

## Chapter 2 - Variables and Datatypes

A variable is the name given to a memory location in a program. For example

a = 30

b = "Harry"

c = 71.22

→ Variables = Container to store a value.

→ Keywords = Reserved words in Python  
Identifiers = Class/function/variable name

### Data Types

Primarily there are following data types in Python

1. Integers
2. Floating point numbers
3. Strings
4. Booleans
5. None

Python is a fantastic language that automatically identifies the type of data for us.

a = 71

⇒ Identifies a as class <int>

b = 88.44

⇒ Identifies b as class <float>

name = "Harry"

⇒ Identifies name as class <str>

Rules for defining a Variable name → Also applies to other Identifiers

- A variable name can contain alphabets, digits and underscores.
- A variable name can only start with an alphabet and underscore.
- A variable name can't start with a digit
- No white space is allowed to be used inside a variable name.

Examples of a few variable names are :-  
harry, one8, seven, \_seven etc.

## Operators in Python

Following are some common operators in Python:

- 1> Arithmetic operators  $\Rightarrow +, -, *, /$  etc.
- 2> Assignment operators  $\Rightarrow =, +=, -=$  etc.
- 3> Comparison operators  $\Rightarrow ==, >, >=, <, !=$  etc.
- 4> Logical operators  $\Rightarrow \text{and}, \text{or}, \text{not}$

## type() function and Typecasting

type function is used to find the data type of a given variable in Python.

```
a = 31
```

```
type(a)  $\Rightarrow$  class <int>
```

```
b = "31"
```

```
type(b)  $\Rightarrow$  class <str>
```

A number can be converted into a string and vice versa (if possible)

There are many functions to convert one data type into another

```
str(31)  $\Rightarrow$  "31"
```

$\Rightarrow$  Integer to String Conversion

```
int("32")  $\Rightarrow$  32
```

$\Rightarrow$  String to Integer Conversion

```
float(32)  $\Rightarrow$  32.0
```

$\Rightarrow$  Integer to Float Conversion

... and so on

Here "31" is a string literal and 31 a numeric literal.

input() function

This function allows the user to take input from the keyboard as a string

`a = input("Enter name")`  $\Rightarrow$  If `a` is "harry", the user entered harry

It is important to note that  $\Rightarrow$  If `a` is "34" user entered 34  
the output of input is always a string (even if the number is entered)