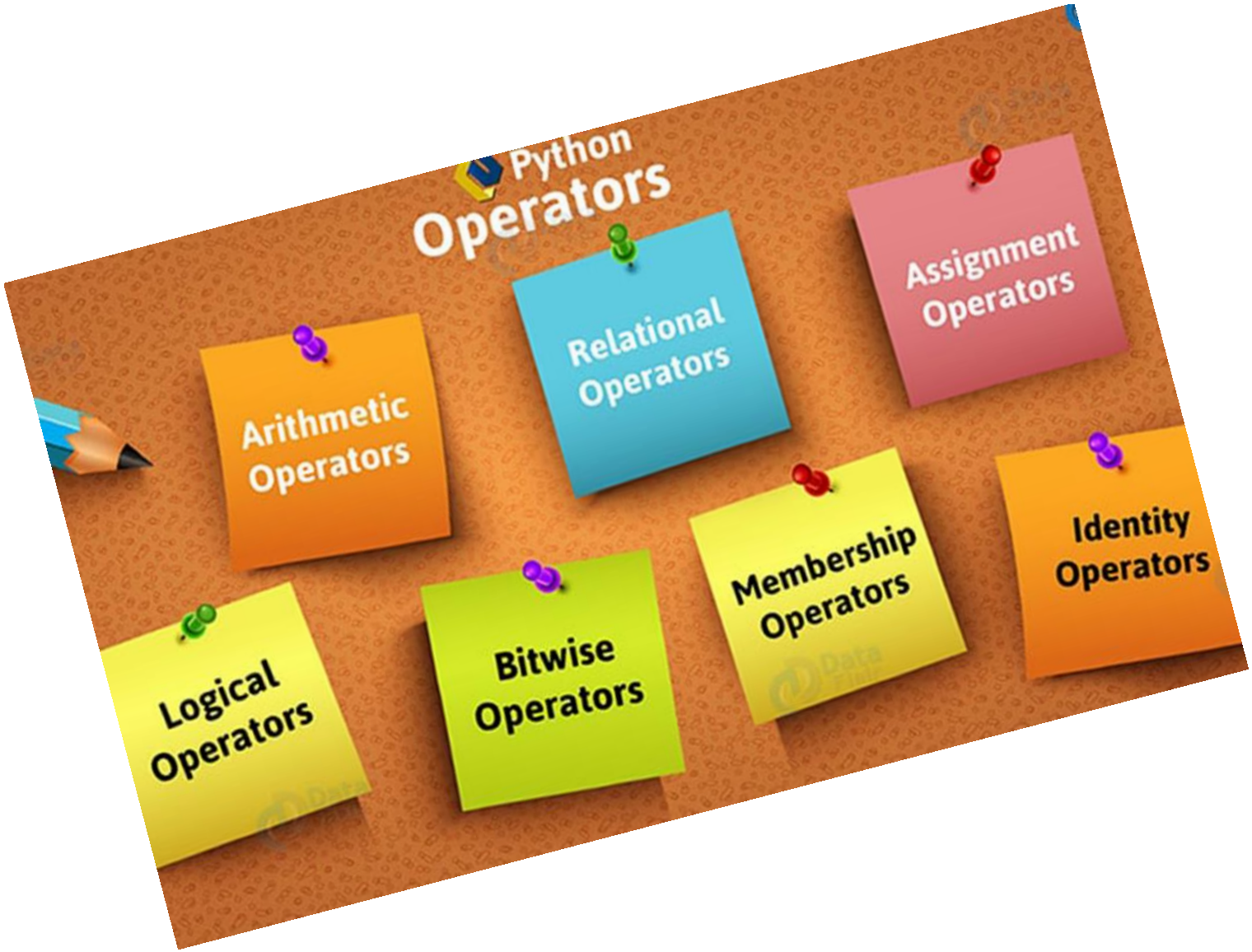
Operators in Python



4. Python – Basic Operators

Python language supports following type of operators.

- Arithmetic Operators
- Comparison Operators
- Logical (or Relational) Operators
- Assignment Operators
- Conditional Operators

Python Arithmetic Operators:

Operator	Description	Example
+	Addition - Adds values on either side of the operator	a + b will give 30
-	Subtraction - Subtracts right hand operand from left hand operand	a - b will give -10
*	Multiplication - Multiplies values on either side of the operator	a * b will give 200
/	Division - Divides left hand operand by right hand operand	b / a will give 2
%	Modulus - Divides left hand operand by right hand operand and returns remainder	b % a will give 0
**	Exponent - Performs exponential (power) calculation on operators	a**b will give 10 to the power 20
//	Floor Division - The division of operands where the result is the quotient in which the digits after the decimal point are removed.	9//2 is equal to 4 and 9.0//2.0 is equal to 4.0

Python Comparison Operators:

Operator	Description	Example
==	Checks if the value of two operands are equal or not, if yes then condition becomes True.	(a == b) is not True.
!=	Checks if the value of two operands are equal or not, if values are not equal then condition becomes True.	(a != b) is True.
<>	Checks if the value of two operands are equal or not, if values are not equal then condition becomes True.	(a <> b) is True. This is similar to != operator.
>	Checks if the value of left operand is greater than the value of right operand, if yes then condition becomes True.	(a > b) is not True.
<	Checks if the value of left operand is less than the value of right operand, if yes then condition becomes True.	(a < b) is True.
>=	Checks if the value of left operand is greater than or equal to the value of right operand, if yes then condition becomes True.	(a >= b) is not True.
<=	Checks if the value of left operand is less than or equal to the value of right operand, if yes then condition becomes True.	(a <= b) is True.

Python Assignment Operators:

Operator	Description	Example
=	Simple assignment operator, Assigns values from right side operands to left side operand	c = a + b will assigne value of a + b into c
+=	Add AND assignment operator, It adds right operand to the left operand and assign the result to left operand	c += a is equivalent to c = c + a
-=	Subtract AND assignment operator, It subtracts right operand from the left operand and assign the result to left operand	c -= a is equivalent to c = c - a
*=	Multiply AND assignment operator, It multiplies right operand with the left operand and assign the result to left operand	c *= a is equivalent to c = c * a
/=	Divide AND assignment operator, It divides left operand with the right operand and assign the result to left operand	c /= a is equivalent to c = c / a
%=	Modulus AND assignment operator, It takes modulus using two operands and assign the result to left operand	c %= a is equivalent to c = c % a
**=	Exponent AND assignment operator, Performs exponential (power) calculation on operators and assign value to the left operand	c **= a is equivalent to c = c ** a
//=	Floor Division and assigns a value, Performs floor division on operators and assign value to the left operand	c //= a is equivalent to c = c // a

Python Bitwise Operators:

Operator	Description	Example
&	Binary AND Operator copies a bit to the result if it exists in both operands.	(a & b) will give 12 which is 0000 1100
|	Binary OR Operator copies a bit if it exists in either operand.	(a | b) will give 61 which is 0011 1101
^	Binary XOR Operator copies the bit if it is set in one operand but not both.	(a ^ b) will give 49 which is 0011 0001
~	Binary Ones Complement Operator is unary and has the effect of 'flipping' bits.	(~a) will give -60 which is 1100 0011
<<	Binary Left Shift Operator. The left operands value is moved left by the number of bits specified by the right operand.	a << 2 will give 240 which is 1111 0000
>>	Binary Right Shift Operator. The left operands value is moved right by the number of bits specified by the right operand.	a >> 2 will give 15 which is 0000 1111

Python Logical Operators:

Operator	Description	Example
and	Called Logical AND operator. If both the operands are True then condition becomes True.	(a and b) is True.
or	Called Logical OR Operator. If any of the two operands are non zero then then condition becomes True.	(a or b) is True.
not	Called Logical NOT Operator. Use to reverses the logical state of its operand. If a condition is True then Logical NOT operator will make False.	not(a and b) is False.

Python Membership Operators:

In addition to the operators discussed previously, Python has membership operators, which test for membership in a sequence, such as strings, lists, or tuples.

Operator	Description	Example
in	Evaluates to True if it finds a variable in the specified sequence and False otherwise.	x in y, here **in** results in a 1 if x is a member of sequence y.
not in	Evaluates to True if it does not finds a variable in the specified sequence and False otherwise.	x not in y, here **not in** results in a 1 if x is a member of sequence y.

Python Operators Precedence

Operator	Description
**	Exponentiation (raise to the power)
~ + -	Ccomplement, unary plus and minus (method names for the last two are +@ and -@)
* / % //	Multiply, divide, modulo and floor division
+ -	Addition and subtraction
>> <<	Right and left bitwise shift
&	Bitwise 'AND'
^ |	Bitwise exclusive `OR' and regular `OR'
<= < > >=	Comparison operators
<> == !=	Equality operators
= %= /= //= -= += *= **=	Assignment operators
is is not	Identity operators
in not in	Membership operators
not or and	Logical operators