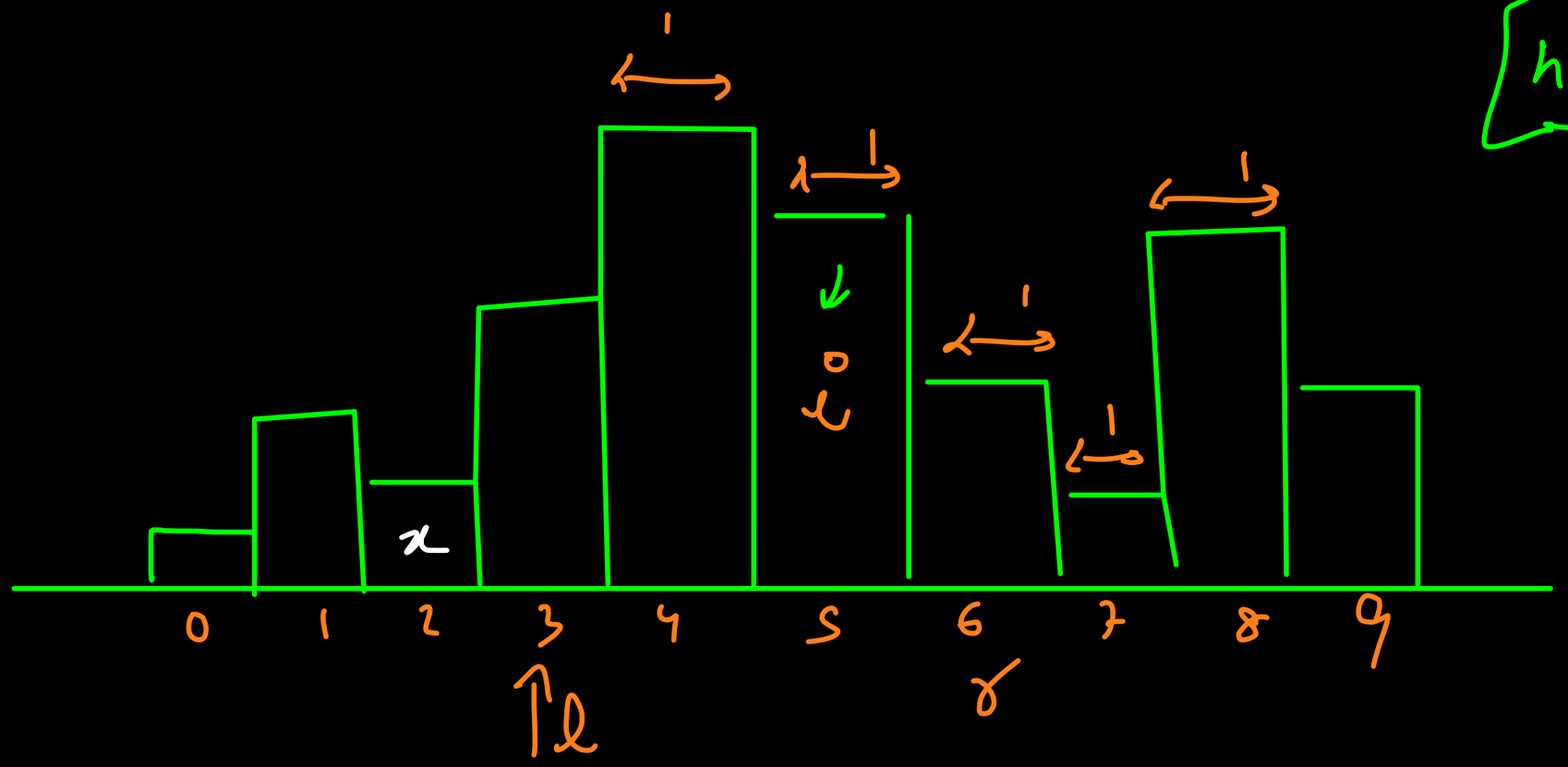


$hi = x\,(r - l - 1)$

↳ bar[i] → hi → we can form the biggest rectangle which covers the whole bar ith bar, by using the first bar in left & right which is smaller than my current bar.

JOIN THE DARKSIDE

	0	1	2	3	4	5
	2	1	5	6	2	3
lsi →	-1	-1	1	2	1	4
rsi →	1	6	4	4	6	6
	2	6	10	6	8	3

max → 10

li(a-l-1)

O(n)

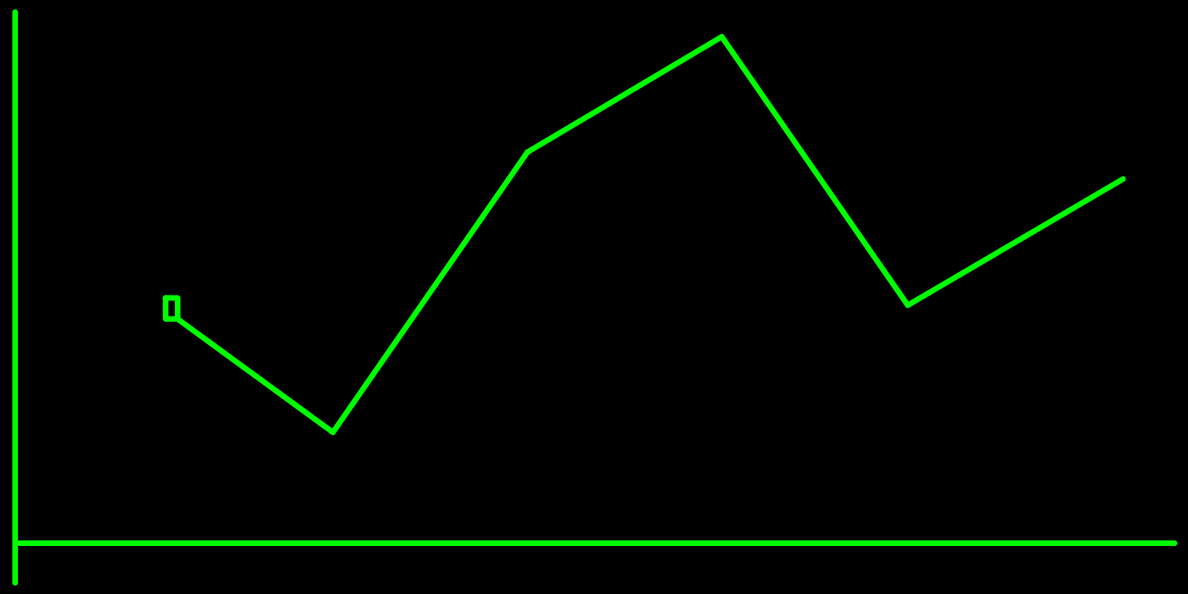
O(n)

JOIN THE DARKSIDE

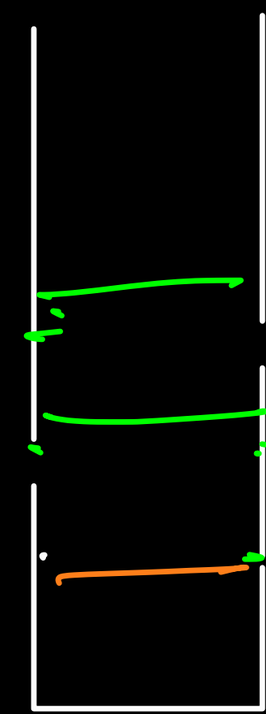
RSI

	0	1	2	3	4	5
-1	2	1	5	6	2	3

RSI →



monotonous stack



4

1

inc order elmt

$x = st.top()$

$st.pop()$

$arr[x] \times (i - (st.top()) - 1)$

$i^{th} \rightarrow lsi$

rsi

$r = 1$

$l = -1$

$2 \times (r - l - 1)$

$2 \times (1 - (-1) - 1) \Rightarrow 2$

ans = ~~2~~ ~~6~~ 10

JOIN THE DARKSIDE

ans[i] = (i - ((st.empty() ? (-1) : st.top())) - 1)

remove elem.

→ ans[i] = (ans.length - ((st.empty() ? (-1) : st.top())) - 1)

JOIN THE DARKSIDE

1	0	1	0	0
1	0	1	1	1
1	1	1	1	1
1	0	0	1	0

1	0	1	0	0
2	0	2	1	1
3	1	3	2	2
4	0	0	3	0

n

ans = ~~4~~ 6

$O(n^2)$

Space → $O(n)$

JOIN THE DARKSIDE

a b b b b a

c_i c_i

duplicate

$O(n)$

$O(n)$

c c

b b c

c

b b

a

[( ) ( )]

JOIN THE DARKSIDE