TIPI DI BASE

- Ogni variabile che usate è stata (espl. o impl.) dichiarata
- Dal tipo dipendono
  - → i valori possibili
  - → gli operatori consentiti

- TIPI DI BASE
  - INTERI
    - SENZA SEGNO: uint, uint8, uint16, uint32, uint64
    - CON SEGNO: int, int8, int16, int32, int64
  - FLOATING POINT
    - REALI: float32, float64
    - COMPLESSI: complex64, complex128
  - ALTRI
    - uintptr
    - byte
    - rune
    - string
    - error

TIPI INTERI SENZA SEGNO

$\mathbb{N}$

$\underbrace{0, 1, 2, 3, 4, 5, \ldots, 173, \ldots}_{\text{numerali}}$

CLXXIII

rappresentazioni posizionali in base 10

0, 1, 2, ..., 9

191

911

		9 ×	1 ×	1 ×
10^4	10^3	10^2	10^1	10^0

$9 \times 10^2 +$
$1 \times 10^1 +$
1×10^0

0, 1, 2, ..., 9, ☺, ♡, ▭

0 1 9 10 11 12

...		1	7
	13^2	13^1	13^0

$10 \times 13^1 + 0 \times 13^0 =$

130

BASE 2 — binaria

BASE 8 — ottale

BASE 16 — esadecimale

0, 1 ..., 9, A, B, C, D, E, F

$101101_2 = ?_{10}$

1	0	1	1	0	1

$\leftarrow 45_{10}$

2^5 2^4 2^3 2^2 2^1 2^0

32 16 8 4 2 1

$1+4+8+32=45$

$$37_{10} = \quad ?_{2}$$

37	1
18	0
9	1
4	0
2	0
1	1
0	

100101

$32 + 4 + 1 = 37$

$$13_8 = ?_2$$

$$\Downarrow$$

$$13_8 = ?_{10}$$

1	3
8^1	8^0

$$1 \times 8^1 + 3 \times 8^0 =$$

$$= 8 + 3 = 11$$

$$11_{10} = ?_2$$

11	1
5	1
2	0
1	1
0	

$$1011_2$$

1	1	1	1	1	1	1	1
2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0
128	64	32	16	8	4	2	1

0

↓

255

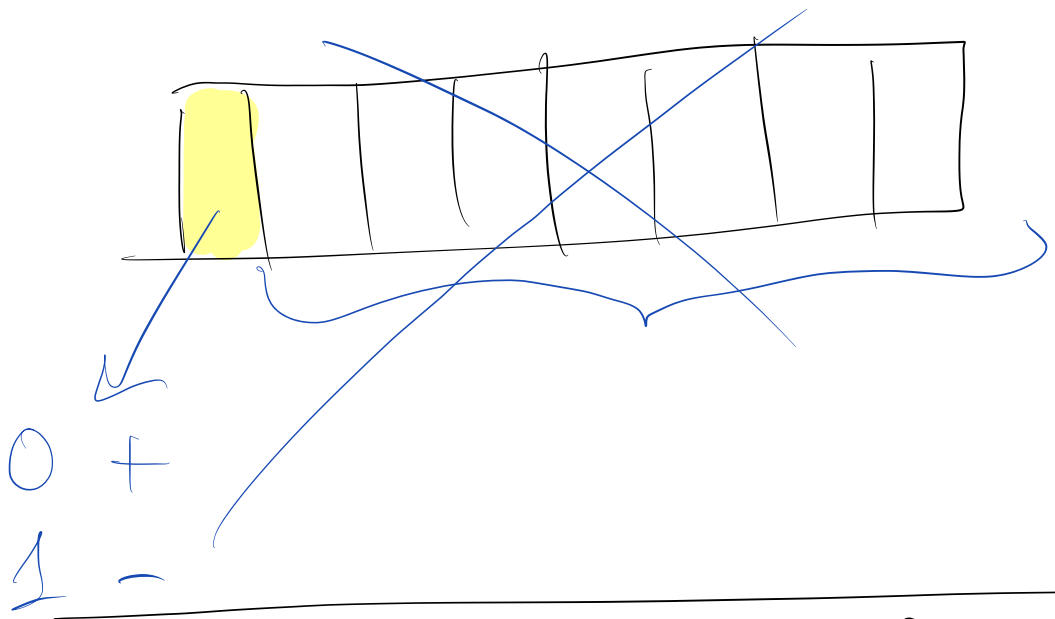
$$\begin{array}{r} {\scriptstyle 1\,1\,1\,1\,1\,1\,1\,1} \\ 11111111 \\ 1 \\ \hline 10000000 \end{array}$$

TIPO	BIT	BYTE	RANGE
uint8	8	1	$0 \rightarrow 255$
uint16	16	2	$0 \rightarrow 65535$
uint32	32	4	$0 \rightarrow 4\,294\,967\,295$
uint64	64	8	$0 \rightarrow \approx 1.84 \cdot 10^{19}$
uint	?	?	

implementation dependent

TIPI INTERI CON SEGNO

$\mathbb{Z}$



RAPPR. IN COMPLEMENTO A 2

1	1	1	1	1	1	1	1
-2^7	2^6	2^5	2^4	2^3	2^2	2^1	2^0

$-128 \quad 64 \quad 32 \quad 16 \quad 8 \quad 4 \quad 2 \quad 1$

$$2^7 - 1 = \boxed{\begin{array}{c} 127 \\ \uparrow \\ -128 \end{array}}$$

$$-2^7 \longrightarrow 2^7 - 1$$

TIPO	BIT	BYTE	RANGE
int8	8	1	$-128 \rightarrow 127$
int16	16	2	$-32768 \rightarrow 32767$
int32	32	4	-2 miliardi $\rightarrow$ 2 miliardi
int64	64	8	$-9 \cdot 10^{18} \rightarrow +9 \cdot 10^{18}$
int	?	?	

00000000	0
00000001	1
00000010	2
⋮	
01111111	127
10000000	-128
10000001	-127
10000010	-126
⋮	
11111111	-1
00000000	0

+1

var x int

var y, z uint8

---

var (

x int

y, z uint8

)

x = y+z NO

y = x+z NO

x = int (y+z)

y = uint8(x) + z

y = uint8(x + int(z))

$x = 3$

$y = 3$

COSTANTI INTERE

$d := \underbrace{13}_{int}$

untyped integer constants

$x = \underbrace{0x}\,1A7$

COSTANTE INTERA ESA

$x = \underbrace{0}\,13$

COSTANTE INTERA OTTALE

$x = 11$

$x = 0xB$

09 08