

## \* Operator

Bitwise  $\rightarrow$  & | ~ >> <<

$$8 + 4 + 2 + 1$$

$$2^3 \quad 2^2 \quad 2^1 \quad 2^0$$

$\rightarrow$  1 bit 0, 1

$\rightarrow$  2 bit  $\rightarrow$  0, 1, 2, 3

$\rightarrow$  3 bit  $\rightarrow$  0, 1, 2, ..., 7

$\rightarrow$  4 bit  $\rightarrow$  0, 1, 2, ..., 15

$$3 \quad 2 \quad 1$$

$$2^3 \quad 2^2 \quad 2^1 \quad 2^0$$

$$0 \quad 0 \quad 0 = 0$$

$$0 \quad 0 \quad 1 = 1$$

$$0 \quad 1 \quad 0 = 2$$

$$0 \quad 1 \quad 1 = 3$$

$$1 \quad 0 \quad 0 = 4$$

$$1 \quad 0 \quad 1 = 5$$

$$1 \quad 1 \quad 0 = 6$$

$$1 \quad 1 \quad 1 = 7$$

$$\text{For ex } 2^3 \quad 2^2 \quad 2^1 \quad 2^0$$

$$13 \rightarrow 1 \quad 1 \quad 0 \quad 1$$

$$12 \rightarrow 1 \quad 1 \quad 0 \quad 0$$

$$5 \rightarrow 0 \quad 1 \quad 0 \quad 1$$

$$1 \rightarrow 1 \quad 1 \quad 0 \quad 1 = 13$$

$$8 \rightarrow 0 \quad 1 \quad 0 \quad 0 = 4$$

## \* Right shifts

$$Th \quad H \quad T \quad U$$

$$1 \quad 2 \quad 4 \quad 5 \rightarrow \text{ignore}$$

## \* Left shift $\rightarrow$ increasing

$$1 \quad 2 \quad 4 \quad 5 \rightarrow 10$$



①  $13 > 2$

$$8 + 4 + 2 + 1$$

$$1 \quad 1 \quad 0 \quad 1$$

$$1 \quad 1 \quad 0 \quad 1 \rightarrow 3$$

②  $13 < 2$

$$8 + 4 + 2 + 1$$

$$1 \quad 1 \quad 0 \quad 1$$

$$1 \quad 1 \quad 0 \quad 1 \quad 0$$

$$1 \quad 1 \quad 0 \quad 1 \quad 0 \quad 0$$

$$36 \quad 16 \quad 4 \quad 1 \quad 0 \quad 0 \rightarrow 52$$

Condition

Nested If else

Syntax

```
if (cond1): # outer if
    if (cond2): # inner if
        Statement of inner if
    else:
        Statement of inner else
```

Example

```
a = int(input())
if (n >= 0):
    if (n > 0):
        print("+ve")
    else:
        print("Zero")
else:
    print("-ve")
```