ARRAY : Video - 67

Medium ✗ ...E.A.S.Y...

Leetcode -1535 ✓

Find the winner of an Array Game

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1535. Find the Winner of an Array Game

Hint

Medium 649 35

Companies

Given an integer array `arr` of **distinct** integers and an integer `k`.

A game will be played between the first two elements of the array (i.e. `arr[0]` and `arr[1]`). In each round of the game, we compare `arr[0]` with `arr[1]`, the larger integer wins and remains at position `0`, and the smaller integer moves to the end of the array. The game ends when an integer wins `k` consecutive rounds.

Return *the integer which will win the game*.

It is **guaranteed** that there will be a winner of the game.

Example :- arr = {2, 1, 3, 5, 4, 6, 7}, K = 2

Output = 5

arr = {1, 25, 68, 35, 42, 70}

K = 3

Output = 68

T.L.E.

Brute Force :-

K = 3

0 1 2 3 4 5

{1, 25, 68, 35, 42, 70}

quadratic

O(n)

~~25, 1~~

68, ~~3~~

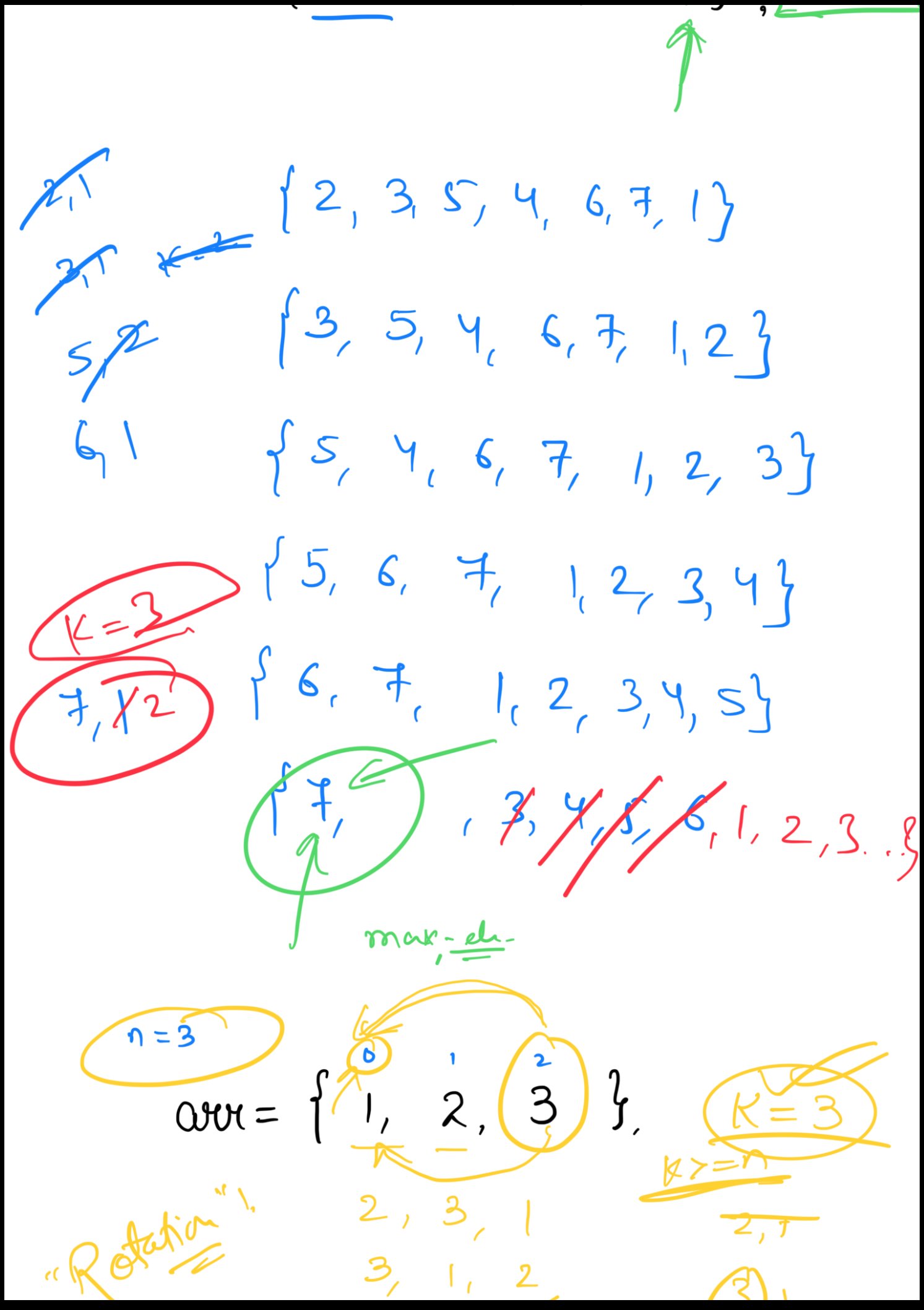
{25, 68, 35, 42, 70, 1}

{68, 42, 70, 1, 25, 35}

Optimal Solution

"Intuition"

arr = {2, 1, 3, 5, 4, 6, 7} K = 2



~~2, 1~~ $\{2, 3, 5, 4, 6, 7, 1\}$

~~3, 1~~ ~~K = 2~~

~~5, 2~~ $\{3, 5, 4, 6, 7, 1, 2\}$

6, 1 $\{5, 4, 6, 7, 1, 2, 3\}$

$K = 3$ $\{5, 6, 7, 1, 2, 3, 4\}$

7, ~~1~~ 2 $\{6, 7, 1, 2, 3, 4, 5\}$

$\{7, \quad , \cancel{3}, \cancel{4}, \cancel{5}, \cancel{6}, 1, 2, 3 \ldots\}$

max-el.

$n = 3$

$$arr = \{\overset{0}{1}, \overset{1}{2}, \overset{2}{3}\}.$$

$K = 3$

$K >= n$

2, 3, 1

3, 1, 2

"Rotation"!

2, 1

3, 1

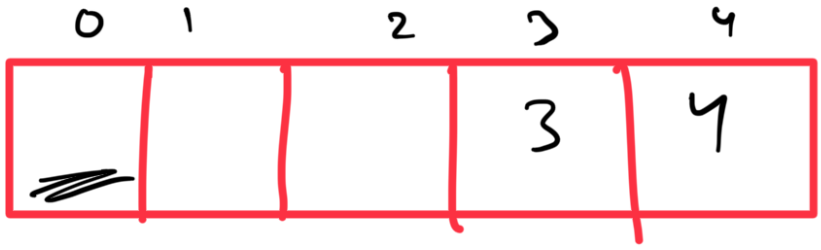
{ 3, 1, 2 }

{ 3, 2, 1 }

{ }, 1, 2 }

} ...

- if (K >= n) return maxEle;
- As soon as you reach max element (0th index), return max element.



arr = { 1, 25, 68, 35, 42, 70 }, n = 6

K = ~~3~~ 4

Winner = ~~1~~ ~~28~~ ~~68~~ 70

streak = ~~0~~ ~~1~~ ~~2~~ ~~3~~ 1

if(streak == K || winner == maxEl)

return winner;

Ans. 68.