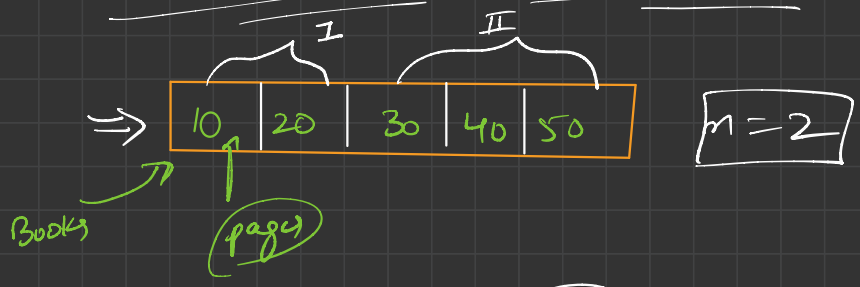
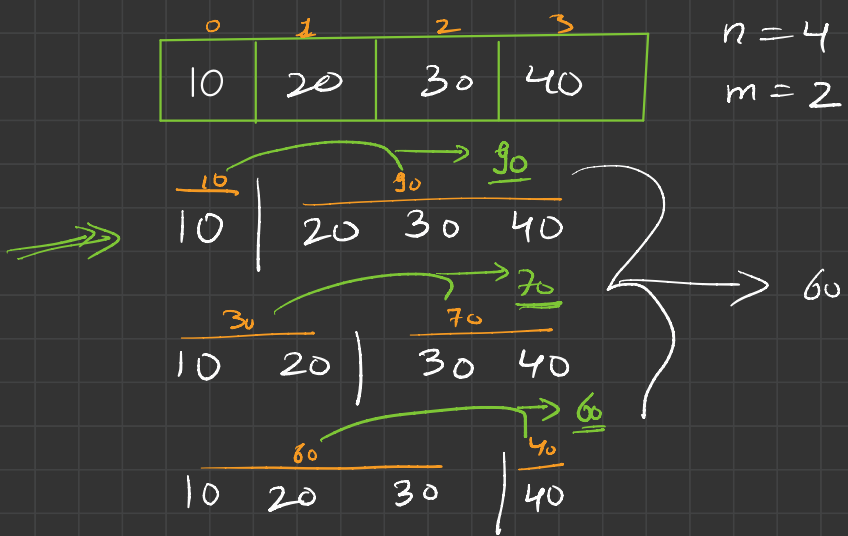
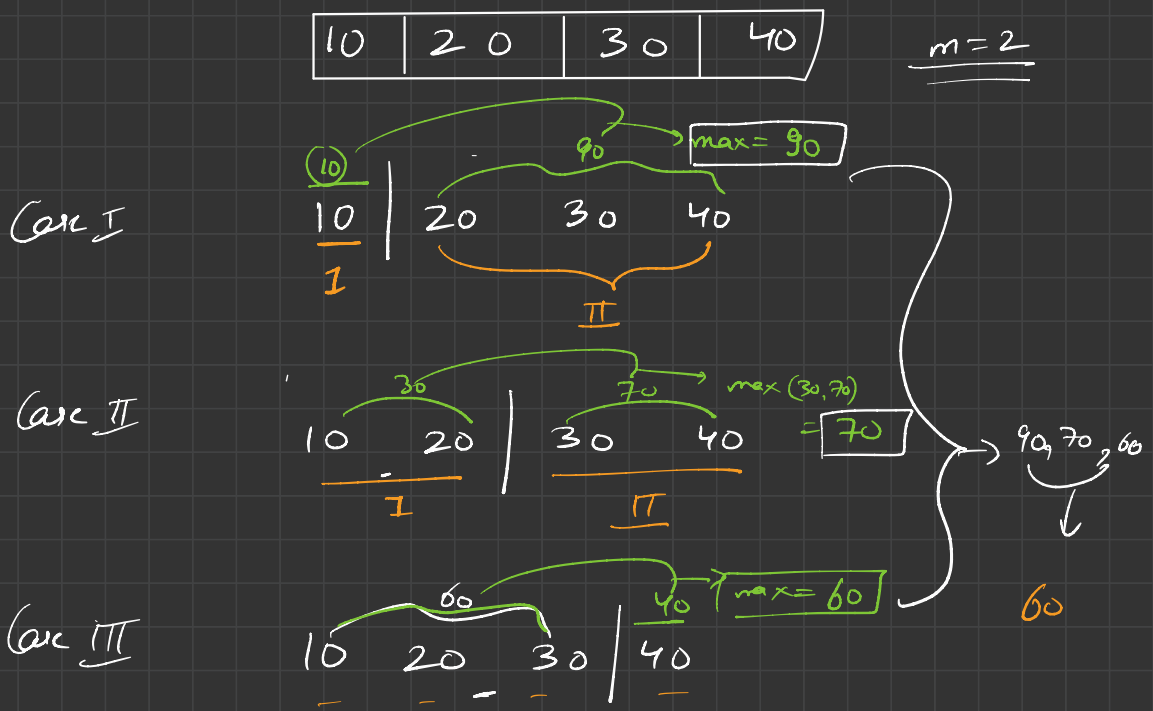
① Book Allocation Problem



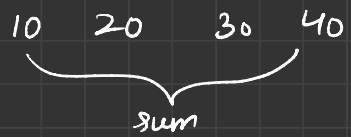
→ Students ⇒ m



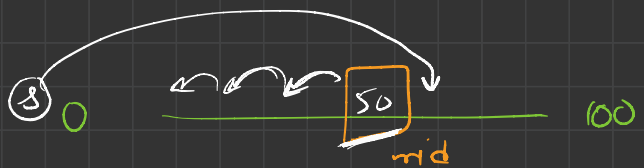


→ Concept → Search Space → minimize

ans → search space



min → 0 max = 100



mid = 50

s = mid + 1 → No solution exist

isPossibleSolution (mid)

m = 2

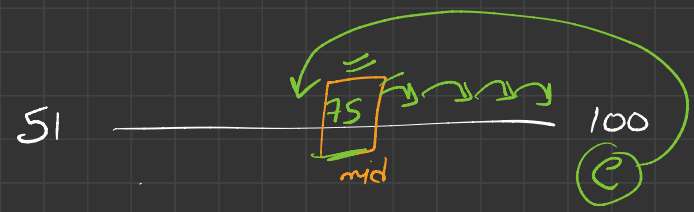
mid = 50

10 20 | 30 | 40

I → 10 + 20 + 30 ✗

II → 30 + 40 ✓

III → m = 2



mid = 75

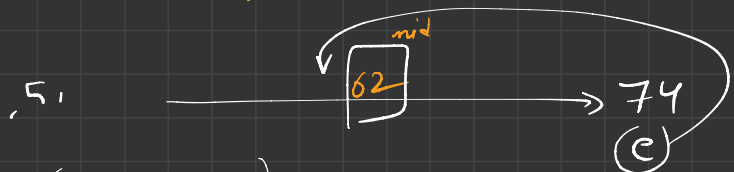
10 20 30 | 40

Possible soln ✓
↳ ans store
↳ left part (e = mid-1)
↳ minimum

I → 10 + 20 + 30 + 40
∝

II → 40

It is a possible solution



$mid = \left(\frac{51 + 74}{2}\right) = \frac{125}{2} = 62$

mid = 62

10 20 30 | 40

I → 10 + 20 + 30 → Soln ✓ exist

II → 40

mid = $\left(\frac{112}{2}\right)$ = 56

No Soln

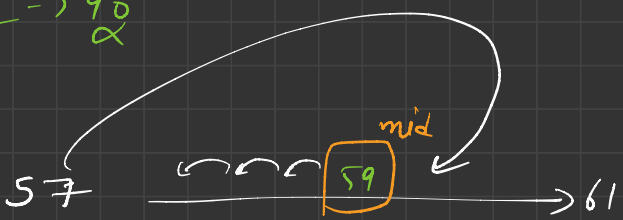
10 20 | 30 40

I → 10 + 20 + 30 ✗

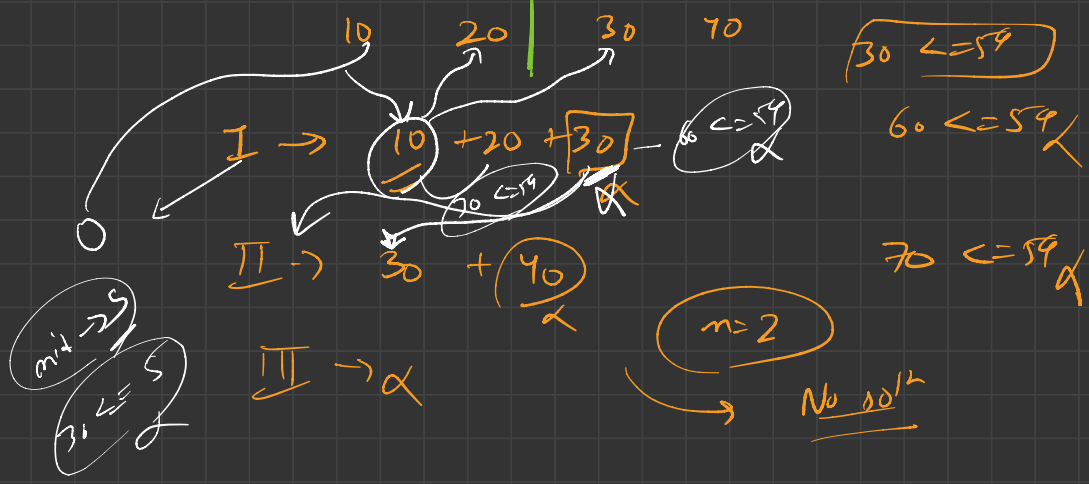
II → 30 + 40 ✓

III → 40 ✓

m = 2



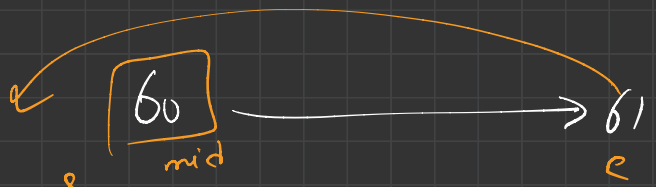
mid = $\left(\frac{57+61}{2}\right)$ = $\left(\frac{118}{2}\right)$ = 59



30 <= 59

60 <= 59 ✗

70 <= 59 ✗



$s = 60$

$e = 59$

$s > e$ → out of while

$mid = \frac{60+61}{2} = 60$

10 20 30 | 40

I → 10 + 20 + 30

II → 40 → Possible Sol'

ans store

60

$10 <= 60$ ✓

$30 <= 60$ ✓

$60 <= 60$ ✓

$100 <= 80$ ✗

$40 <= 60$ ✓

mid = 56

10 20 30 40

I → 10 +20

pageSum → 0 +10 = 10 → 10 <= mid

10 <= 56

= 10 + 20 = 30 <= 56

= 30 + 30 = 60 <= 56 ✗

student ++

II → 30

30 <= 56

check

~~page Sum = 30 + 30~~ ✗

pageSum = arr[i]

Page Sum = 0;

PageSum = 30

Painter's Partition Problem

H/W

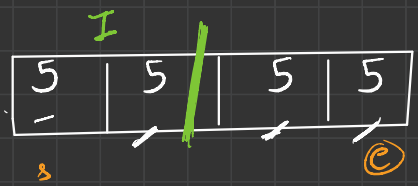
arr → 2 _ _ _ _ _ _ } N

K → painter

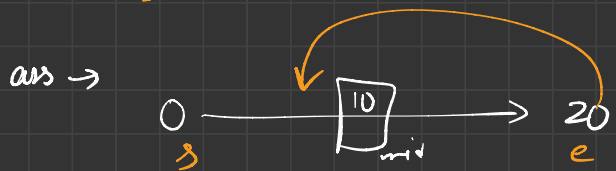
1 unit Board → 1 unit time

Painter → continous section

minimum time ?



K = 2

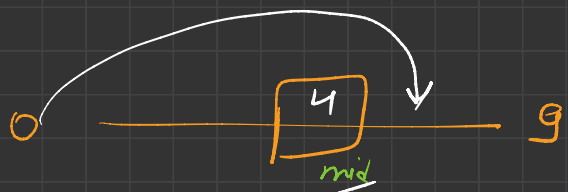


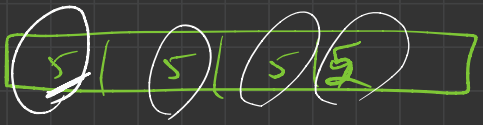
I → 5 + 5 = 10

II → 5 + 5 = 10

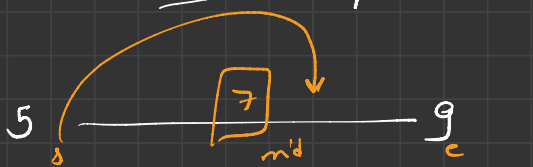
Possible → ans = 10

→ left part





I → $5 <= 4$ F



mid = 7

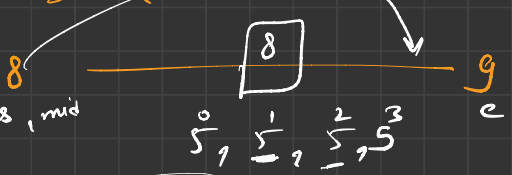
$5^0\ 5^1\ 5^2\ 5^3$

I → 5

II → 5

No solution

III α



$5^0, 5^1, 5^2, 5^3$

I → $5 <= 8$

II → $5 <= 8$

No soln

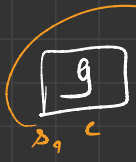
III α

$5^0, 5^1, 5^2, 5^3$

I → 5

II → 5

III α → No soln



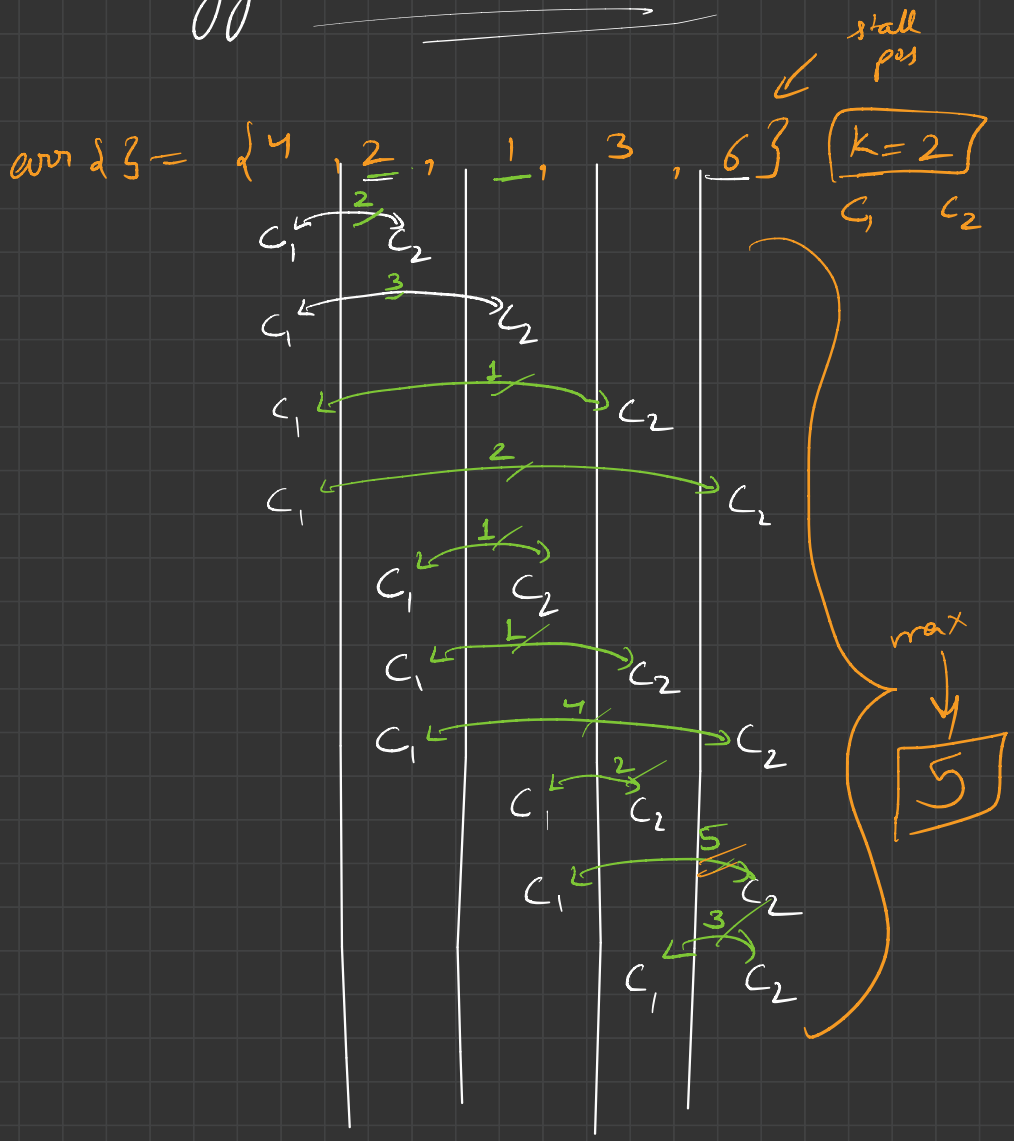
mid = 9

s = 10

e = 9

Out of while loop

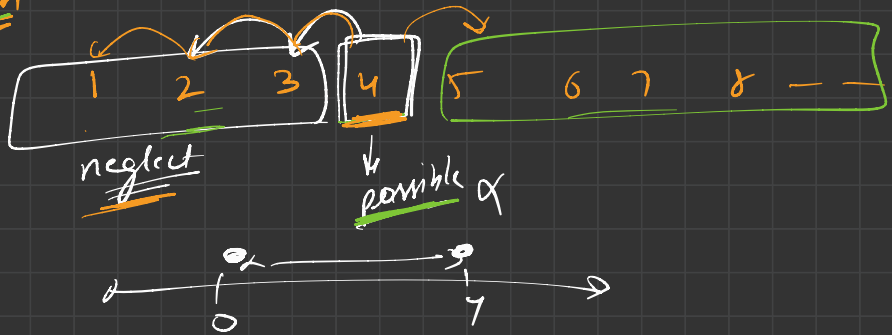
Aggressive Cows



4 2 1 3 6

Cows = ?

Search



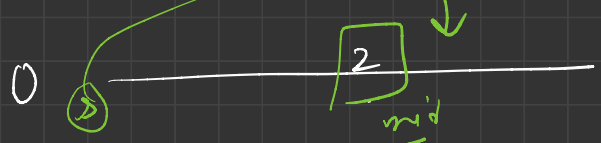
4 2 1 3 6

Search Space

min → 0

max → maxi − mini → (maxi)

max = 6 − 1 = (5)

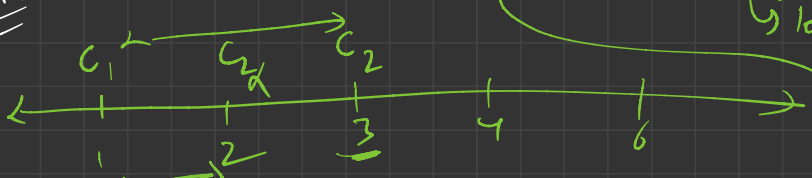


mid = 2

Possible → ans = 2

↳ left / Right

s = mid + 1



1 2

2

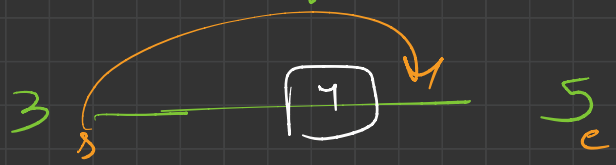
3 − 1 >= mid

(2) >= 2 — TRUE

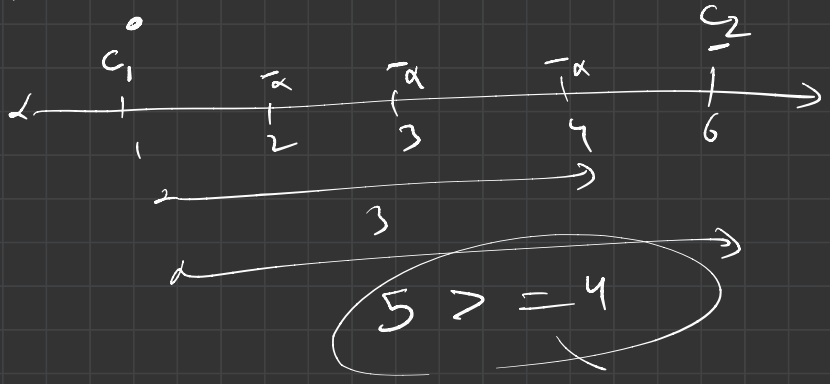
Possible

↳ ans store

↳ Right part



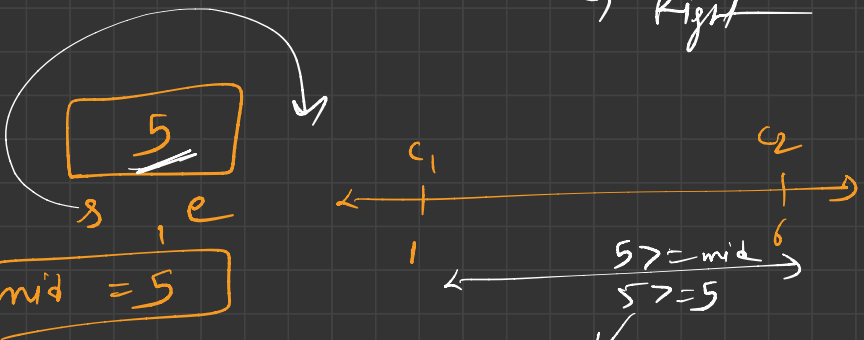
mid = 4



Possible

↳ ans = 4

↳ Right



Possible ans

↳ ans = 5

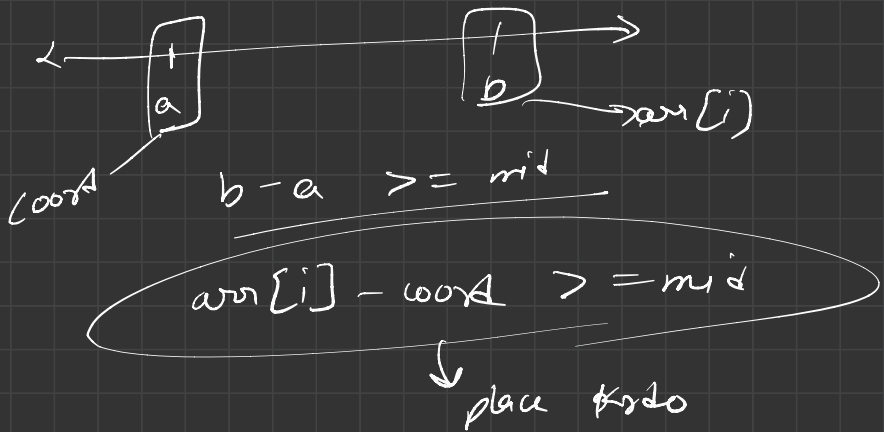
↳ s = mid + 1

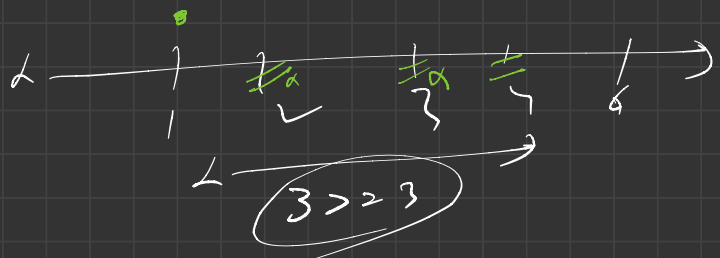
s = 6

e = 5

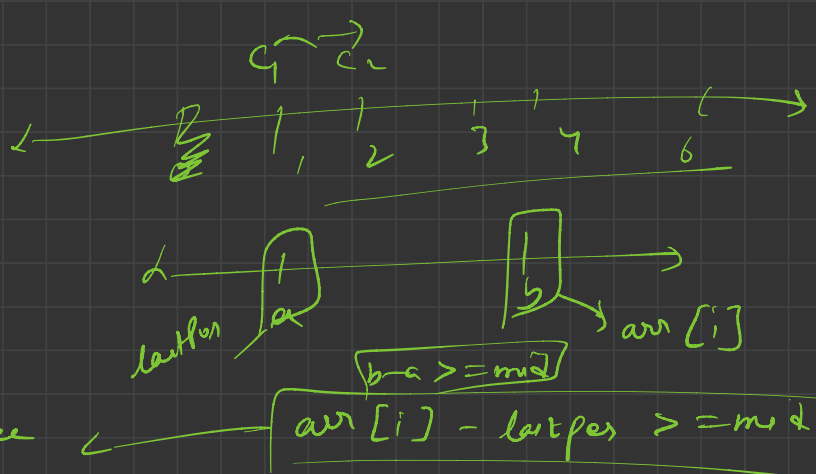
s < e

out of while


a
b
arr[i]
coordA
b - a >= mid
arr[i] - coordA >= mid
place kardo


3 >= 3


0
3
6


1
2
3
4
6
lastPos
a
b
arr[i]
b-a >= mid
arr[i] - lastPos >= mid

→ Book Allocation

→ Painter Partition } ?

→ Aggressive Cows

H/w

More Question

→ EKO SPOJ

→ PRATA SPOJ

→ Beautiful Triplets (Hackerearth)