# 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    ⟹ T/F
5. None    ⟹ None

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

```
a = 71
b = 88.44
name = "Harry"
```

⟹ Identifies a as class<int>
⟹ Identifies b as class <float>
⟹ 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 cant start with a digit
→ No while 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 => +, -, *, / etc.
2. Assignment operators => =, +=, -= etc.
3. Comparison operators => ==, >, >=, <, != etc.
4. Logical operators => and, or, not

type() function and Typecasting
type function is used to find the data type of
a given variable in Python.

```
a = 31
type(a)  => class <int>
```

```
b = "31"
type(b)  => 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)   => "31"        => Integer to String Conversion
int("32") => 32          => String to Integer Conversion
float(32) => 32.0        => Integer to float Conversion
```

o o o 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")  ⟹ If a is "harry", the user entered harry

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