Module : M06

Python Basics

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Literals

Literals also referred as constants are data items that does not change its value during program execution.

Python allows following types of literals:

- String literals
- Numeric literals
- Boolean Literals
- Special Literals

String Literals : Group of characters enclosed in single or double quotation marks is known as String literals.

e.g. ‘Atomic’ “Hello World” ‘12876’
“8+9” “12/1 RRCAT”

Types of Strings

Python allows two types of string :

i) Single line strings : Text enclosed in single or double quotation marks and terminate in single line.

e.g Text1="Hello World"

ii) Multiline Strings : Text spread across multiple lines.

Multiline strings can be created in two ways:

a) By adding a backlash at the end of string before pressing Enter to continue typing text on the next line.

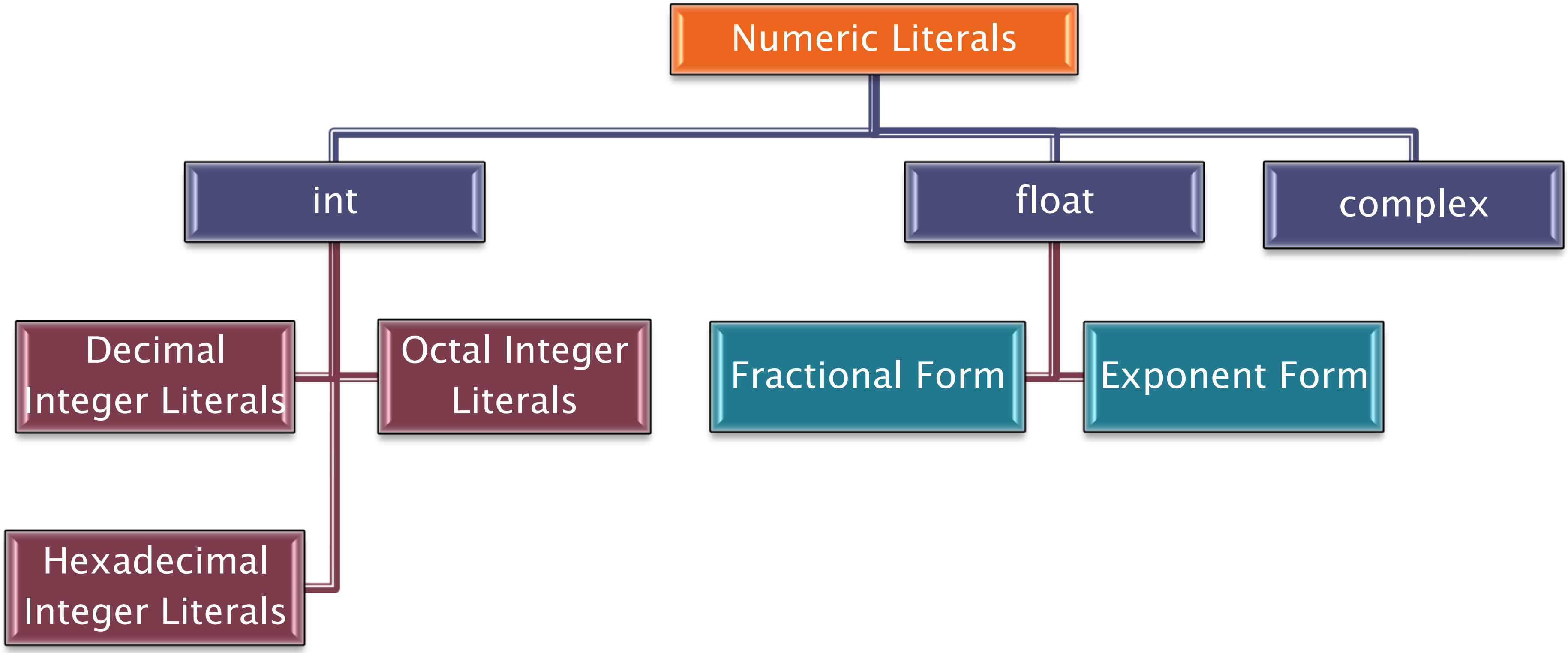
```
e.g. Text="Hello\
              World"
```

b) By typing the text in triple quotation marks.

```
e.g. """Program to calculate
          area of circle, rectangle and triangle"""
```

Numeric Literals

Numeric literals are of three different types:



Integer Literals

Integer literals are whole numbers without any fractional part.

It must have at least one digit and must not contain any decimal point.

It may contain either (+) or (-) sign.

Python allows three types of Integer literals:

i) Decimal Integer Literals :

An integer literals consisting of a sequence of digits in decimal number system involving digits 0 to 9.

e.g. 786, 67, -4783

ii) Octal Integer Literals :

A sequence of digits starting with 0o (zero followed by letter o) in Octal Number System involving digits 0 to 7.

e.g. 0o563, 0o2761

iii) Hexadecimal Integer Literals :

A sequence of digits starting with 0x or 0X (zero followed by letter x or X) in Hexadecimal Number System involving digits 0 to 9 and letter A to F. e.g. 0xAB8, 0XC9B

Floating Point Literals

Floating literals are also called real literals. Real literals are numbers having fractional parts.

They can be written in one of the two forms :

1. Fractional Form : A real literal in Fractional Form must consists of at least one signed or unsigned digit either before or after a decimal point.

   e.g. 2.0, 17.5, -0.3489, .7

2. Exponent Form : A real literal in Exponent form consists of two parts : mantissa and exponent.

   MantissaEExponent

   The mantissa must be either an integer or a proper real constant.

   The mantissa is followed by a letter E or e.

   The exponent must be an integer.

   e.g. 1.786E05, 0.1786e1, 183E4, -0.1894E-3

Boolean Literals

A Boolean literal in Python is used to represent one of the two Boolean values i.e. True or False.

e.g. Fees_Paid=True

Concession=False

Special Literal : None

Python has a special literal None. The None literal is used to indicate absence of value in a data object. Python doesn't display anything if a variable contains None value.

e.g. amount=None

Operators

Operators are tokens that perform some computation on operands. Variables and constants together are called operands. Broadly operators are classified into two types :

1. Unary Operators : Operators that require one operand to operate upon are called Unary Operators. Following are some unary operators :

   + Unary plus

   – Unary minus

   ~ Bitwise complement

   not Logical negation

2. Binary Operators : Operators that require two operands to operate upon are called Binary Operators. Following are some binary operators:

Arithmetic operators

+	Addition
–	Subtraction
*	Multiplication
/	Division
%	Remainder/Modulus
**	Exponent
//	Floor division

Bitwise operators

&	Bitwise AND
^	Bitwise exclusive OR (XOR)
|	Bitwise OR

Shift operators

<<	shift left
>>	shift right

Identity operators

is	is the identity same?
is not	is the identity not same?

Relational operators

<	Less than
>	Greater than
<=	Less than or equal to
>=	Greater than or equal to
==	is equal to
!=	Not equal to

Logical operators

and	Logical AND
or	Logical OR

Assignment operators

=	Assignment
/=	Assign quotient
+=	Assign sum
*=	Assign product
%=	Assign remainder
-=	Assign difference
**=	Assign Exponent
//=	Assign Floor division

Membership operators

in	Whether one object in another object
not in	Whether one object not in another object

Punctuators

Punctuators are symbols that are used in programming language to organize statements, expressions and program structure.

Most common punctuators of Python programming language are :

‘ “ # \ () [] {} @ , : . ` =

Creating Variable

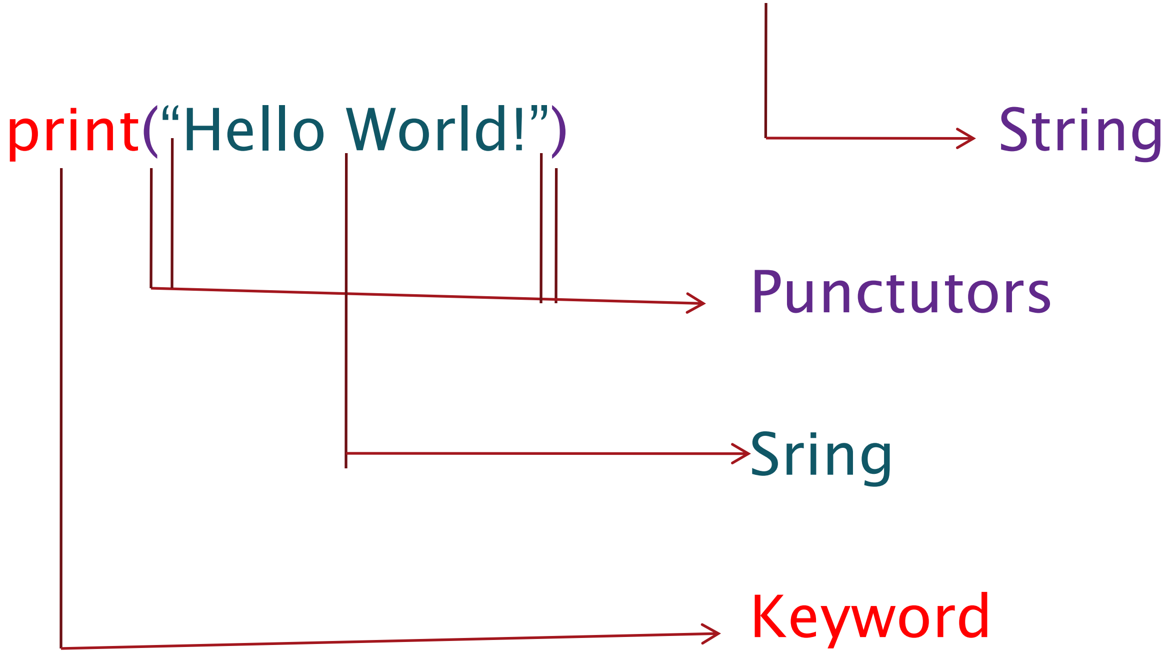
Python variables are created when a value of desired type is assigned to it.

e.g. marks=80

Student=‘Jacob’

Age=19

“””Breaking the ‘Hello World’ program into Tokens”””



print(“Hello World!”)

String

Punctutors

Sring

Keyword

Thank you

References: 1)Computer Science with Python By Sumita Arora
2)https://www.tutorialsteacher.com/python/statistics-module
3)CBSE Revised Syllabus