class ‘int’>

B = “24” | print(type(B)) => <class str>

But this conversion is not possible if it was a non-numeric string such as,

A = “String”

A = int(A) | print(type(A)) => error

To convert it back to an integer class, we just have to write

```
B = int(B) | print(type(B)) => <class int>
```

Vice versa for int to string.

```
A = str(A) | print(type(A)) => <class str>
```

Print

To print multiple variables at ones, we just have to use comma between the variables when we print them.

```
A = 1
```

```
B = 2
```

```
C = 3
```

```
print(A,B,C) = 1, 2, 3
```

Operators

There are multiple operators in python but we are going to discuss the four mathematical operators here. Those are Sum(+), Subtraction(-), Multiplication(*) & division(/)

Example

```
Let, A = 6 & B = 3
```

```
Q = A+B | print(Q) => 9
```

```
R = A-B | print(R) => 3
```

```
S = A*B | print(S) => 18
```

```
T = A/B | print(T) => 2
```

Conclusion

In this class, All the basic variable & data types and difference between them were covered along with some operators and how to use them.

Reference

- Mahmudul Hasan Moon, Basic variables and data types, "Be researcher BD |

Python for research", Md. Sabir Hosaaain (Youtube)