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
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 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 => +, -, *, / 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
```

     ... 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   ⟹ If a is "34" user entered 34
the output of input is always
a string (even if the number
is entered)