Ricerca binaria

hotel

$\leftarrow$ a - - - z

[1, 10, 20, 25, 99]

P	

a	P	z

b

g	

a	g	P

b

1'000'000   999 999

[0, 1 - - - - - - - - - - - - - - - - 1 000 000]

$O(n)$

	h

g	P

h

$\left[\ \left|\ \ \ \right]\right.$

$\left[\ \ \ \right]$

$\left[\ \ \right]$

$\left[\ \right]$

$\left[\ \log_2\ \right]$

$1s.$

$\left[\ \cdots\quad 1'000'000\quad \cdots\ \right]$

$\underline{\qquad}_s$

$O\left(\log_2 n\right)\ \leadsto\ \sim 20\ (19)\qquad \|$

$\underline{19}\ \leadsto\ \underline{19s}$

$$0 \quad 1 \quad 2 \quad \quad 3 \quad 4 \quad 5$$

$l \quad [\ 1\ ,\ 5\ ,\ 10\ |\ 21\ ,\ 30\ ,\ 50\ ]$

$inf = 0$

$sup = 5$

$\underline{src} = 30$

$mid = (inf + sup)/2 = \dfrac{0+5}{2} = 2,5 = 2$

$\underline{l[2]} = \underline{10} < src$

$[\ 1\ ,\ 5\ ,\ 10\ ,\ 21\ ,\ 30\ ,\ 50\ ] \qquad mid = \dfrac{5+3}{2} = 4$

$\uparrow inf = 3 \qquad \uparrow sup = 5$

$l[4] = \underline{30} \qquad 3$

Flowchart (ricerca binaria / binary search):

- ans = ?
- inf = 0
  sup = size lista
- mid = (inf + sup)/2
- midel = lista[mid]
- midel = ans ? → sì → Trovato!
  - no
- midel < ans ? → sì → inf = mid + 1
  - no → sup = mid − 1