GREEDY

VIDEO-23

LEETCODE - 1561

~~Medium~~

Easy

Maximum Number Of Coins You Can Get

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1561. Maximum Number of Coins You Can Get

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There are `3n` piles of coins of varying size, you and your friends will take piles of coins as follows:

- In each step, you will choose **any** `3` piles of coins (not necessarily consecutive).
- Of your choice, Alice will pick the pile with the maximum number of coins.
- You will pick the next pile with the maximum number of coins.
- Your friend Bob will pick the last pile.
- Repeat until there are no more piles of coins.

Given an array of integers `piles` where `piles[i]` is the number of coins in the `i^th` pile.

Return the maximum number of coins that you can have.

Example = piles = {2, 4, 1, 2, 7, 8}

Output = 9

B M A
1 , 7 , 8

{ B M A
2 , 2 , 4 }

Sorting :-

{ 2, 4, 1, 2, 7, 8 }

Sort :- { 1, 2, 2, 4, 7, 8 }

7 + 2 = 9

B M A
2 2 4

M -= 2
A -= 2
B += 1

{ 9, 8, 7, 6, 5, 1, 2, 3, 4 }

8 + 6 + 4 = 18

~~A = n-1~~

M = n-2

B = 0

result = 0

```
while ( M > B) {

    result += piles [M];

    B ++ ;

    ~~A -= 2~~ ;

    M -= 2 ;

}

return result;
```

① Sorting
O(nlogn).

Approach - 2 -

piles = { 1, 2, 3, 4, 5, 6, 7, 8, 9 }

indices: 0 1 2 3 4 5 6 7 8

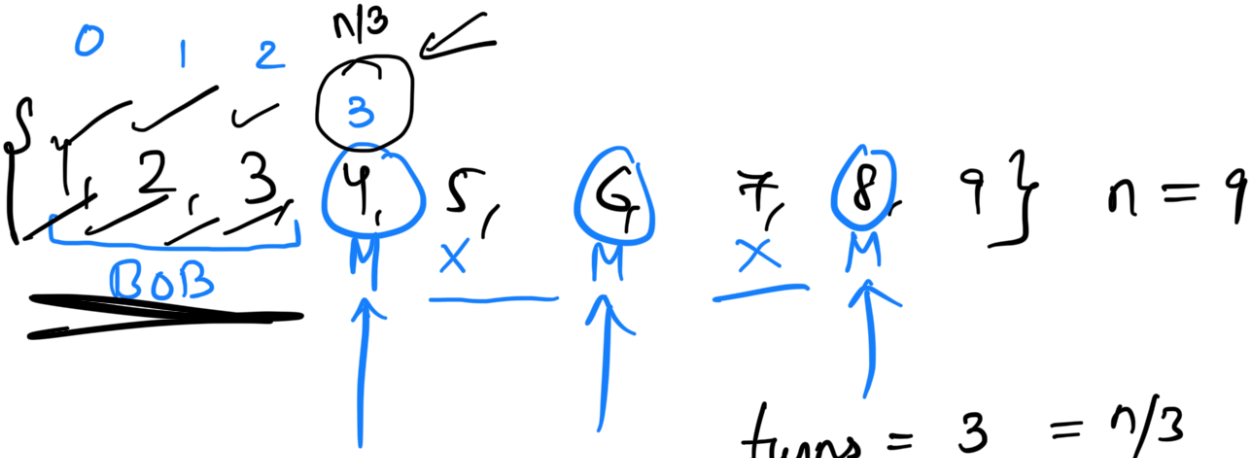
M

M

M

$n = 9$

turns = $n/3 = 9/3 = 3$



turns = 3 = $n/3$

T.C : $n \log n$

```
for (M = n/3 ; M < n ; M += 2) {
    result += piles[M];
}
```