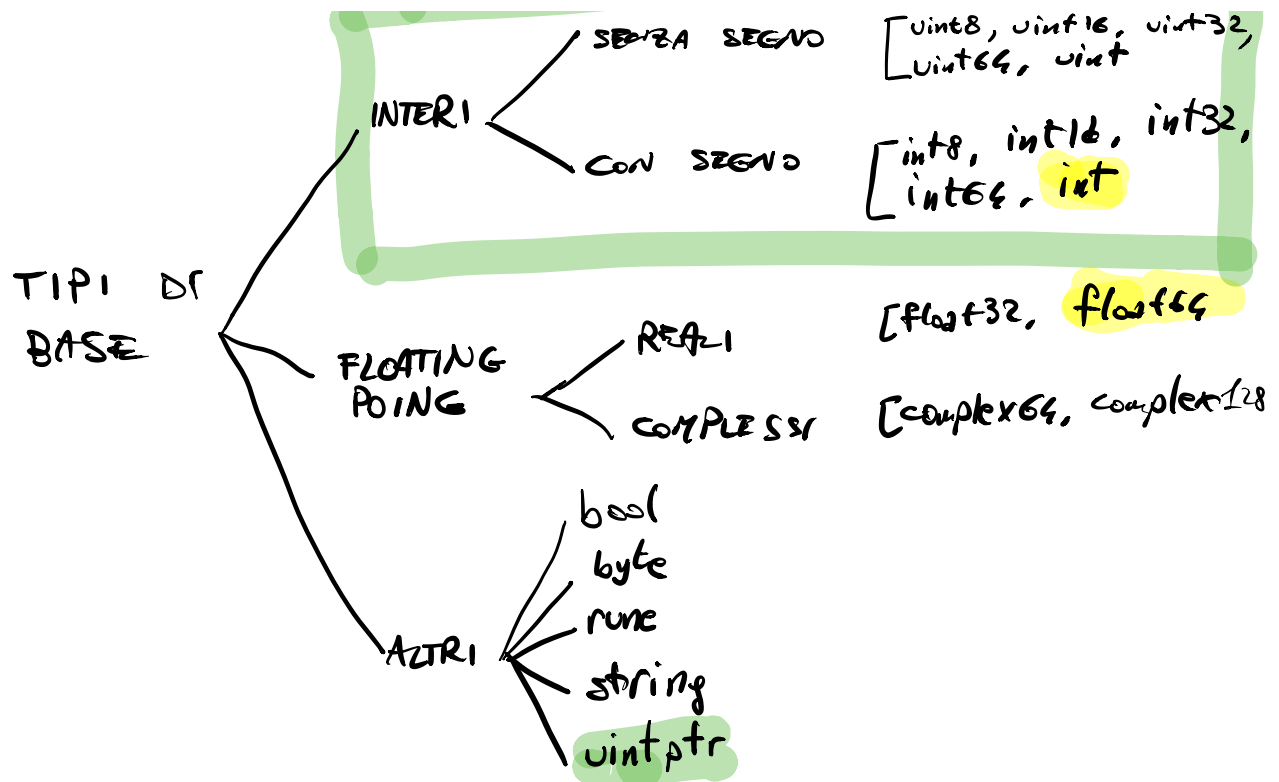




TIPO →

- insieme dei valori che una variabile può assumere
- operazioni
- determina quanto spazio occupa in memoria e come saranno rapp. i valori

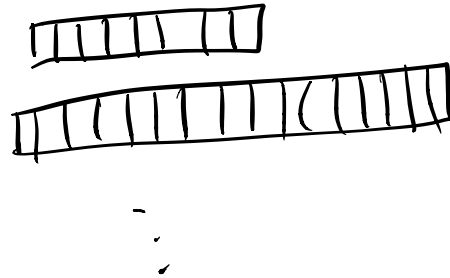
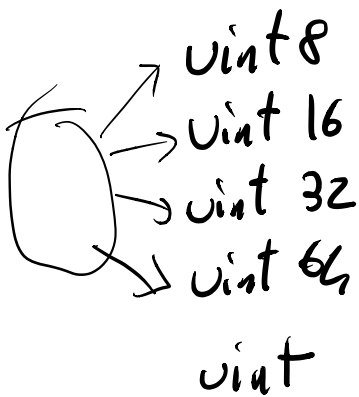
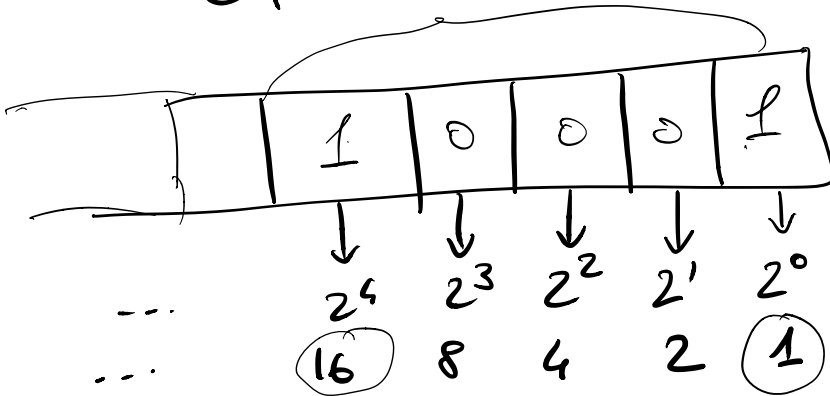
INTERI SENZA
SEGNO

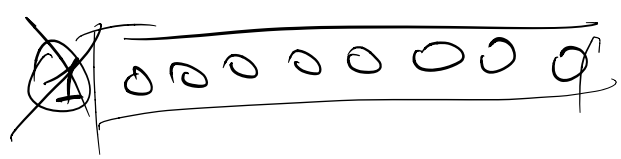
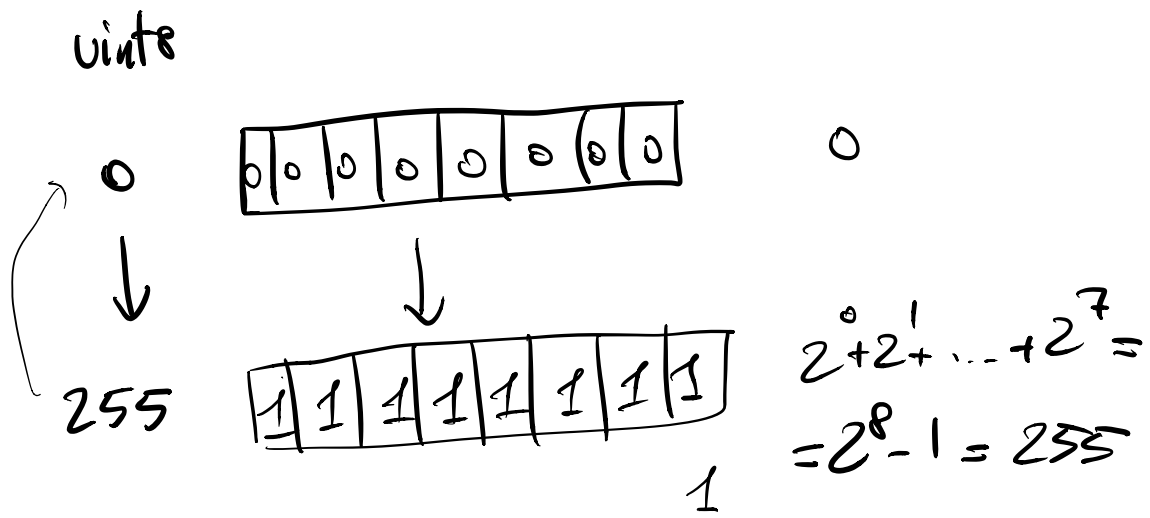
= N

17	2
8	2
4	2
2	2
1	2
0	

rest	1
"	0
"	0
"	0
"	1

10001





	bit	byte	range
uint8	8	1	0 → 255
uint16	16	2	0 → 65535
uint32	32	4	0 → 4294967295
uint64	64	8	0 → $\approx 1.84 \cdot 10^{19}$
uint	?	?	?

var
var
 x = y + x
 z = w * z

x, y
 z, w

uint8
 uint32

$$z = z + \text{uint32}(x)$$

<u>Var</u>	x	uint8
<u>Var</u>	l	uint64

$$x = 255$$

$$\rightarrow l = \text{uint64}(x * 2)$$

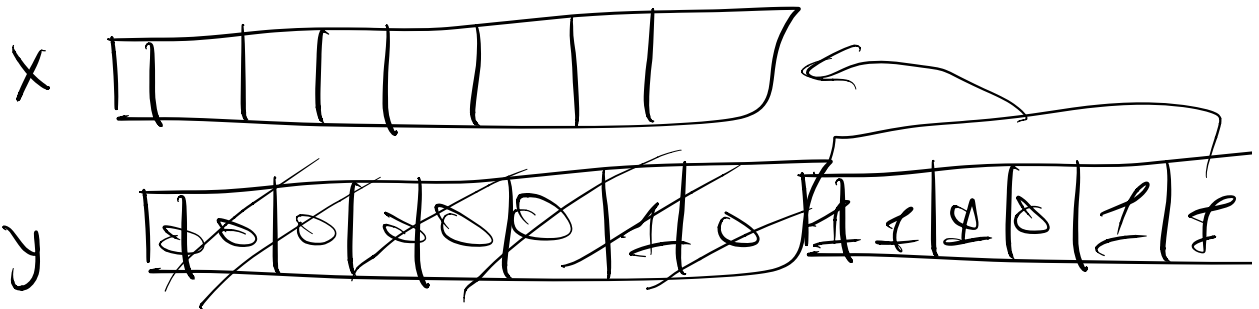
$$l = \text{uint64}(x) * 2$$

<u>Var</u>	x	uint8
<u>Var</u>	y	uint16

$$y = 1000$$

$$x = \text{uint8}(y)$$

$$y = \text{uint16}(x)$$

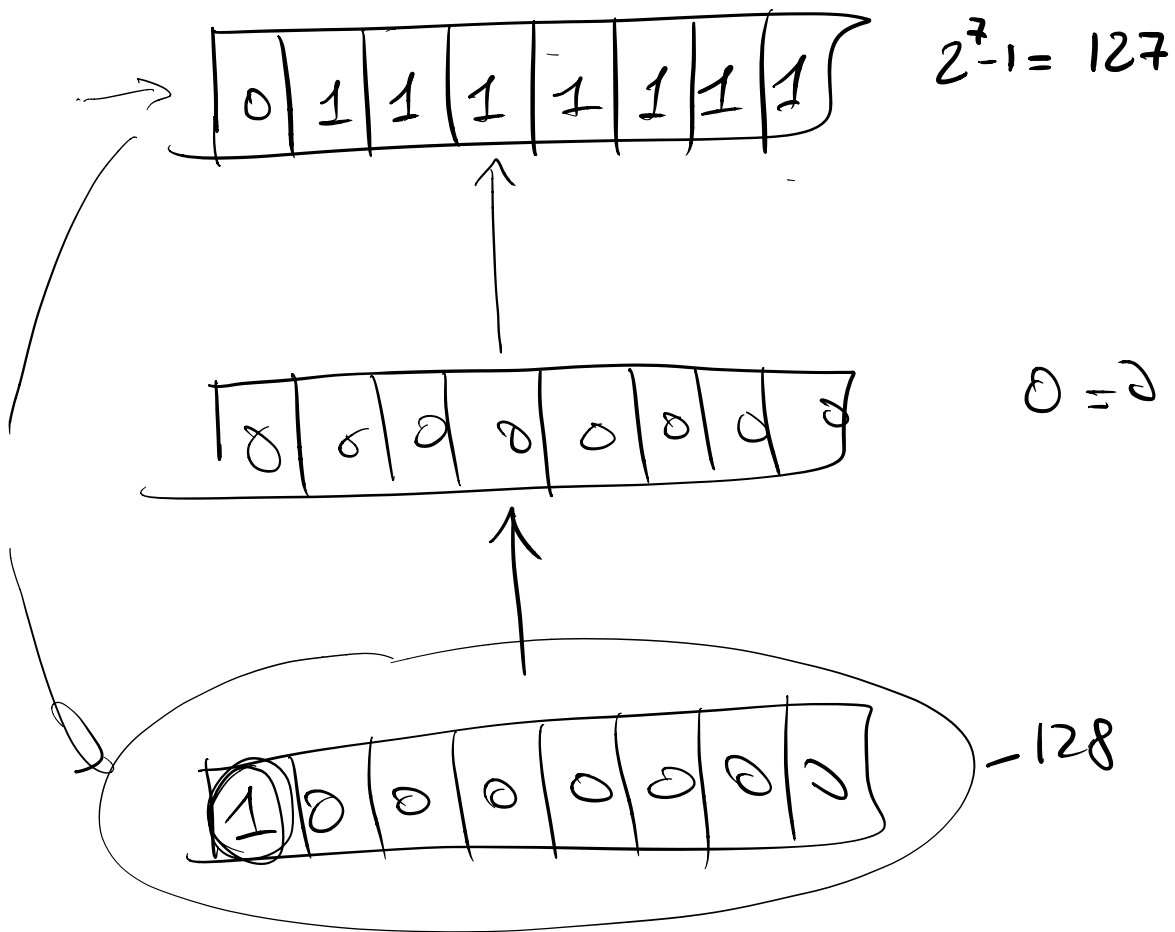


INTERI CON
SEGNO $\mathbb{Z}$

int8
int16
int32
int64
int

RAPPRESENTAZIONE IN
COMPLEMENTO A 2

1	0	0	1	0	1	0	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



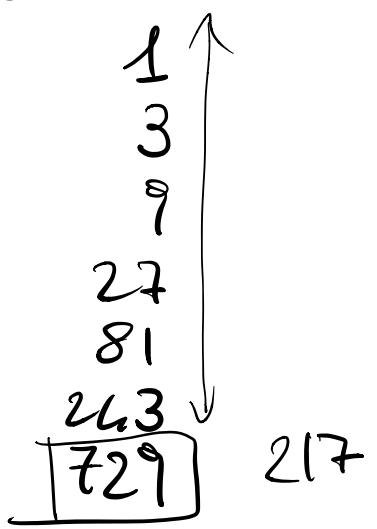
	bit	byte	RANGE
int8	8	1	-128 → 127
int16	16	2	-32768 → 32767
int32	32	4	-2147483648 → $2^{31} - 1$
int64	64	8	≈ -9.10 ¹⁸ → +9.10 ¹⁸
int	?	?	

Esercizio

```
var x uint8  
x = 1  
for {  
    funt.Println(x)  
    x *= 3  
}
```

per ognuno dei
8 tipi interi
dite qual e'
il primo valore
emerso sbagliato

$729 \rightarrow 10 \boxed{11011001}$
217



STAMPE DI PATTERN

- Data n stampare

$$\begin{array}{c}
 \underbrace{\hspace{10em}}_m \\
 \left. \begin{array}{l}
 **** * \\
 ** * * * \\
 \vdots \\
 + + + + +
 \end{array} \right\} n
 \end{array}$$

- Data n stampare

$$\begin{array}{c}
 \underbrace{\hspace{10em}}_m \\
 \left. \begin{array}{l}
 ***** \\
 **** * \\
 *** * \\
 ** * \\
 * * \\
 *
 \end{array} \right\} n
 \end{array}$$

- Data n stampare

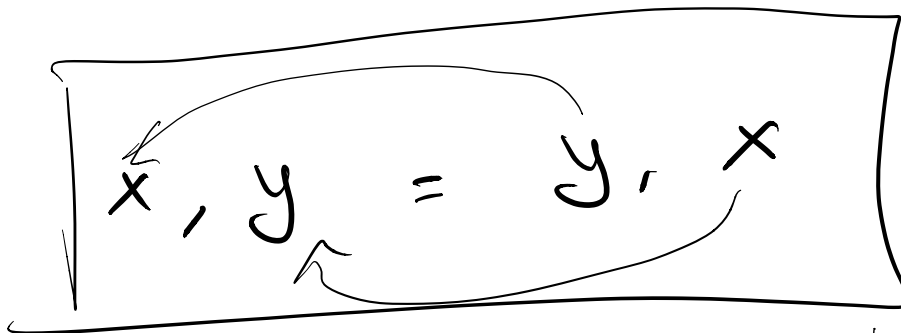
$$\begin{array}{c}
 \underbrace{\hspace{10em}}_m \\
 \left. \begin{array}{l}
 ***** \\
 **** * \\
 *** * \\
 ** * \\
 * * \\
 *
 \end{array} \right\} n
 \end{array}$$

$x, y = \text{esp}_1, \text{esp}_2$



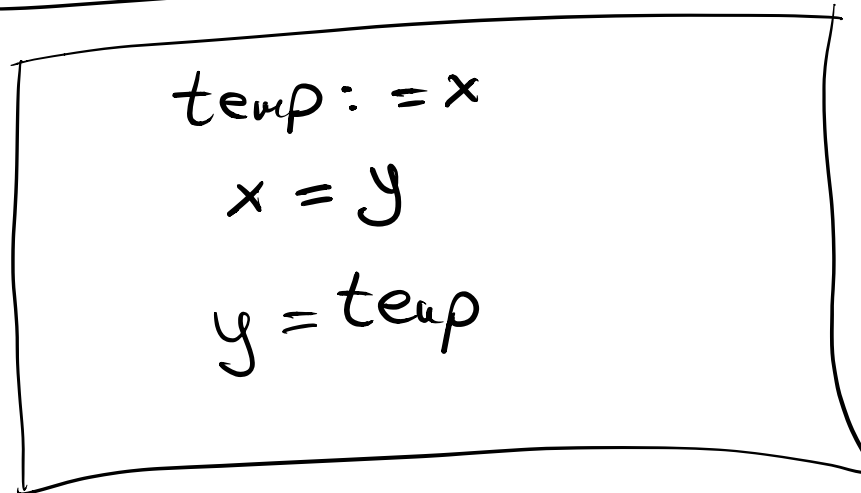
A diagram showing the assignment $x, y = \text{esp}_1, \text{esp}_2$. The variables x and y are on the left, followed by an equals sign, then esp_1 and esp_2 in ovals separated by a comma. Two curved arrows originate from the ovals: one from esp_1 pointing to x , and another from esp_2 pointing to y .

$x, y = y, x$



A diagram showing the swap operation $x, y = y, x$. The variables x and y are on the left, followed by an equals sign, then y and x . Two curved arrows indicate the swap: one from y to x and another from x to y .

temp := x
x = y
y = temp



A diagram showing a swap operation using a temporary variable. The code is written in three lines: $\text{temp} := x$, $x = y$, and $y = \text{temp}$. The entire code block is enclosed in a hand-drawn rectangular box.