Introduction to data types

Data types are the classification or categorization of data items. Data types represent a kind of value that determines what operations can be performed on that data. Numeric, non-numeric, and Boolean (true/false) data are the most used data types. However, each programming language has its classification largely reflecting its programming philosophy. Python offers the following built-in data types:

- Numbers
  - Integers
  - Floating Point Numbers
  - Complex Numbers

- Strings
- Boolean Values
- List, Tuple, and Dictionary

Type Code	Description	Default Size (In Bytes)
int	Integers	4
float	Floating Point Numbers	4
bool	Boolean Values	1

Note:- If a variable has been assigned a value of some data type. It can be reassigned as a value belonging to some other Data Type in the future.

```
a= "Raw" # String Data Type
a= 10 # Integer Data Type
a= 5.6 # Floating Point Number Data Type
a= 1+8j # Complex Number
a= True # Boolean Value
```

Introduction to Python Numbers

Number data types store numerical values. Python supports Integers, floating-point numbers, and complex numbers. They are defined as int, float, and complex classes.

- Integers can be of any length (Only limited by the memory available). They do have a decimal point and can be positive or negative.

- A floating-point number is a number having a fractional part. The presence of a decimal point indicates a floating-point number. They have a precision of up to 15 digits.

- 1 is an integer, 1.0 is a floating-point number.
- Complex numbers are of the form, x + yj, where x is the real part and y is the imaginary part.

We can use the type() function to know which class a variable or a value belongs to. Similarly, the instance() function is used to check if an object belongs to a particular class.

Here are a few examples:-

```
b = 5
print(b, "is of type", type(b))
b = 2.0
print(b, "is of type", type(b))
b = 1+2j
print(b, "is complex number?", isinstance(b,complex))
```

And we will get the output as:

```
5 is of type <class ‘int’>
```

```
2.0 is of type <class ‘float’>
```

```
1+2j is a complex number? True
```