Long Pressed Name

Your friend is typing his `name` into a keyboard. Sometimes, when typing a character `c`, the key might get *long pressed*, and the character will be typed 1 or more times.

You examine the `typed` characters of the keyboard. Return `True` if it is possible that it was your friends name, with some characters (possibly none) being long pressed.

Example 1:

```
Input: name = "alex", typed = "aaleex"
Output: true
Explanation: 'a' and 'e' in 'alex' were long pressed.
```

Example 2:

```
Input: name = "saeed", typed = "ssaaedd"
Output: false
Explanation: 'e' must have been pressed twice, but it wasn't in the typed output.
```

name: s a e e d
i

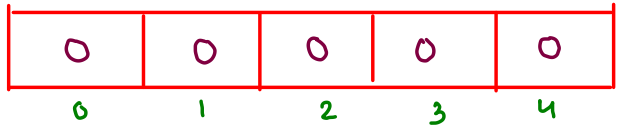
typed: s s a a e d d
j

return false

```
if (ch(i) == ch(j))?
    i++; j++;
}
else if (ch(j) == ch(j-1)){
    j++;
}
else {
    return false;
}
```

Range Addition

n = 5



queries :

(sti, eni, inc)

1, 3 → 4

0, 4 → 2

1, 2 → -4

0, 4 → -5

2, 3 → 2

2, 4 → 1

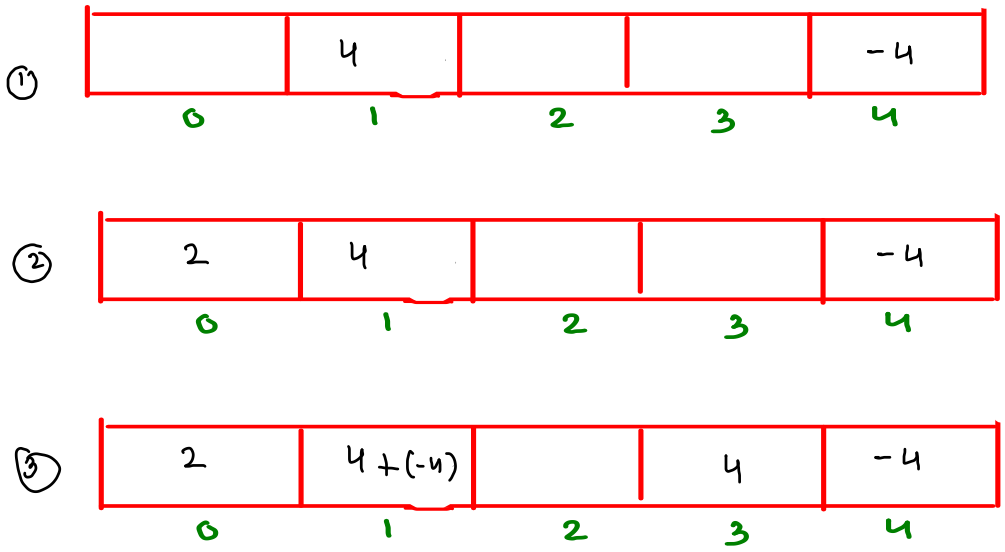
q queries

brute force : O (q * n)

allowed : O (n) + O(q)

(i) impact

(ii) prefix sum



1, 3 → 4

0, 4 → 2

1, 2 → -4

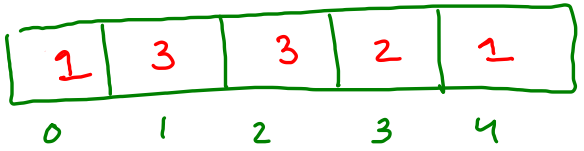
S, e, inc ⟶ arr[s] += inc

arr[e+1] -= inc

prefix sum: 2 2 2 6 2

Max Range Queries

Chef wants to remove one operation in such a way that after the remaining $N - 1$ operations are performed, the number of cakes with height exactly K is maximum possible. Since Chef is a bit busy these days, he has asked for your help. You need to find the maximum number of cakes with height exactly K that can be achieved by removing one operation.



↳ range addition

q ↙ n

1, 3

0, 4

1, 2.

K = 2

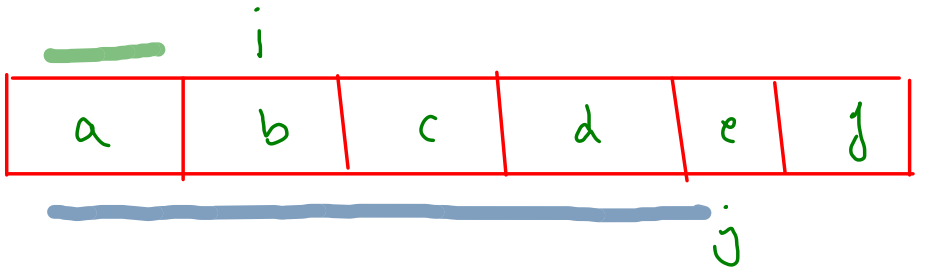
↳ remaining no. cake with height (K)

by removing opr 1 : 2

by removing opr 2 : 2

by removing opr 3 : 3

we should opr no. 3



i to j = ans[j] - ans[i-1]

0 to j

0 to i-1

0 to i -> a+b

0 to j = a+b+c+d+e

n k

3 2

2 6

4 9

1 4

0	1	2	2	3	2	2	1	1	1
0	1	2	3	4	5	6	7	8	9

ck — count of k (0 to i)

0	0	1	2	2	3	4	4	4	4
0	1	2	3	4	5	6	7	8	9

ckp — count of k+1 (0 to i)

0	0	0	0	1	1	1	1	1	1
0	1	2	3	4	5	6	7	8	9

opr 1 : s = 2, e = 6

nck = 4 + 1 − 4 = 1

opr 2 : s = 4, e = 9

nck = 4 + 1 − 2 = 3

opr 3 : s = 1, e = 4

nck = 4 + 1 − 2 = 3

s to e :

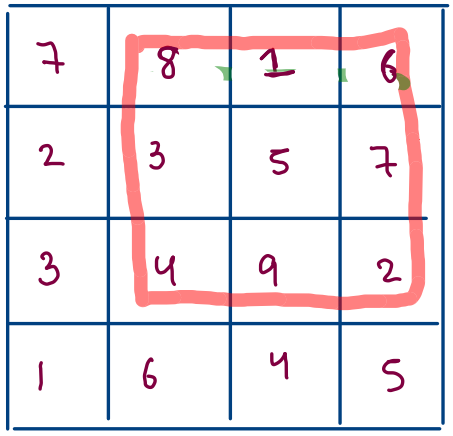
nck = Initial + count of (k+1) in s to e − count of (k) in s to e

count of (k+1) in s to e → ckp[e] − ckp[s-1]

count of (k) in s to e → ck[e] − ck[s-1]

Magic Squares In Grid

```
7816
2357
3492
1645
```



Magic square

(i) A 3x3 matrix which all unique no. 1 to 9

(ii) sum of each row = sum of each col = sum of both diagonal

(iii) It's mid element is always 5.

3×3

a	b	c
d	e	f
g	h	i

$a+b+c+d+e+f+g+h+i = 45$

$a+b+c + a+b+c + a+b+c = 45$

$3(a+b+c) = 45$

$\boxed{(a+b+c) = 15}$

$b+e+h+c+e+g+a+e+i = 45$

$15 \quad 15 \quad 15$

$(a+b+c)+(g+h+i)+3e = 45$

$15 \quad 15$

$3e = 15, \quad \boxed{e = 5}$

7	8	1	6
2	3	5	7
3	4	9	2
1	6	4	5

count of sub-matrices which are magic square.

$n^2 \times (3 \times 3)$

Square Of Sorted Array

Input: [-4,-1,0,3,10]

arr: [-4, -1, 0, 3, 10]

i j

narr: [0, 1, 9, 16, 100]

$y(x) = x^2$

$y = x^2$