This is a codechef problem

Constant Subsequence

↳ P5169

$2, -3, 4, -1, 0, 5$

$$S(l-r) = P(r) - P(l-1).$$

$i = 0 \to n-1$

$P(i) - P(j)$. → minimise this value to maximise sum.

→ ans stores maximum subarray sum

→ sum stores current sum

→ mini stores minimum sum

ans = 0
sum = 0
mini = 0

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

i = 0

mini = 0 → [ ]

sum = 2 → ans = max(0, 2 − 0) = 2

ans = 2 → [2]

i = 1

ans = max(sum, ans)

mini = min(sum, mini)

mini = -1 → [2, -3]

[2, -3] ← sum = -1

ans = 2 → [2]

$\boxed{3, -3}$

$i = 2$

$[2, -3, 4] \leftarrow$ sum $= 3$

mini $= -1$

ans $= 4$ $\rightarrow$ $\boxed{4}$

ans = max (ans, sum - mini)

$\rightarrow$ ans = max $(2, 3 - (-1))$

$= 4$

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

$i = 3$

Sum $= 2$

mini $= -1$

ans $= 4 \rightarrow$ ans = max $(4, 2 - (-1))$

$i = 4$

Sum $= 2$

mini $= -1$

ans $= 4$

$i = 5$

sum $= 7$

mini $= -1$

ans = max $(4, 7 - (-1))$

= max $(4, 8) = \underline{8}$ $\rightarrow$ $\boxed{4, -1, 0, 5}$

0 1 2 3 4 5

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

how i get my answer here

total sum = $\underbrace{2, -3, 4, -1, 0, 5}_{7}$

part when we get minimum prefix sum is $\underbrace{2, -3}_{}$.

sum = -1

so when we remove that part from total → $\underbrace{4, -1, 0, 5}_{}$

⇓

sum = 8

this is the crux

Above was the explanation of General Maximum Subarray Sum

Now I would like to implement this according to my problem.

I will use binary search on answers to find if a value can be minimum of Maximum Subarray Sum.

Now how to generate an array if a limit value of Subarray Sum is given.

Ex → 2, -3, 4, -1, 0, 5

positive ⇒ 2, 4, 0, 5

negative ⇒ -3, -1.

sum = 0 $\quad$ p = 0 → index for positive

mini = 0 $\quad$ n = 0 → index for negative

ans = 0

take limit = 7 correct
↳ ans

i = 0

sum + positive[0] - 0 < limit

= 2 < 7

$\boxed{\text{sum} = 2,\ \text{mini} = 0,\ \text{ans} = 2}$

i = 1

temp => 2

sum + positive[1] - 0 < limit

= 2 + 4 - 0 < 7

= 6 < 7

sum = 6
mini = 0
ans = 6

temp => 2, 4

$i = 2$

sum + positive[2] - 0 < limit

$6 + 0 - 0 < 7$

$= 6 < 7$

temp => 2, 4, 0

sum = 6
mini = 0
ans = 6

$i = 3$

sum + positive[3] - 0 < limit

$6 + 5 - 0 > 7$

↓ hence here we take from negative vector.

because

sum + positive[3] - mini > limit.

↓ # sum = $6 + (-3) = 3$

mini = min(mini, 3)

$= \min(0, 3) = 0$

sum = 3
mini = 0
ans = 6

ans = max(ans, sum)

$= \max(6, 3) = \underline{6}$

$i = 4$

$3 + 5 - 0 > 7$

$\Downarrow$ taking negative element (-1) again

$3 - 1 - 0 \leq 7$

$2 \leq 7$

sum = 2
mini = 0
ans = 6

$i = 5$

$2 + 5 - 0 \leq 7$

sum = 7
mini = 0
ans = 7