Line Sweep Algorithm Concepts & Qns

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Video - 9

Motivation :

You have to stay consistent if you

want to stay at the top.

MIK...

1589. Maximum Sum Obtained of Any Permutation

Medium | Topics | Companies | Hint

We have an array of integers, `nums`, and an array of `requests` where `requests[i] = [start_i, end_i]`. The `i^th` request asks for the sum of `nums[start_i] + nums[start_i + 1] + ... + nums[end_i - 1] + nums[end_i]`. Both `start_i` and `end_i` are *0-indexed*.

Return *the maximum total sum of all requests* ***among all permutations*** *of* `nums`.

Since the answer may be too large, return it **modulo** `10^9 + 7`.

Example :- nums = [1, 2, 3, 4, 5] → [4, 5, 3, 2, 1]

requests = [(1,3), (0,1)]

Output : 19

(2+3+4) + (1+2) = 12

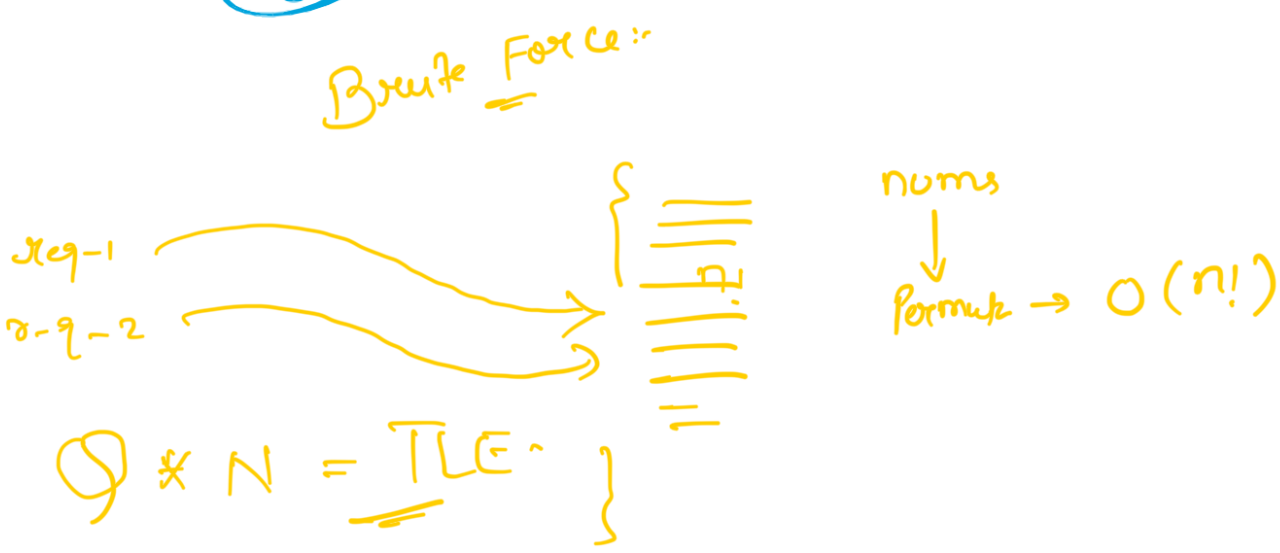
(5+3+2) + (4+5) = 19

(5+5) + (4) + (3) + (2)

Constraints:

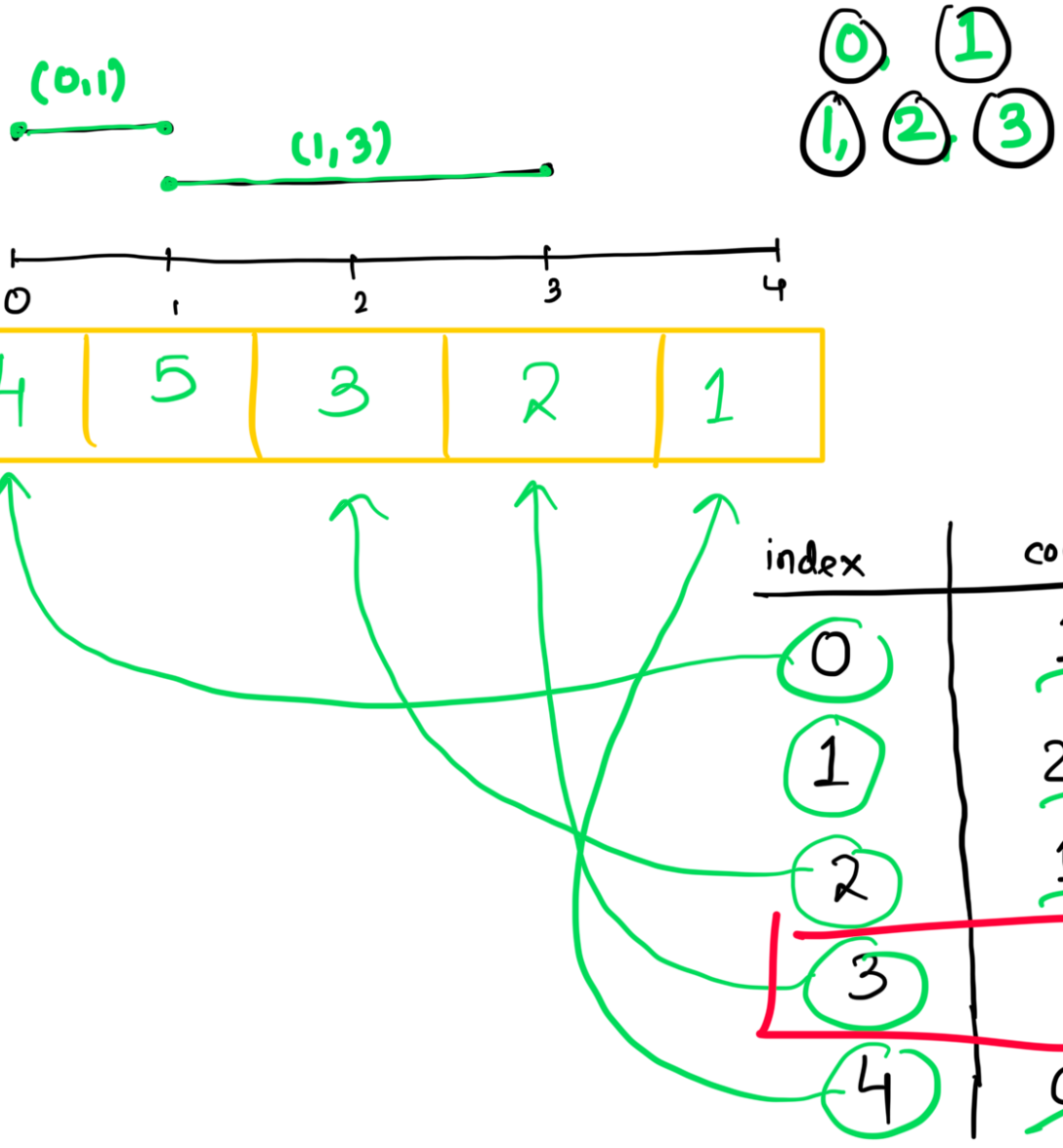
- `n == nums.length`
- `1 <= n <= 10^5`
- `0 <= nums[i] <= 10^5`
- `1 <= requests.length <= 10^5`
- `requests[i].length == 2`
- `0 <= start_i <= end_i < n`

Thought Process



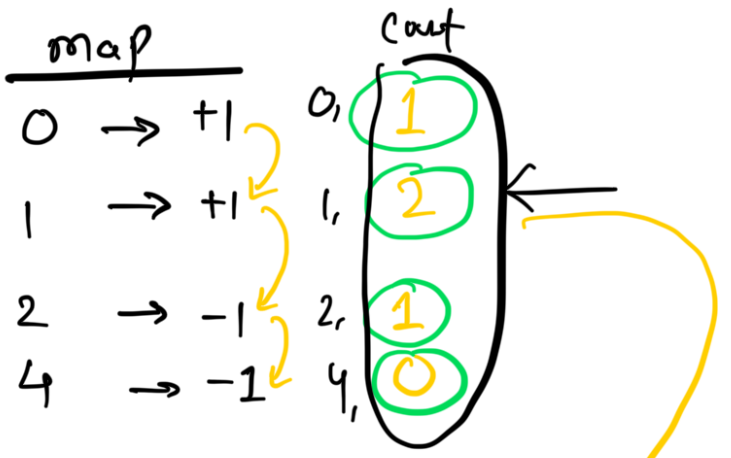
nums = { 1, 2, 3, 4, 5 } → { 4, 5, 3, 2, 1 }

Requests = { (1, 3), (0, 1) }



nums = { 1, 2, 3, 4, 5 }

q- = { (1, 3) (0, 1) }



{ 1, 2, 1, 0 }

{ 2, 1, 1, 0 }

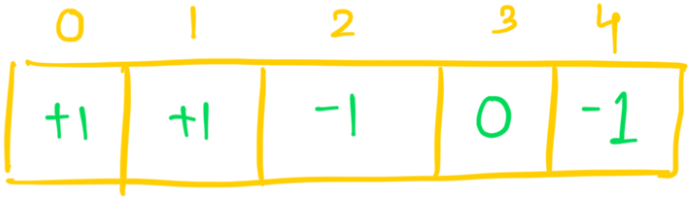
5

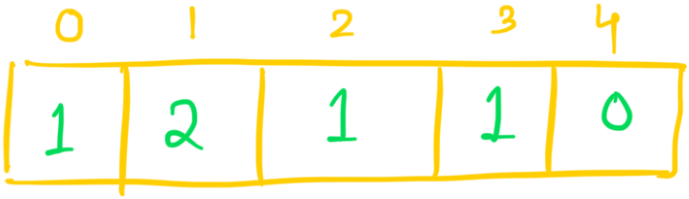
5 * 2 = 10

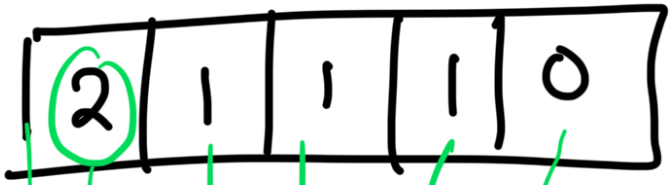
Q = (1, 2)

Q = (1,3)

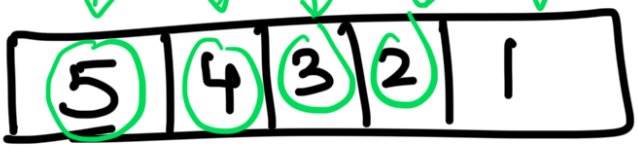
Q = (0,1)







Diff. Arr. Teach



5+5

$(5*2) + (4*1) + (3*1) + (2*1) + (1*0)$

$10 + 4 + 3 + 2 + 0 = 19.$

Line Sweep (Diff. Arr).