

Problem 3342: Find Minimum Time to Reach Last Room II

Problem Information

Difficulty: Medium

Acceptance Rate: 0.00%

Paid Only: No

Problem Description

There is a dungeon with

$n \times m$

rooms arranged as a grid.

You are given a 2D array

moveTime

of size

$n \times m$

, where

moveTime[i][j]

represents the

minimum

time in seconds when you can

start moving

to that room. You start from the room

(0, 0)

at time

$t = 0$

and can move to an

adjacent

room. Moving between

adjacent

rooms takes one second for one move and two seconds for the next,

alternating

between the two.

Return the

minimum

time to reach the room

$(n - 1, m - 1)$

Two rooms are

adjacent

if they share a common wall, either

horizontally

or

vertically

.

Example 1:

Input:

`moveTime = [[0,4],[4,4]]`

Output:

7

Explanation:

The minimum time required is 7 seconds.

At time

`t == 4`

, move from room

`(0, 0)`

to room

`(1, 0)`

in one second.

At time

`t == 5`

, move from room

(1, 0)

to room

(1, 1)

in two seconds.

Example 2:

Input:

```
moveTime = [[0,0,0,0],[0,0,0,0]]
```

Output:

6

Explanation:

The minimum time required is 6 seconds.

At time

$t == 0$

, move from room

(0, 0)

to room

(1, 0)

in one second.

At time

$t == 1$

, move from room

(1, 0)

to room

(1, 1)

in two seconds.

At time

$t == 3$

, move from room

(1, 1)

to room

(1, 2)

in one second.

At time

$t == 4$

, move from room

(1, 2)

to room

(1, 3)

in two seconds.

Example 3:

Input:

```
moveTime = [[0,1],[1,2]]
```

Output:

4

Constraints:

```
2 <= n == moveTime.length <= 750
```

```
2 <= m == moveTime[i].length <= 750
```

```
0 <= moveTime[i][j] <= 10
```

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Code Snippets

C++:

```
class Solution {
public:
    int minTimeToReach(vector<vector<int>>& moveTime) {
        }
};
```

Java:

```
class Solution {
public int minTimeToReach(int[][] moveTime) {
    }
}
```

```
}
```

Python3:

```
class Solution:  
    def minTimeToReach(self, moveTime: List[List[int]]) -> int:
```

Python:

```
class Solution(object):  
    def minTimeToReach(self, moveTime):  
        """  
        :type moveTime: List[List[int]]  
        :rtype: int  
        """
```

JavaScript:

```
/**  
 * @param {number[][]} moveTime  
 * @return {number}  
 */  
var minTimeToReach = function(moveTime) {  
  
};
```

TypeScript:

```
function minTimeToReach(moveTime: number[][]): number {  
  
};
```

C#:

```
public class Solution {  
    public int MinTimeToReach(int[][] moveTime) {  
  
    }  
}
```

C:

```
int minTimeToReach(int** moveTime, int moveTimeSize, int* moveTimeColSize) {  
}  
}
```

Go:

```
func minTimeToReach(moveTime [][]int) int {  
}  
}
```

Kotlin:

```
class Solution {  
    fun minTimeToReach(moveTime: Array<IntArray>): Int {  
        }  
        }  
}
```

Swift:

```
class Solution {  
    func minTimeToReach(_ moveTime: [[Int]]) -> Int {  
        }  
        }  
}
```

Rust:

```
impl Solution {  
    pub fn min_time_to_reach(move_time: Vec<Vec<i32>>) -> i32 {  
        }  
        }  
}
```

Ruby:

```
# @param {Integer[][]} move_time  
# @return {Integer}  
def min_time_to_reach(move_time)  
  
end
```

PHP:

```
class Solution {  
  
    /**  
     * @param Integer[][] $moveTime  
     * @return Integer  
     */  
    function minTimeToReach($moveTime) {  
  
    }  
}
```

Dart:

```
class Solution {  
int minTimeToReach(List<List<int>> moveTime) {  
  
}  
}
```

Scala:

```
object Solution {  
def minTimeToReach(moveTime: Array[Array[Int]]): Int = {  
  
}  
}
```

Elixir:

```
defmodule Solution do  
@spec min_time_to_reach(move_time :: [[integer]]) :: integer  
def min_time_to_reach(move_time) do  
  
end  
end
```

Erlang:

```
-spec min_time_to_reach(MoveTime :: [[integer()]]) -> integer().  
min_time_to_reach(MoveTime) ->  
.
```

Racket:

```
(define/contract (min-time-to-reach moveTime)
  (-> (listof (listof exact-integer?)) exact-integer?))
)
```

Solutions

C++ Solution:

```
/*
 * Problem: Find Minimum Time to Reach Last Room II
 * Difficulty: Medium
 * Tags: array, graph, queue, heap
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(1) to O(n) depending on approach
 */

class Solution {
public:
    int minTimeToReach(vector<vector<int>>& moveTime) {

    }
};
```

Java Solution:

```
/**
 * Problem: Find Minimum Time to Reach Last Room II
 * Difficulty: Medium
 * Tags: array, graph, queue, heap
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(1) to O(n) depending on approach
 */

class Solution {
    public int minTimeToReach(int[][] moveTime) {

    }
}
```

```
}
```

Python3 Solution:

```
"""
Problem: Find Minimum Time to Reach Last Room II
Difficulty: Medium
Tags: array, graph, queue, heap

Approach: Use two pointers or sliding window technique
Time Complexity: O(n) or O(n log n)
Space Complexity: O(1) to O(n) depending on approach
"""

class Solution:

    def minTimeToReach(self, moveTime: List[List[int]]) -> int:
        # TODO: Implement optimized solution
        pass
```

Python Solution:

```
class Solution(object):

    def minTimeToReach(self, moveTime):
        """
        :type moveTime: List[List[int]]
        :rtype: int
        """
```

JavaScript Solution:

```
/**
 * Problem: Find Minimum Time to Reach Last Room II
 * Difficulty: Medium
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 * Time Complexity: O(n) or O(n log n)
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 */

/**
```

```

* @param {number[][]} moveTime
* @return {number}
*/
var minTimeToReach = function(moveTime) {

};

```

TypeScript Solution:

```

/**
 * Problem: Find Minimum Time to Reach Last Room II
 * Difficulty: Medium
 * Tags: array, graph, queue, heap
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(1) to O(n) depending on approach
 */

function minTimeToReach(moveTime: number[][]): number {
}

```

C# Solution:

```

/*
 * Problem: Find Minimum Time to Reach Last Room II
 * Difficulty: Medium
 * Tags: array, graph, queue, heap
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
 * Space Complexity: O(1) to O(n) depending on approach
 */

public class Solution {
    public int MinTimeToReach(int[][] moveTime) {
        return 0;
    }
}
```

C Solution:

```
/*
 * Problem: Find Minimum Time to Reach Last Room II
 * Difficulty: Medium
 * Tags: array, graph, queue, heap
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
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 */

int minTimeToReach(int** moveTime, int moveTimeSize, int* moveTimeColSize) {

}
```

Go Solution:

```
// Problem: Find Minimum Time to Reach Last Room II
// Difficulty: Medium
// Tags: array, graph, queue, heap
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
// Space Complexity: O(1) to O(n) depending on approach

func minTimeToReach(moveTime [][]int) int {

}
```

Kotlin Solution:

```
class Solution {
    fun minTimeToReach(moveTime: Array<IntArray>): Int {
        return 0
    }
}
```

Swift Solution:

```
class Solution {
    func minTimeToReach(_ moveTime: [[Int]]) -> Int {
```

```
}
```

```
}
```

Rust Solution:

```
// Problem: Find Minimum Time to Reach Last Room II
// Difficulty: Medium
// Tags: array, graph, queue, heap
//
// Approach: Use two pointers or sliding window technique
// Time Complexity: O(n) or O(n log n)
// Space Complexity: O(1) to O(n) depending on approach

impl Solution {
    pub fn min_time_to_reach(move_time: Vec<Vec<i32>>) -> i32 {
        ...
    }
}
```

Ruby Solution:

```
# @param {Integer[][]} move_time
# @return {Integer}
def min_time_to_reach(move_time)

end
```

PHP Solution:

```
class Solution {

    /**
     * @param Integer[][] $moveTime
     * @return Integer
     */
    function minTimeToReach($moveTime) {

    }
}
```

Dart Solution:

```
class Solution {  
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```
object Solution {  
    def minTimeToReach(moveTime: Array[Array[Int]]): Int = {  
  
    }  
}
```

Elixir Solution:

```
defmodule Solution do  
    @spec min_time_to_reach(move_time :: [[integer]]) :: integer  
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