

Q. Cyber Heist : Maximum Loot in minimum time

* Approach:

- Don't vaults acc by deadline.
- Use min heap to keep record of loot values.
- → if current heap size < deadline : add loot to heap
→ if loot > then replace it with smallest

* pseudocode :

function maxloot(vaults):

sort vaults by deadlines

heap = empty min-heap.

for vault in vaults:
 deadline, loot = vault

 if heap.size < deadline:
 heap.push(loot)

 elif loot > heap.top():
 heap.pop()
 heap.push(loot) # return sum of heap

* Dry run:

(1, 10) (2, 40) (2, 30) (4, 20)

i - (1, 10) \Rightarrow heap = [10]

ii - (2, 40) \Rightarrow heap = [10, 40]
pop length 2 = 2

iii - (2, 30) \Rightarrow heap = [40, 30]

iv. (4, 20) \Rightarrow heap = [30, 40, 20]

action = 90

D. Festival Gold Coins - Reward most deserving.

Goal: Maximize the number of performers selected $\leq C$ coins.

You can only give full coins and any order is allocated.

* Approach.

- 1- Sort demand in ascending order.
- 2- Give coins to performers starting from the smallest until coins runs out.

* function maxPerformers(coins[], C):

sort coins

count = 0

total = 0

for coin in coins:

if total + coin $\leq C$

total += coin

count += 1;

else

break

return count

dayrun.

$$\text{coins} = [2, 3, 5, 7, 1] \quad L = 10$$

$$\text{sorted} = [1, 2, 3, 5, 7]$$

i - $1 \rightarrow \text{total} = 1$

ii - $2 \rightarrow \text{total} = 3$

iii - $3 \rightarrow \text{total} = 6$

iv - $5 \rightarrow \text{total} = 11$ (exceeded)

\Rightarrow count = 3 performed so far

try $1 + 2 + 3 + 1$