

Problem 3180: Maximum Total Reward Using Operations I

Problem Information

Difficulty: **Medium**

Acceptance Rate: 0.00%

Paid Only: No

Problem Description

You are given an integer array

`rewardValues`

of length

`n`

, representing the values of rewards.

Initially, your total reward

`x`

is 0, and all indices are

unmarked

. You are allowed to perform the following operation

any

number of times:

Choose an

unmarked

index

i

from the range

[0, n - 1]

.

If

rewardValues[i]

is

greater

than your current total reward

x

, then add

rewardValues[i]

to

x

(i.e.,

$x = x + \text{rewardValues}[i]$

), and

mark

the index

i

.

Return an integer denoting the

maximum

total reward

you can collect by performing the operations optimally.

Example 1:

Input:

rewardValues = [1,1,3,3]

Output:

4

Explanation:

During the operations, we can choose to mark the indices 0 and 2 in order, and the total reward will be 4, which is the maximum.

Example 2:

Input:

rewardValues = [1,6,4,3,2]

Output:

11

Explanation:

Mark the indices 0, 2, and 1 in order. The total reward will then be 11, which is the maximum.

Constraints:

$1 \leq \text{rewardValues.length} \leq 2000$

$1 \leq \text{rewardValues}[i] \leq 2000$

Code Snippets

C++:

```
class Solution {
public:
    int maxTotalReward(vector<int>& rewardValues) {

    }
};
```

Java:

```
class Solution {
    public int maxTotalReward(int[] rewardValues) {

    }
}
```

Python3:

```
class Solution:
    def maxTotalReward(self, rewardValues: List[int]) -> int:
```

Python:

```
class Solution(object):
    def maxTotalReward(self, rewardValues):
```

```
"""
:type rewardValues: List[int]
:rtype: int
"""
```

JavaScript:

```
/**
 * @param {number[]} rewardValues
 * @return {number}
 */
var maxTotalReward = function(rewardValues) {

};
```

TypeScript:

```
function maxTotalReward(rewardValues: number[]): number {

};
```

C#:

```
public class Solution {
    public int MaxTotalReward(int[] rewardValues) {

    }
}
```

C:

```
int maxTotalReward(int* rewardValues, int rewardValuesSize) {

}
```

Go:

```
func maxTotalReward(rewardValues []int) int {

}
```

Kotlin:

```

class Solution {
    fun maxTotalReward(rewardValues: IntArray): Int {

    }
}

```

Swift:

```

class Solution {
    func maxTotalReward(_ rewardValues: [Int]) -> Int {

    }
}

```

Rust:

```

impl Solution {
    pub fn max_total_reward(reward_values: Vec<i32>) -> i32 {

    }
}

```

Ruby:

```

# @param {Integer[]} reward_values
# @return {Integer}
def max_total_reward(reward_values)

end

```

PHP:

```

class Solution {

    /**
     * @param Integer[] $rewardValues
     * @return Integer
     */
    function maxTotalReward($rewardValues) {

    }
}

```

Dart:

```
class Solution {  
  int maxTotalReward(List<int> rewardValues) {  
  
  }  
}
```

Scala:

```
object Solution {  
  def maxTotalReward(rewardValues: Array[Int]): Int = {  
  
  }  
}
```

Elixir:

```
defmodule Solution do  
  @spec max_total_reward(reward_values :: [integer]) :: integer  
  def max_total_reward(reward_values) do  
  
  end  
end
```

Erlang:

```
-spec max_total_reward(RewardValues :: [integer()]) -> integer().  
max_total_reward(RewardValues) ->  
.
```

Racket:

```
(define/contract (max-total-reward rewardValues)  
  (-> (listof exact-integer?) exact-integer?)  
  )
```

Solutions

C++ Solution:

```

/*
 * Problem: Maximum Total Reward Using Operations I
 * Difficulty: Medium
 * Tags: array, dp
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(n) or O(n * m) for DP table
 */

class Solution {
public:
    int maxTotalReward(vector<int>& rewardValues) {

    }
};

```

Java Solution:

```

/**
 * Problem: Maximum Total Reward Using Operations I
 * Difficulty: Medium
 * Tags: array, dp
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(n) or O(n * m) for DP table
 */

class Solution {
    public int maxTotalReward(int[] rewardValues) {

    }
}

```

Python3 Solution:

```

"""
Problem: Maximum Total Reward Using Operations I
Difficulty: Medium
Tags: array, dp

```

```

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(n) or O(n * m) for DP table
"""

class Solution:
    def maxTotalReward(self, rewardValues: List[int]) -> int:
        # TODO: Implement optimized solution
        pass

```

Python Solution:

```

class Solution(object):
    def maxTotalReward(self, rewardValues):
        """
        :type rewardValues: List[int]
        :rtype: int
        """

```

JavaScript Solution:

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var maxTotalReward = function(rewardValues) {

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TypeScript Solution:

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function maxTotalReward(rewardValues: number[]): number {

};

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C# Solution:

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 */

public class Solution {
    public int MaxTotalReward(int[] rewardValues) {

    }
}

```

C Solution:

```

/*
 * Problem: Maximum Total Reward Using Operations I
 * Difficulty: Medium
 * Tags: array, dp
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```

*/

int maxTotalReward(int* rewardValues, int rewardValuesSize) {

}

```

Go Solution:

```

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// Difficulty: Medium
// Tags: array, dp
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
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func maxTotalReward(rewardValues []int) int {

}

```

Kotlin Solution:

```

class Solution {
    fun maxTotalReward(rewardValues: IntArray): Int {

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Swift Solution:

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    func maxTotalReward(_ rewardValues: [Int]) -> Int {

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impl Solution {
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Ruby Solution:

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# @param {Integer[]} reward_values
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def max_total_reward(reward_values)

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class Solution {

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