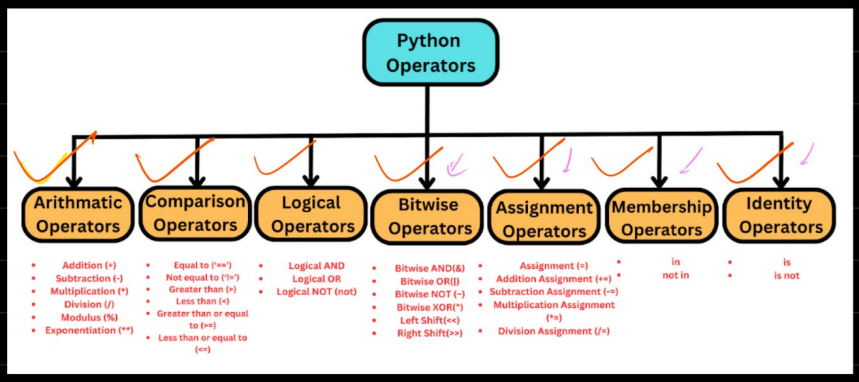
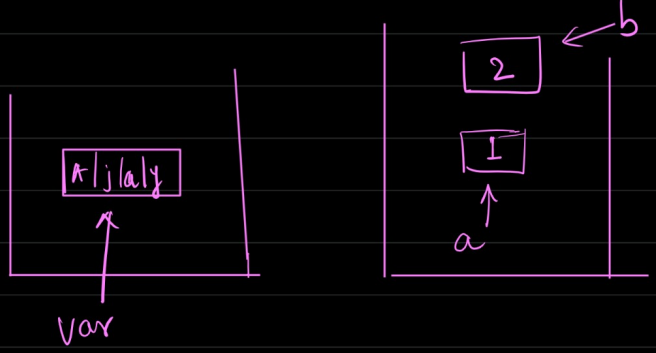
Operators



* var = "Ajay", a = 1



Operations

+, - ....

⇓

Operators.

* Python operators — Special keywords / symbols that are used to perform operations on values or variable.

Why ?

→ We want to manage, do computation and make decision using data.

a = 2 ↑ b = 3 ↑ a + b = 5

Operator

$2^3 = 2 \times 2 \times 2 = 8$

$2^4 = 2 \times 2 \times 2 \times 2 = 16$

AND

T AND T	T
T " F	F
F " T	F
F " F	F

OR

T or T	T
T " F	T
F " T	T
F " F	F

Relationship

Case-1

You want your relationship to be perfect.

A' B'] and → rel" is True

A' ↑ You, B' ↑ Partner

1 " 1	1
1 " 0	0
0 " 1	0
0 " 0	0

1 " 1	1
1 " 0	1
0 " 1	1
→ 0 " 0	0

Case-2

You want your relationship to be satisfying.

T or F	T
T or T	T
F or T	T
F or F	F

bitwise representation

⇒ &, |, ~, ^, XOR

2^3	2^2	2^1	2^0	
0	0	0	1	1 (2^0)
0	0	1	0	2 (2^1)
0	0	1	1	3 → (2+1)
0	1	0	0	4 (2^2)

— 5
— 6
— 7

* 10 & 10 = 10

→ 1010

& → 1010

1010

and

→ 0 0 0

→ 0 1 0

1 0 0

1 1 1

or

→ 1 1 1

1 0 1

1 0 1

0 0 0

18 - 10010

3 - 00011

&

00010

3 ← 0 1 1

5 ← 1 0 1

or

1 1 1

XOR → returns 1 when exactly one operand is 1.

a	b	a ^ b
0	0	0
→ 1	0	1
→ 0	1	1
1	1	0

5 ^ 3

5 → 1 0 1

3 → 0 1 1

1 1 0 → 6

* left shift

35 → 100011000

35 << 3

↓

280

Operator	Associativity	Example	First Evaluation
Parentheses '()'	Left to Right	(3 - 2) * 4	3 - 2
Exponentiation '**'	Right to Left	2 ** 3 ** 2	3 ** 2
Unary Plus +X	Left to Right	+5 + 3	+5
Unary Minus -X	Left to Right	-8 - 2	-8
Bitwise NOT ~X	Left to Right	~10 & 7	~10
Multiplication '*'	Left to Right	2 * 3 * 4	2 * 3
Division '/'	Left to Right	10 / 2 / 5	10 / 2
Floor Division '//'	Left to Right	11 // 3 // 2	11 // 3
Modulus '%'	Left to Right	15 % 4 % 2	15 % 4
Addition '+'	Left to Right	7 + 3 - 1	7 + 3
Subtraction '-	Left to Right	12 - 5 - 2	12 - 5
Bitwise Shift Operators	Left to Right	8 << 2 >> 1	8 << 2
Bitwise AND &	Left to Right	10 & 7 & 5	10 & 7
Bitwise XOR ^	Left to Right	15 ^ 9 ^ 3	15 ^ 9
Bitwise OR |	Left to Right	15 | 9 | 3	15 | 9
Comparison Operators	Left to Right	5 == 5 != 3	5 == 5
Identity Operators	Left to Right	a is b is not c	a is b
Membership Operators	Left to Right	"DataScience" in PWskills	"DataScience" in PWskills
Logical NOT 'not'	Left to Right	not True and False	not True
Logical AND 'and'	Left to Right	True and False or True	True and False
Logical OR 'or'	Left to Right	True or False or True	True or False