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⑦ Operators:

- operators are used to perform an operation using variable and values.
- Operators are special symbols in python that carryout arithmetic and logical computation.
- The value that the operators operate on is called operands.
- There are different types of operators., are as follows,

(i) Arithmetic operators.
(ii) Assignment operators
(iii) Comparison operators.
(iv) Logical operators.
(v) Identity operators.
(vi) Membership operators.
(vii) Bitwise operators.

① Arithmetic operators:

- Arithmetic operators are used to perform mathematical operations, like addition, subtraction, multiplication etc.
- Arithmetic is performed according to an order of operations.

operator	Name	Example.
+	Addition.	x + y Ex. 10+10=20
-	subtraction	x - y Ex. 10-10=0
*	Multiplication	x * y Ex. 10*10=100
/	Division	x * y Ex 10/10=1
%	Modulas	x % y Ex 10%10=0
**	Exponentiation	x ** y Ex. 10**3=1000
//	Floor division.	x // y Ex. 15 // 2 = 7.

same as 10 x 10 x 10

The floor division round the result down to the nearest whole Numbers.

(ii) Assignment operators:

- Assignment operators are used to assign values to variables.

operator	Example	same As.
=	x = 5	x = 5
+=	x += 3	x = x+3
-=	x -= 3	x = x-3
*=	x *= 3	x = x * 3
/=	*/= 3	x = x / 3
%=	*%= 3	x = x%3
//=	x //= 3	x = x//3
**=	x **= 3	x = x**3
&=	x &= 3	x = x&3
|=	x |= 3	x = x|3
^=	x ^= 3	x = x^3
>>=	x >>= 3	x = x>>3
<<=	x <<= 3	x = x<<3

(iii) comparison operators

- comparison (or relational) operators is a mathematical symbol which is used to compare two values.
- comparision operators are used in condition that compares one expression with another
- Result of comparison operators are TRUE, or FALSE. or UNKNOWN.

Operator	Name	Example	
==	Equal	x = 5	x == 5
!=	Not Equal	x != 5	x != 5
>	Greter-than	x > 5	x > 5
<	Less than	x < 5	x < 5
>=	Greter than or Equal to	x >= y	5 >= 5
<=	less than or Equal to.	x <= y	5 <= 5.

(iv) Logical operators:

- Logical operators is a symbol or words used to connect two or more Expression such that the value of the compound expression produced depends only on that of the original expression and on meaning of the operators.
- common logical operators include AND, OR, NOT.
- to combine conditional statements.

operators	Description	Example.
AND	Return TRUE if both statement are true.	x<5 and x<10.
OR	Return true if one of the statement are True.	x<5 or x<10.
NOT	Reverse the result, return false if the result is true.	NOT(X<5 AND X<10) Ex. 10<13 AND 10>5

Return false because not is used to Reverse Results.

(v) Python Identity operators:

- Identity operators are used to compare the object, not if they are equal but if they are actually same object, with same memory location.

Operator	Description	Example.
is	Return TRUE if both variables are the same object	x is y.
is not	Returns TROE if both variable are not the same object.	x is not y.

(vi) Membership operators:

- membership operators are used to test if sequence is presented in an object.

operator	description	Example.
in	Returns TRUE if a sequence with the specified value is present in the object.	x in y.
not in	Returns TRUE if sequence with the specified value is not present in the object.	x not in y.

(vii) Bitwise operators:

- Bitwise operators are used to compare (binary) Numbers.

operator	Name	Description.
&	AND	sets each bit to 1 if both bits are 1.
|	OR	sets each bit to 1 one of two bits is 1
^	XOR	sets each bits to 1 if only one of two bits is 1.
~	NOT	Inverts all the bits.
<<	zero fill left shift	shift left by pushing zeros in from the right and let leftmost bits fall off
>>	Signed right shift.	shift right by pushing copies of the leftmost bits from the left, and let rightmost bits fall off.