



Stock Span Problem

{100, 80, 60, 70, 60, 75, 85},

span = { 1, 1, 1, 2, 1, 4, 6 } \rightarrow soln
0 1 2 3 4 5 6

Brute force

\rightarrow go to each day

\rightarrow Calculate span by traversing back.

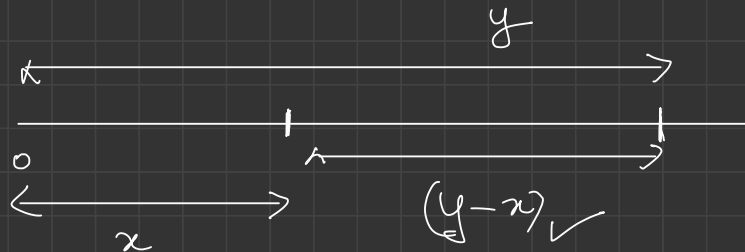
{ TC: $O(N^2)$ }
{ SC: $O(1)$ }

0 1 2 3 4 5 6

{100, 80, 60, 70, 60, 75, 85},

{-1, 0, 1, 1, 3, 1, 0} ngeli

{1 1 1 2 1 4 6} → span



Span = curidx - ngeli

{100, 80, 60, 70, 60, 75, 85},

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

next greater ele left (Index wise)

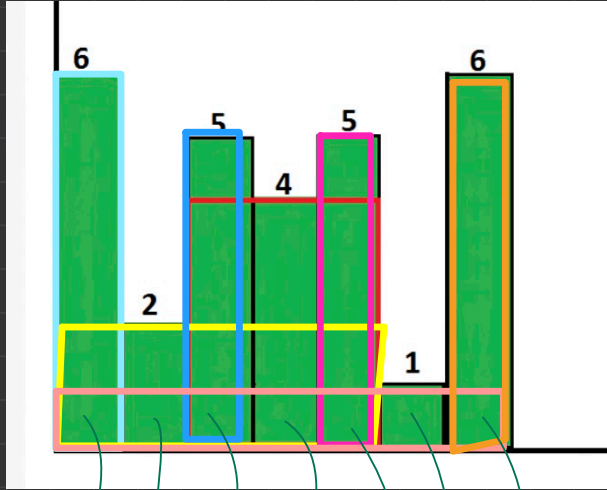


stack

↳ pool of people looking for ngeel



Largest Area Histogram



6×1
 2×5
 5×1
 4×3
 1×7
 6×1

$heights[] = \{ \overset{0}{6}, \overset{1}{2}, \overset{2}{5}, \overset{3}{4}, \overset{4}{5}, \overset{5}{1}, \overset{6}{6} \}$

$nexti[] = \{ -1, -1, 1, 1, 3, -1, 5 \}$

$previ[] = \{ 1, 5, 3, 5, 5, 7, 7 \}$

width

$$= \text{previ} - \text{nexti} - 1$$

$width[] = \{ 1, 5, 1, 3, 1, 7, 1 \}$

area =

max

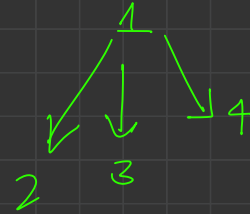
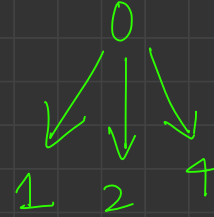
6×1 2×5

max^m

Celebrity Problem ₀

ans[][] =

	0	1	2	3	4
0		✓	✓	x	✓
1	x		✓	✓	✓
2	x	x		x	x
3	x	x	x		✓
4	✓	✓	✓	✓	



0, 1, 3, 4
2



Celebrity

↳ who is known by everyone
↳ & doesn't know anyone

col should be '✓'

row should be 'x'

Brute force

↳ check col & row for each person

TC: $O(N^2)$

SC: $O(1)$

in a gathering
we can have only
1 celeb

Elimination Method

arr[1][1] =

	0	1	2	3	4
0		✓	✓	x	✓
1	x		✓	✓	✓
2	x	x		x	x
3	x	x	x		✓
4	✓	✓	✓	✓	

→

3

↳ potential cells

$T: O(N)$

$SC: O(N)$

