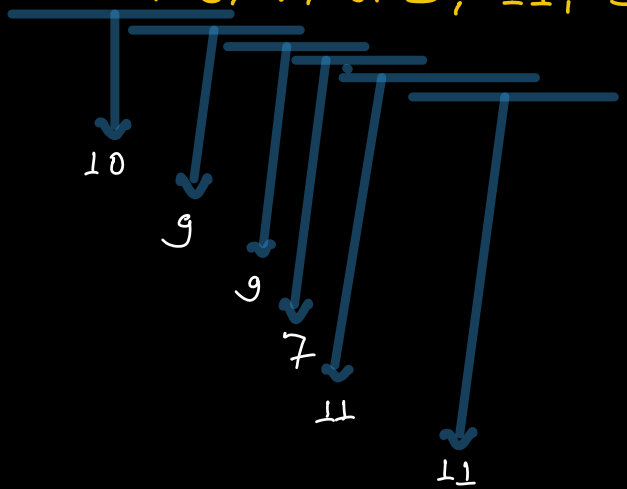
Q Sliding window maximum

Google
Facebook (Meta)
Amazon
Walmart

Given an array of size N. Return an array containing the max val of every window of size K.

A: 10, 8, 9, 7, 6, 5, 11, 3 (indices 0 1 2 3 4 5 6 7) K = 3



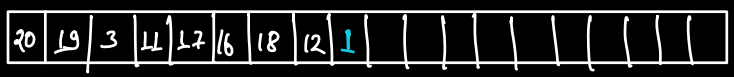
[10, 9, 9, 7, 11, 11]

A : 1, 3, -1, -3, 5, 3, 6, 7 K = 3

[3, 3, 5, 5, 6, 7]

A : 3, 2, 3, 4, 5, 5, 4, 5, 6 K = 4

[4, 5, 5, 5, 5, 6]



man1 : 19

man2 : ----

K >= 1

A: 10, 8, 9, 7, 6, 5, 11, 3 (0 1 2 3 4 5 6 7) K

A: 3, 2, 3, 4, 5, 5, 4, 5, 6 (0 1 2 3 4 5 6 7 8) K = 4

[4, 5, 5, 5, 5, 6]

A: 10, 1, 8, 9, 7, 6, 5, 11, 3 (0 1 2 3 4 5 6 7 8) K = 3

[10, 9, 9, 9, 7, 11, 11]

Deque

push - front (x)
push - back (x)
remove - front (x)
remove - back (x)

size()
front()
rear()

Implementation
↳ DLL

TC : O(N)
SC : O(K) ⇒ O(N)

Scaler
Google
Facebook

Q Given a encrypted string. Find the Kth char after decrypting it.

a b 2 c 3 K = 5

a b a b c a b a b c a b a b c ⇒ c

K = 8 ⟶ a

x 2 y 3 K = 3

x x y x x y x x y

No mean No
2 mean 2

a b 2 c d 2 $\quad\quad$ K = 11

a b a b c d a b a b c d $\Rightarrow$ c

a bc 100 de 500 e 700 g 1000 $\Rightarrow$ K = 718

a b 2 c 3 $\quad\quad$ K = 8

a b a b c a b a b c a b a b c

8th char in string of len 15

find 8 % 5 = 3 char in a string of len 5

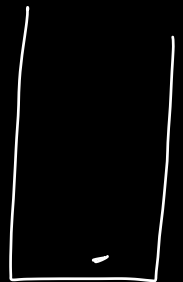
find 3 % 2 = 1 char in a string of size 2

a b 2 c 3 $\quad\quad$ K = 8 $\xrightarrow{\%5}$ 3 $\xrightarrow{\%2}$ 1

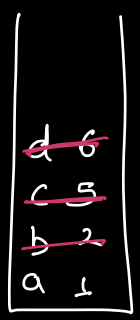
length	1	3	4	5	15
last char	a	b		c	

K = 8 $\xrightarrow{\%5}$ 3 $\xrightarrow{\%2}$ 1

a 1



a b 2 c d 2 ↓ K = 10



length x x 4 5 6 1 2

K	l	ch
10	6	d
10%6 = 4	5	c
0	2	b

```
Class CharInfo {
    Char ch;
    int l;
}
```

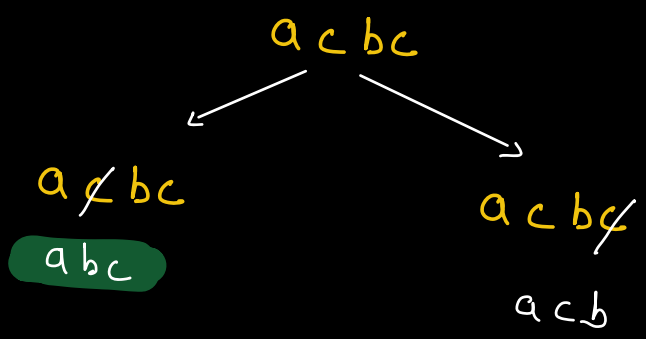
Facebook
Google

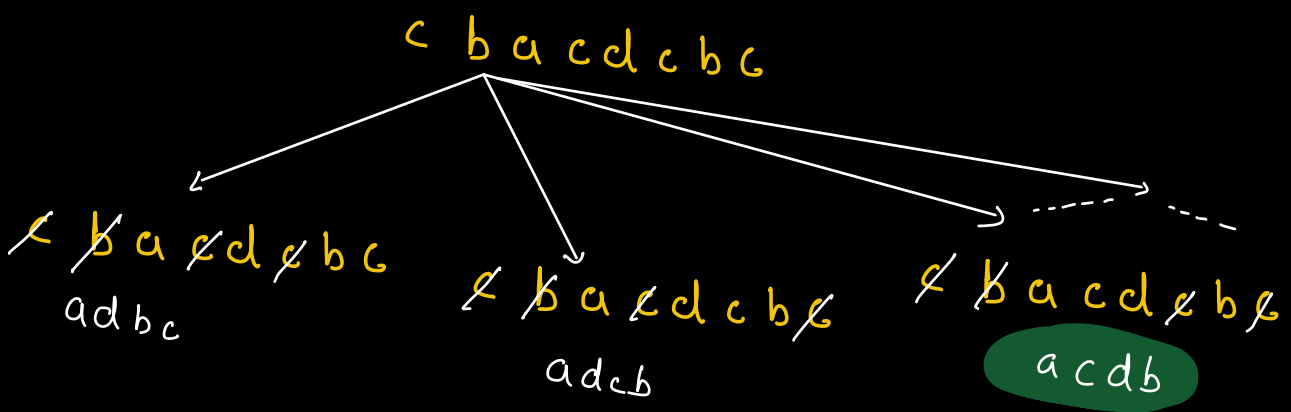
Q Given a string with lowercase alphabates. Remove duplicates in such a way that the resulting string is lexicographically smallest possible [in result string all chars of original string must be present exactly once]

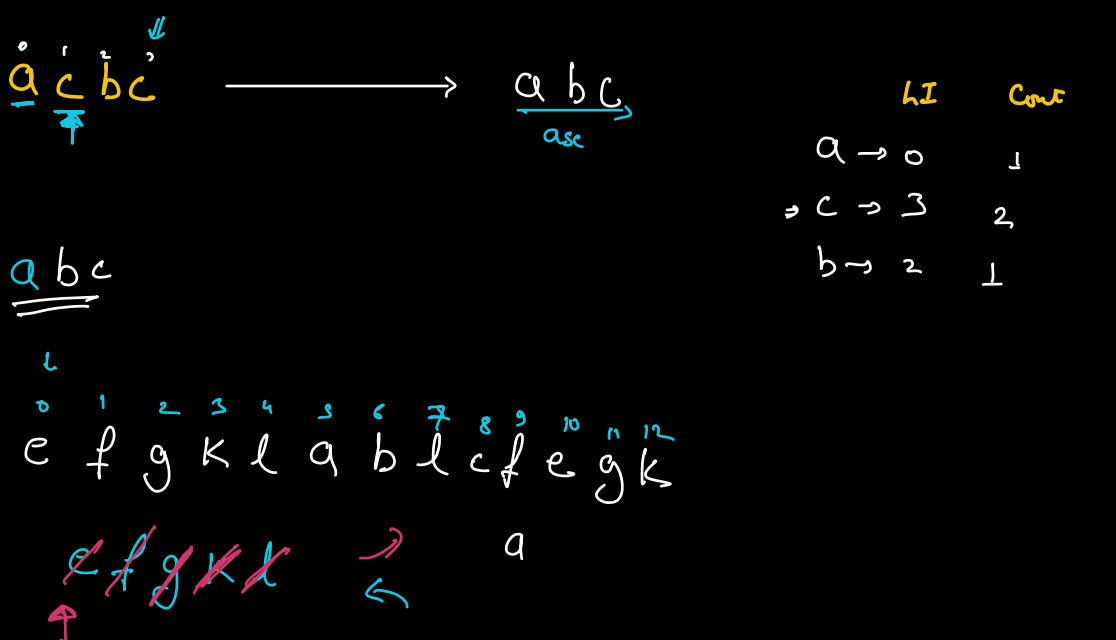
y z x y z z x y

y z x y z z x y → z x y

y z x y z z x y → x y z


a c bc
a c bc
abc
a c bc
acb


c b a c d c b c
c b a c d c b c
adbc
c b a c d c b c
adcb
c b a c d c b c
acdb


a c bc
abc
asc
HI
Cont
a → 0
1
c → 3
2
b → 2
1
abc
e f g k l a b l c f e g k
a