



Greedy Algorithms

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Greedy Algorithms

- ✓ • What are Greedy Algorithms?
- ✓ • Kadane's Algorithm
- ✓ • Lexicographical order of Strings (1 question)
- Questions :
 - ✓ Find Original Array From Doubled Array
 - ✓ <https://codeforces.com/problemset/problem/33/A>
 - <https://codeforces.com/problemset/problem/620/C>
 - <https://codeforces.com/problemset/problem/587/A>
 - <https://codeforces.com/problemset/problem/723/C>

← Daily task

greedy Algos:

Eg:

Once



- People

0 → Rs 5

0 → Rs 10

1 sec

Eg:

→

nc

→ min

~~10L~~
~~6L~~
~~3L~~

OL

water

↗
c

✓
2L

✓
3L

1L

✓
4L

✓
2L

Kadane's Algo:

Q \rightarrow given an array, find the subarray with max sum.

Eg

$n = 7$

4 2 -7 3 5 -3 5

eg.

-1

3

5

-

3

5

sum \rightarrow -ve

\rightarrow resultant

\downarrow

-ve

sum ≥ 0

loss

\leftarrow

leave it

Eg: $-5 \quad -1 \quad -2 \quad -3 \quad -4$

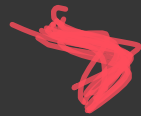
$$\text{sum} = 0$$

$\min = 0$
 $\max \rightarrow \cancel{\infty} \xrightarrow{-5} (-1) \rightarrow (-1)$

⑧ Lexicographical order → (in strings)

→ a b c d . . . x y z
1 2 3

ab**c**d



ab**b**d

z



aaaaaa

→ abc



abcd

Q string given (all lowercase)
Rearrange the string to get
lex. min string

condition \rightarrow adj elements should
differ more than
 k

eg.
~~#~~

azz

zaz

$k=2$

→

→

→

²⁵
zaz ✓

~~azz~~ ✗

~~zza~~

$k=2$

a → 2 1 0

d → 1 0

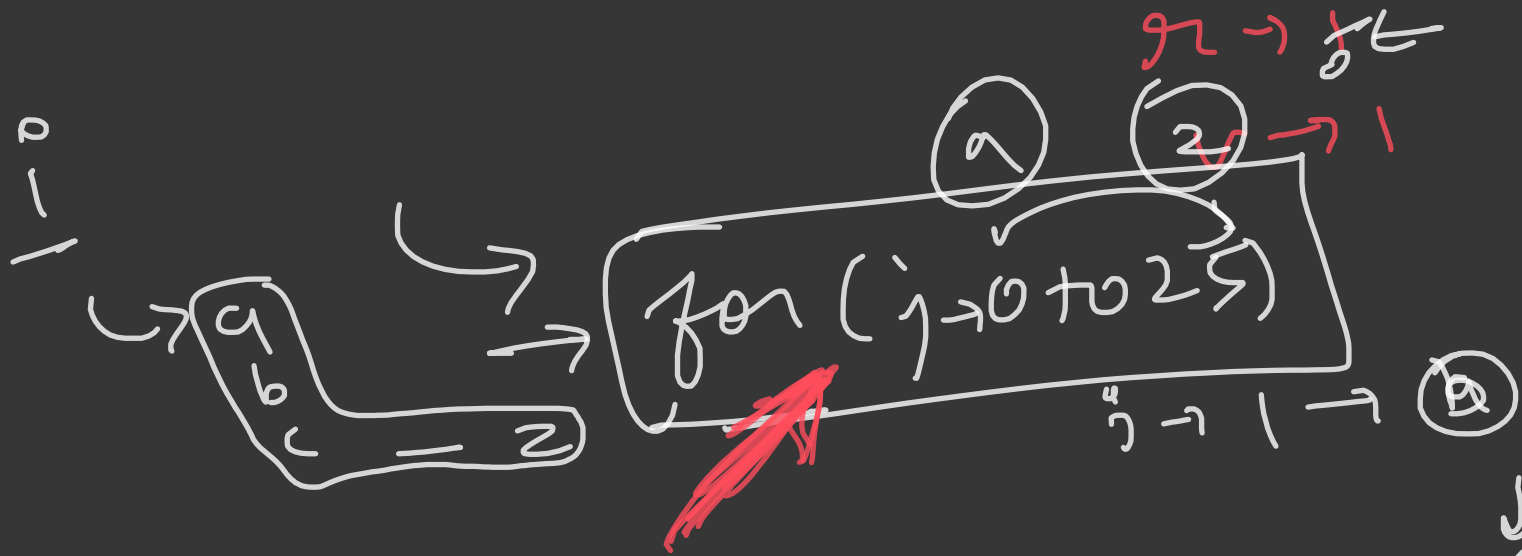
e → 1 0

k → 1 0

n → 1 1

adaeknnv

a ↙
_



Eg \rightarrow



1 → 0 → 25

a d

x b → 2

$k=2$

-1

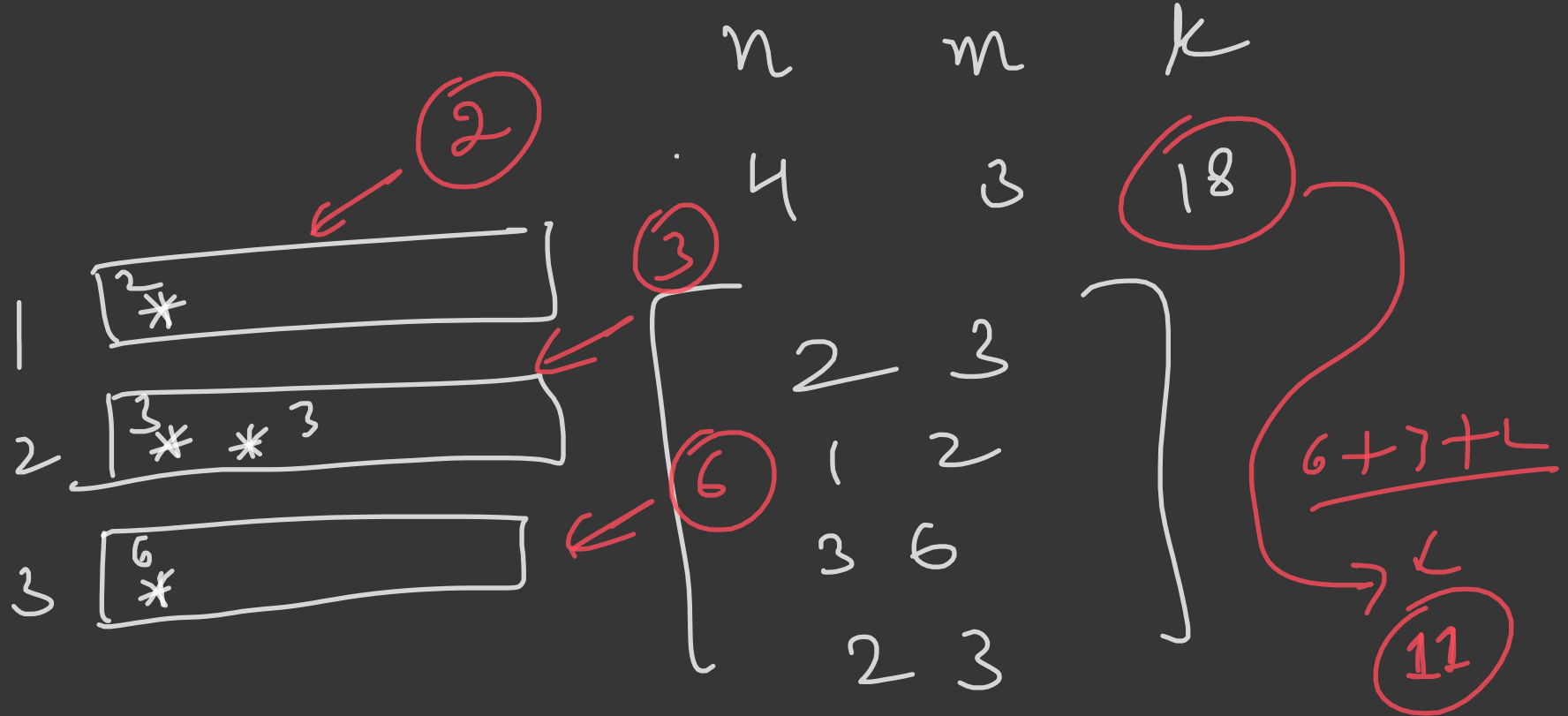
x e → 1

→ a c e g h

$k=1$

↓ a c e g h

h



Q3

w_i
2

(w_i)

1th
✓

0

✓

0

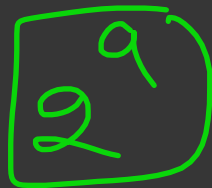
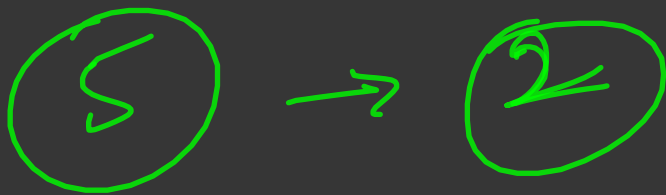
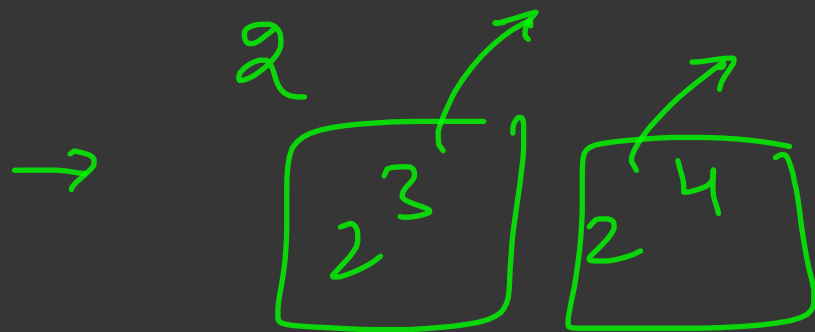
✓

0

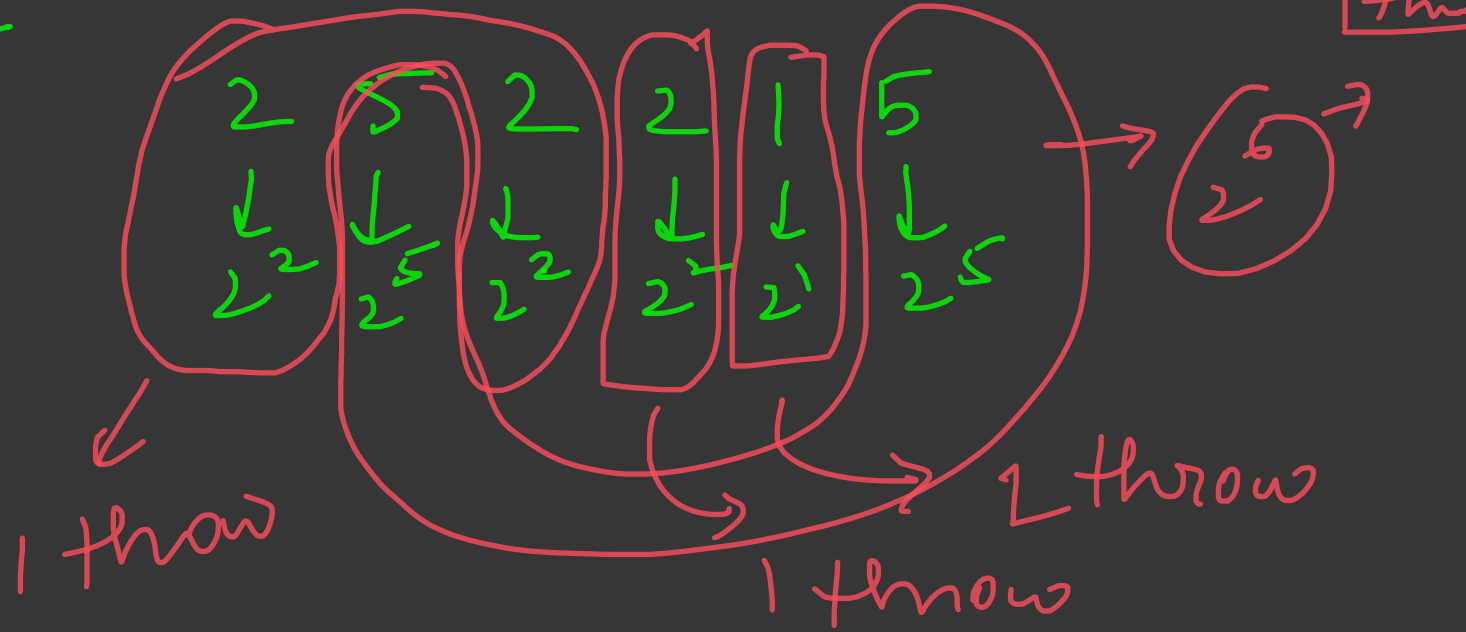
0

(K)

$$\sum_{i=0}^K a_i \text{ weight} = 2^a$$



$n=6$



4 throws

$$2^4 + 2^5 \rightarrow 2^6$$

