

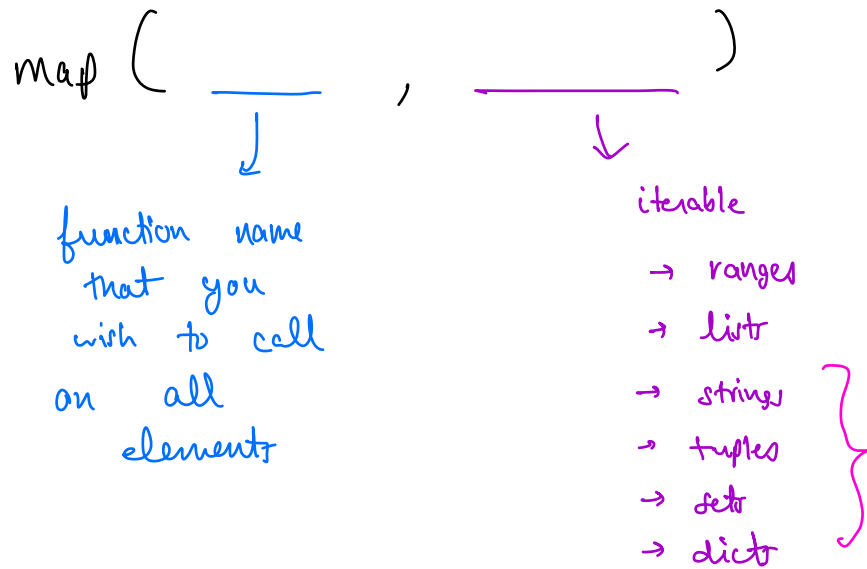
List Slicing

9:05

Agenda

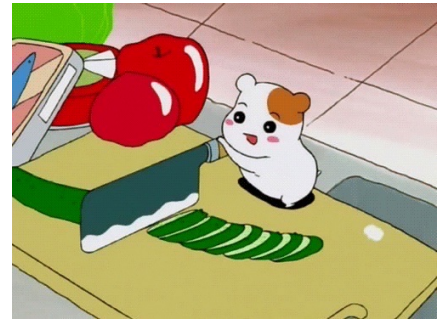
- ✓ map function
- ✓ List slicing
- ✓ Reverse of an array

map() function



List slicing

To extract some portion / slice
out of your list



$a =$

1	9	2	8	4	3	7
0	1	2	3	4	5	6

start end increment
↓ ↓ ↓
a [: :]

end is excluded

[1, 1, 2, 3, 5, 8, 13]
0 1 2 3 4 5 6

↑
start

↑
end

nums[1:5]

[1, 2, 3, 5]

$a = [10, 20, 30, 40, 50, 60, 70]$

0 1 2 3 4 5 6
↑ start ↑ end

$a[1 : 6 : 2]$

↑ start ↑ end ↑ step

$[20, 40, 60]$

$l = [10, 2, 5, 3, 6]$

0 1 2 3 4 5
↑ start ↑ end

$l[0 : 5 : 2]$

↑ step

$[10, 5, 6]$

nums = [0, 25, 50, 75, 100]

0 1 2 3 4

↑ start ↑ end

nums[0:5:2] == [25, 75]

↓
[0, 50, 100]

False

Break till 10:05 PM

nums = [1, 1, 2, 3, 5, 8, 13]

0 1 2 3 4 5 6

↑ start ↑ end

[1, 2, 3, 5]

nums[1:5:1]

↑ step

Default values

the step

→ start = 0

→ end = length of list

a = [5, 9, 8, 6, 2, 1, 3]

0 1 2 3 4 5 6

↑ ↓ →

a[:4] = [5, 9, 8, 6]

start = 0

step = 1

a[3:] = [6, 2, 1, 3]

end = 7

(length of the list)

nums = [1, 1, 2, 3, 5, 8, 13]

↑

↑
end

[1, 1, 2, 3, 5]

nums[:5]

start = 0

l = [2, 4, 5, 7, 8]

↑
end

↑
start

Ans = []

l[s:o]

step = 1

a = [10, 20, 30, 40, 50, 60]

0 1 2 3 4 5

-6 -5 -4 -3 -2 -1

↑
start

↑
end

a[-3:-1]

default step = 1

= [40, 50]

$$a[\underline{2} : \underline{-2}] = [30, 40]$$

$$a[-5 : 4] = [20, 30, 40]$$

$$a[1 : -2] \quad \nearrow \quad \begin{matrix} a[1:4] \\ a[-5:-2] \end{matrix}$$

$$\text{nums} = [1, 1, 2, 3, 5, 8, 13]$$

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

↑
↑
start
end

$$\text{nums} [-5 : -2] = [2, 3, 5]$$

Negative steps →

$$a = [10, 20, 30, 40, 50, 60]$$

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

↑
↑
end
start

$$a[s : 2 : -1] = [60, 50, 40]$$

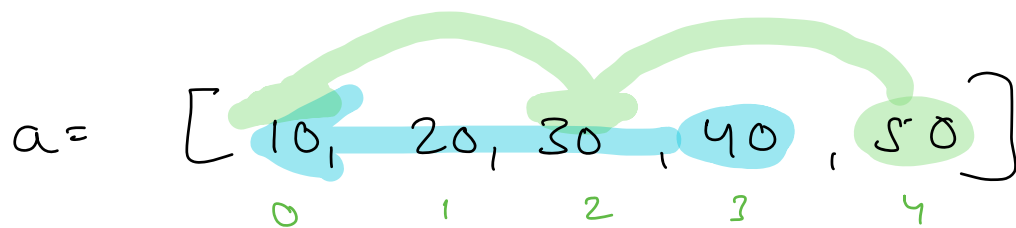
$$a[4 : 0 : -2] = [50, 30]$$

$$a[s : 0 : -3] = [60, 30]$$

Default values for -ve steps

$$\rightarrow \text{start} = -\text{len} - 1$$

$$\rightarrow \text{end} = \text{len}$$



$$a[3 : \underline{\quad} : -1] = \underline{40, 30, 20, 10}$$

$a[4: -2]$
↑

$[50, 30, 10]$

$a = [10, 20, 30, 40, 50]$
0 1 2 3 4
↑
end

$a[: \underline{2} : -1]$ = 50, 40

$a[: 0 : -2]$ = $[50, 30]$

Negative step = Right to Left

l = [2, 4, 5, 7, 8]

0	1	2	3	4
-5	-4	-3	-2	-1

l[-3:]

start = -3

end = _____

step = 1

↑
start



[5, 7, 8]

l = [10, 2, 5, 3, 6]

0	1	2	3	4
-5	-4	-3	-2	-1

l[: :-2]

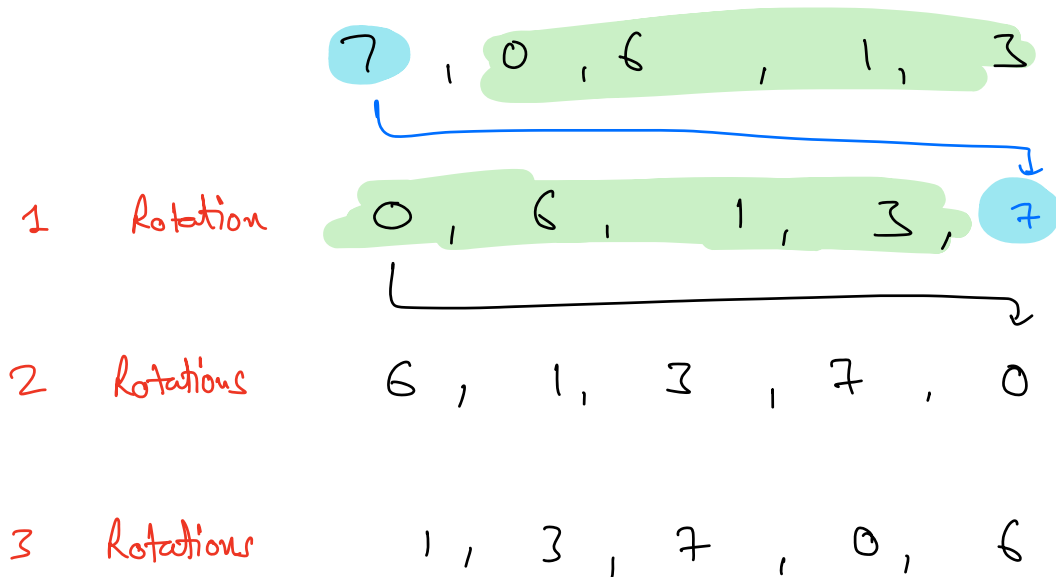
step = -2

R to L

[6, 5, 10]



Rotate Array



$$a = \underbrace{7, 0, 6}_{a[:3]}, \underbrace{1, 3}_{a[3:]}$$

$$b = 1, 3, 7, 0, 6$$

$$b = a[3:] + a[:3]$$

Doubts

Thank
You

Competitive
Programming



Very advanced
DSA
(Sport for DSA)

→ codeforces.com
→ codechef.com

Good
Night

Thank
You

Friday

