Operators

Week 3: Lecture 3

Programming in Python

Operators

- A symbol that performs a specific operation between two operands is known as an operator.

example: 10 + 5 *(+ is the operator between the operands 10 and 5)*

x=10

y=20

z=x+y

Operators in Python

1. Arithmetic operators
2. Assignment operators
3. Comparison operators
4. Logical operators
5. Identity operators
6. Membership operators
7. Bitwise operators

Arithmetic Operators

i. Addition(+) x + y
ii. Subtraction(-) x - y
iii. Multiplication(*) x * y
iv. Division(/) x / y
v. Modulus(%) x % y
vi. Exponentiation(**) x ** y
vii. Floor division(//) x // y

Assignment Operators

i. = x=1

ii. += x+=5 is equivalent to x=x+5

iii. -= x-=5 is equivalent to x=x-5

iv. *= x*=5 is equivalent to x=x*5

v. /= x/=5 is equivalent to x=x/5

vi. %= x%=5 is equivalent to x=x%5

vii. **= x**=5 is equivalent to x=x**5 (exponent operator)

viii. //= x//=5 is equivalent to x=x//5 (floor division)

Comparison Operators

i. Equal == x == y

ii. Not equal != x != y

iii. Greater than > x > y

iv. Less than < x < y

v. Greater than or equal to >= x >= y

vi. Less than or equal to <= x <= y

Logical Operators

i. and
ii. or
iii. not

Identity Operators

i. is
ii. is not

Membership operators

i. in

ii. not in

Bitwise operators

i. & (binary and)

ii. | (binary or)

iii. ^ (binary xor)

iv. ~ (negation)

v. << (left shift)

vi >> (right shift)

& (binary and)

- a = 1010 (Binary of 10)
- b = 0100 (Binary of 4)
- a & b =

1010
&
0100
= **0000** = 0 (Decimal)

| (binary or)

- a = 1010 (Binary of 10)
- b = 0100 (Binary of 4)
- a | b =

1010
|
0100
= **1110** = 14 (Decimal)

^ (binary xor)

- a = 1010 (Binary of 10)
- b = 0100 (Binary of 4)
- a ^ b =

1010

^

0100

= **1110** = 14 (Decimal)

~ (negation)

a= 1010 (Binary of 10)

~a = ~1010

= -(1010 + 1)

= -(1011)

= -11 (Decimal)

<< (left shift)

a= 0000 0101 (Binary of 5)

a << 1 = 0000 1010

= 10 (decimal)

a << 2

= 0001 0100

= 20 (decimal)

>> (right shift)

- a=1010 (Binary of 10)
- a>>2 1010>>2

1	0	1	0

		1	0

10 (Binary) = 2 in Decimal

Thank You