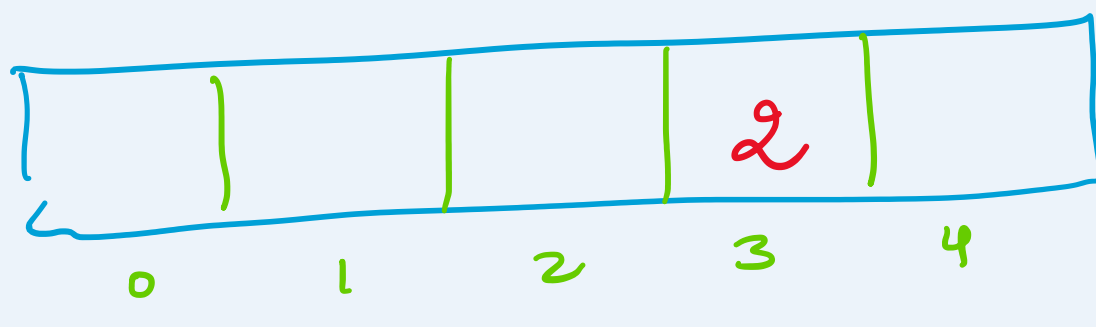
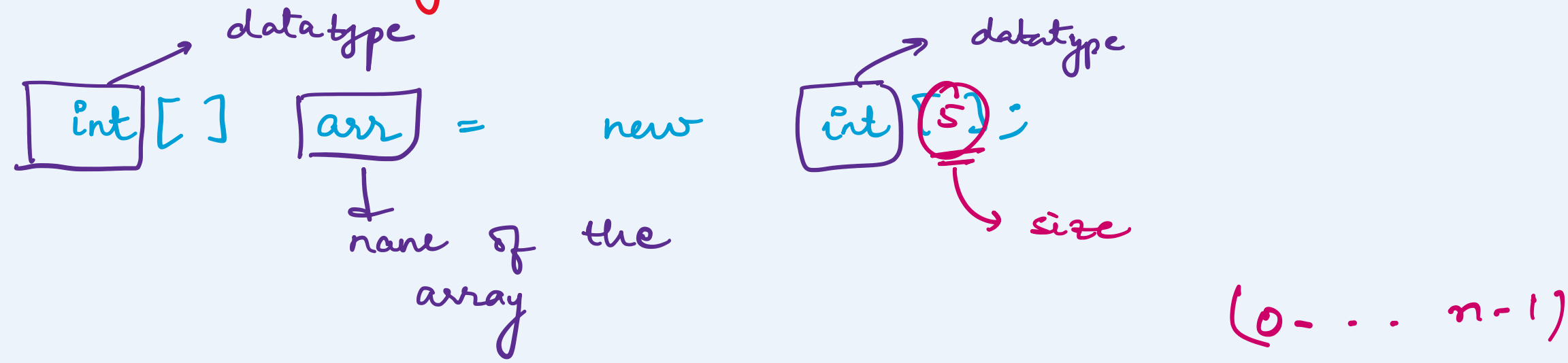


Arrays


$$\text{arr}[3] = 2$$

```
print(arr[2]);
```

Q k rotate the array. $n = 7$

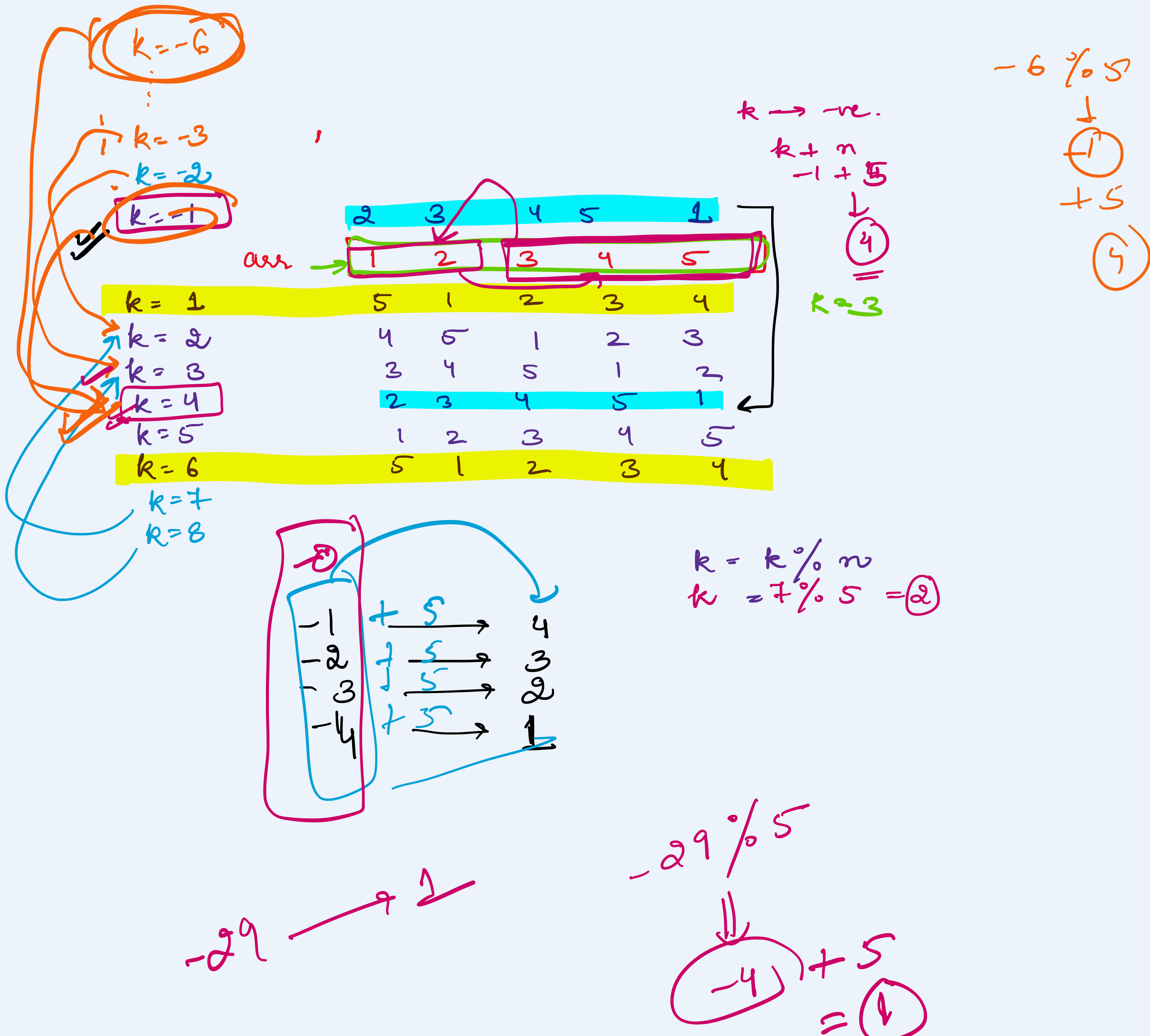
$$[1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7]$$

$k \rightarrow \underline{tree} \rightarrow (23)$

rotate the array
k times to the right

$$k=1 \begin{bmatrix} 7 & 1 & 2 & 3 & 4 & 5 & 6 \end{bmatrix}$$
$$k=2 \quad [6 \quad 7 \quad 1 \quad 2 \quad 3 \quad 4 \quad 5]$$

$k=3$ [5 6 7 1 2 3 4]



Next permutation

Given set of numbers rearrange them into lexicographically next greater permutation of numbers.

If such an arrangement is not possible, it must rearrange it lowest possible order.

① arr → [1, 2, 3]
output → [

(2) $arr \rightarrow [3, 2, 1]$

③ arr \rightarrow [1, 1, 5]
output \rightarrow [1, 5, 1]

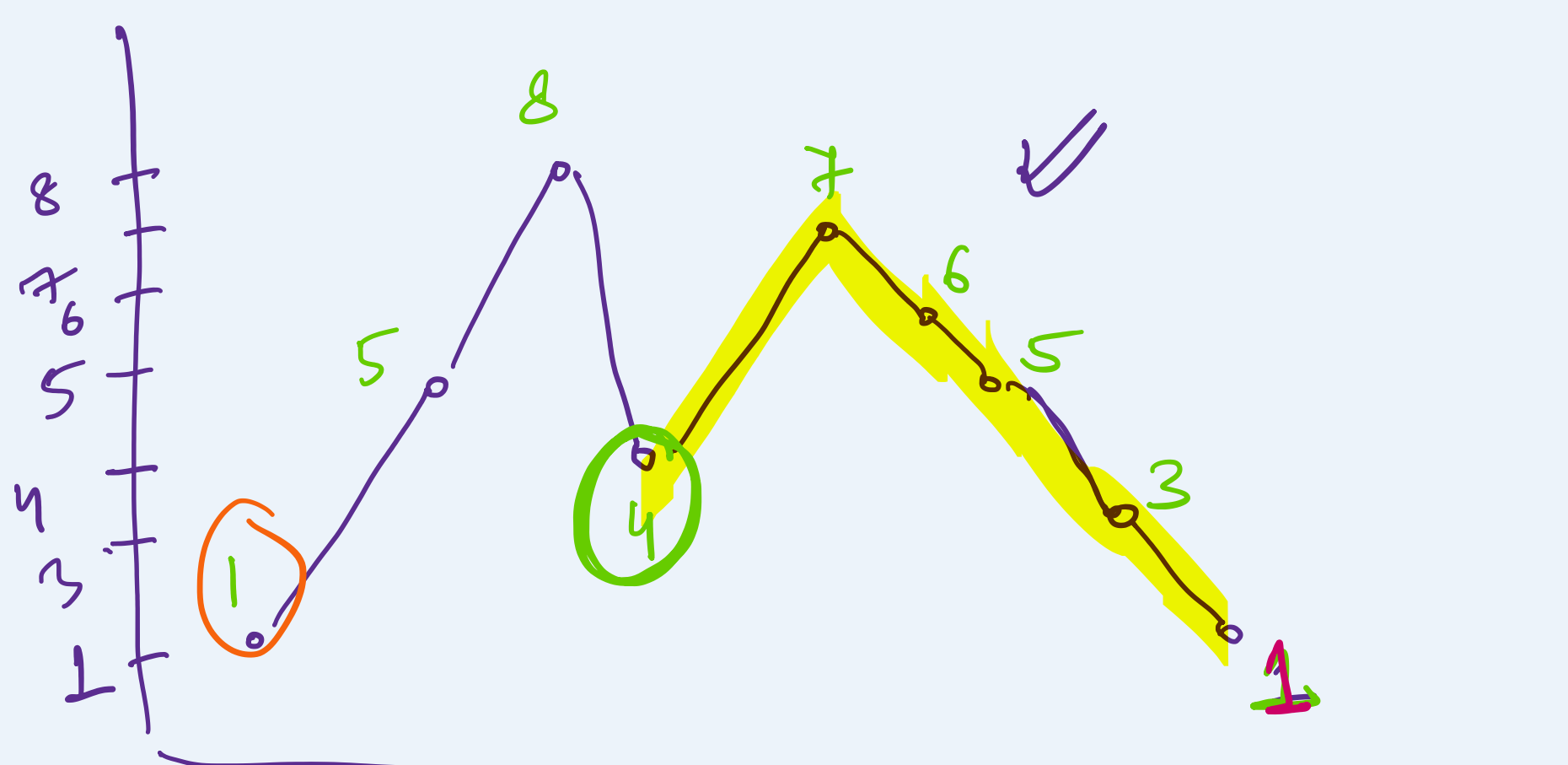
Descending order

(no larger permutation is possible)

$[9 \ 5 \ 4 \ 3 \ 1] \ x x x$

[1 5 8 4 7 6 5 3 1]

1 5 8 5 1 3 4 6 7 7



Prefix | Suffix

Prefix sum

Given an array of size n ,

$$\text{prefixSum}[i] = \text{arr}[0] + \text{arr}[1] + \dots + \text{arr}[i]$$

$arr \rightarrow [10, 20, 30, 40, 50]$
 $pref_fix \rightarrow [10, 30, 60, 100, 150]$

Suffix array

arr \rightarrow [10 20 30 5 15]
 suffix \rightarrow [80 70 50 20 15]

arr \rightarrow [10, 20, 30, 5, 15]

$d \rightarrow$

- $\rightarrow \text{Sum}(2, 4) \rightarrow O(n)$
- $\rightarrow \text{Sum}(0, 4) \rightarrow O(n)$
- $\rightarrow \text{Sum}(2, 4) \rightarrow O(n)$
- $\rightarrow \text{Sum}(1, 4) \rightarrow O(n)$
- $\rightarrow \text{Sum}(1, 3) \rightarrow O(n)$

$\underline{\underline{p[3] - p[0] \rightarrow 65 - 10 = 55}}$

arr \rightarrow [10, 20, 30, 5, 15] (24)

prefix \rightarrow [10 30 60 65 80] \rightarrow an

70 - 50

$$p[0] - p[s-1]$$

↓

11

1. Given an array A of size n and an element x .

Find if there is a subarray

ans: \rightarrow $\begin{bmatrix} 1 & 4 & -2 & -2 \end{bmatrix}$ $\begin{bmatrix} 5 & -4 & 3 & 7 \end{bmatrix}$

✓ 1.1