Class : XI
Computer Science(083)
Python Basics(Module : M06)
Literals, Variables, Delimiters, Operators

Literals

Literals also referred as constants are data items that doesnot 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"

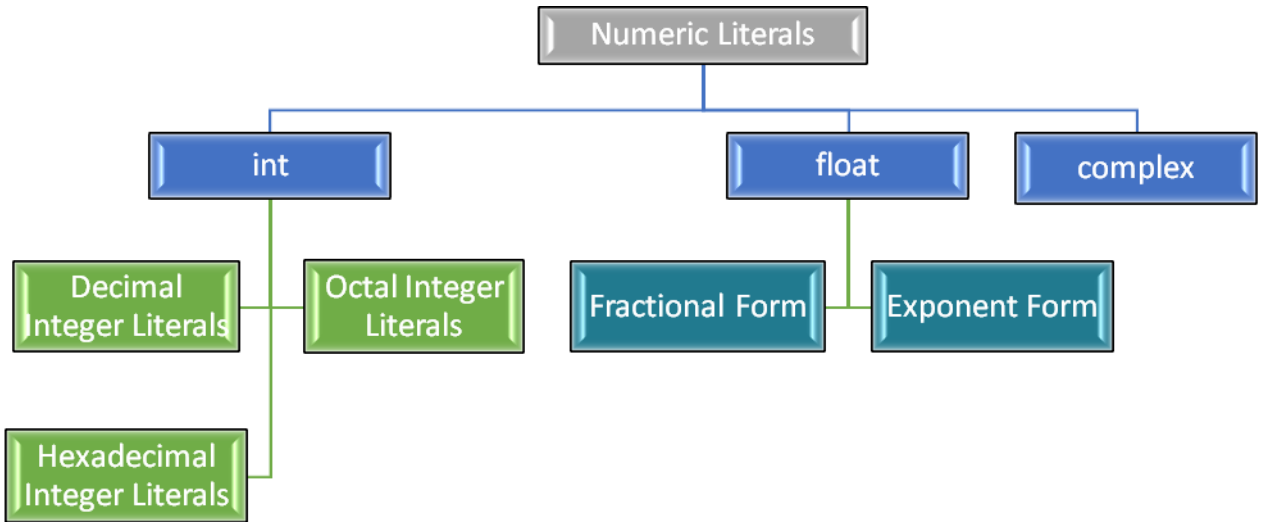
Types of Strings

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/Delimiters

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

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