

Problem 1564: Put Boxes Into the Warehouse I

Problem Information

Difficulty: **Medium**

Acceptance Rate: 0.00%

Paid Only: No

Problem Description

You are given two arrays of positive integers,

boxes

and

warehouse

, representing the heights of some boxes of unit width and the heights of

n

rooms in a warehouse respectively. The warehouse's rooms are labelled from

0

to

n - 1

from left to right where

warehouse[i]

(0-indexed) is the height of the

i

th

room.

Boxes are put into the warehouse by the following rules:

Boxes cannot be stacked.

You can rearrange the insertion order of the boxes.

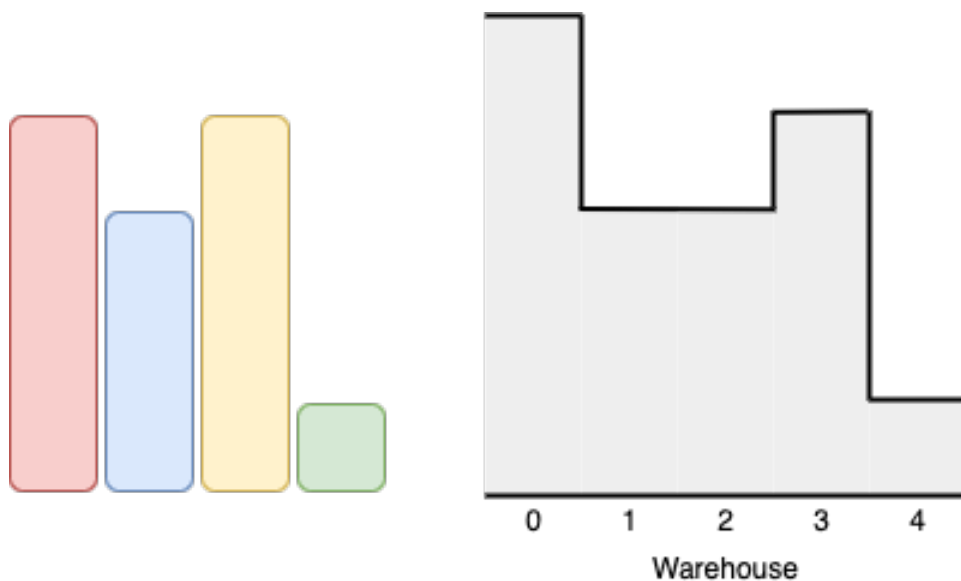
Boxes can only be pushed into the warehouse from left to right only.

If the height of some room in the warehouse is less than the height of a box, then that box and all other boxes behind it will be stopped before that room.

Return

the maximum number of boxes you can put into the warehouse.

Example 1:



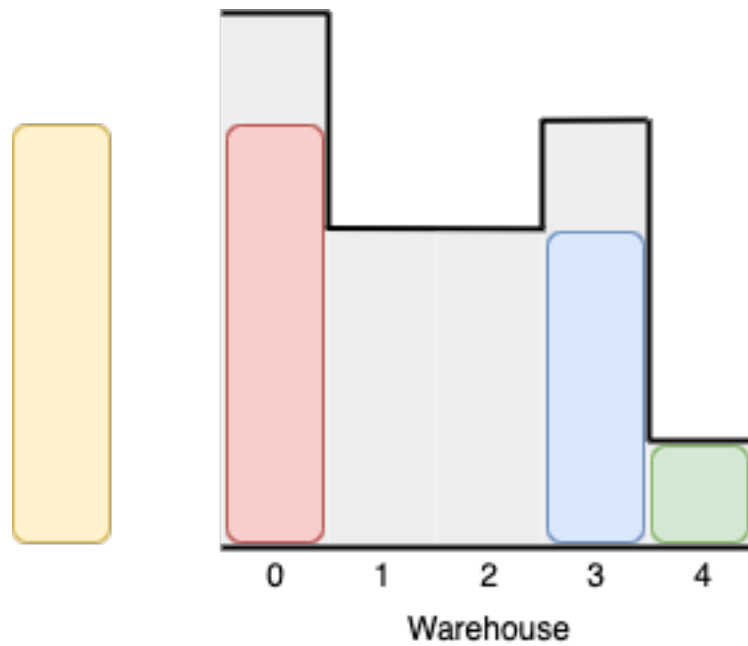
Input:

boxes = [4,3,4,1], warehouse = [5,3,3,4,1]

Output:

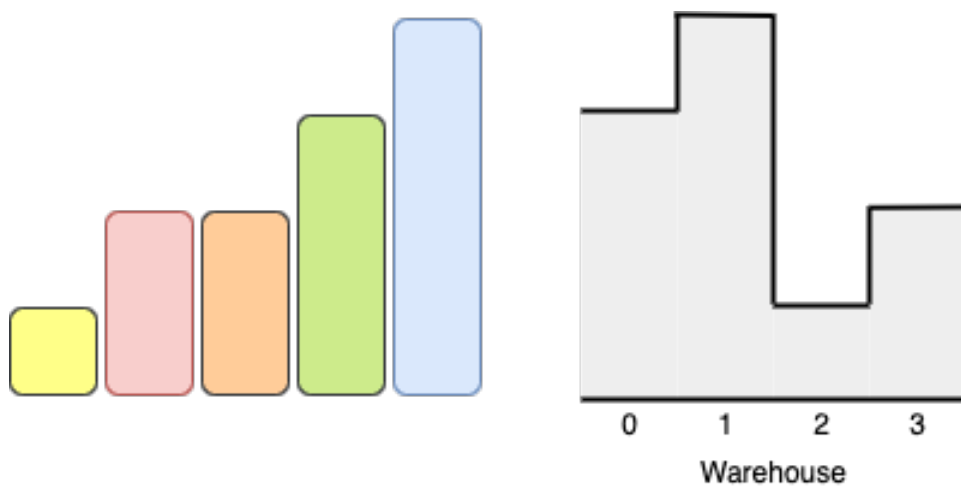
3

Explanation:



We can first put the box of height 1 in room 4. Then we can put the box of height 3 in either of the 3 rooms 1, 2, or 3. Lastly, we can put one box of height 4 in room 0. There is no way we can fit all 4 boxes in the warehouse.

Example 2:



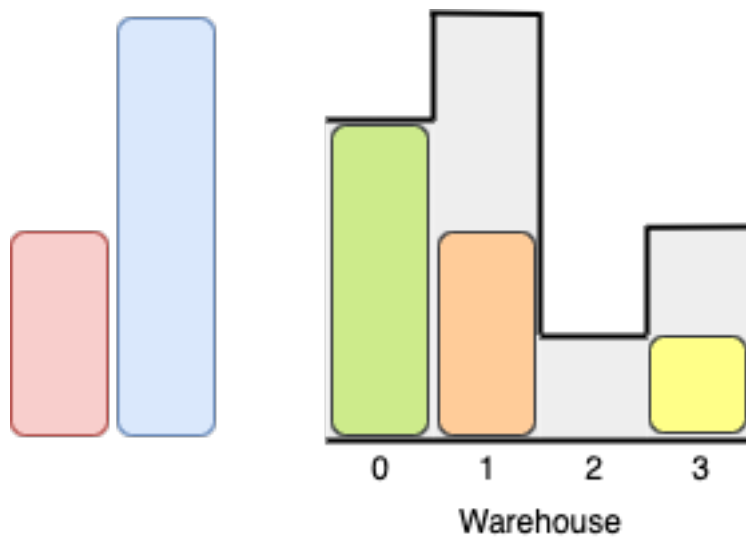
Input:

boxes = [1,2,2,3,4], warehouse = [3,4,1,2]

Output:

3

Explanation:



Notice that it's not possible to put the box of height 4 into the warehouse since it cannot pass the first room of height 3. Also, for the last two rooms, 2 and 3, only boxes of height 1 can fit. We can fit 3 boxes maximum as shown above. The yellow box can also be put in room 2 instead. Swapping the orange and green boxes is also valid, or swapping one of them with the red box.

Example 3:

Input:

boxes = [1,2,3], warehouse = [1,2,3,4]

Output:

1

Explanation:

Since the first room in the warehouse is of height 1, we can only put boxes of height 1.

Constraints:

$n == \text{warehouse.length}$

$1 \leq \text{boxes.length}, \text{warehouse.length} \leq 10$

5

$1 \leq \text{boxes}[i], \text{warehouse}[i] \leq 10$

9

Code Snippets

C++:

```
class Solution {
public:
    int maxBoxesInWarehouse(vector<int>& boxes, vector<int>& warehouse) {

    }
};
```

Java:

```
class Solution {
    public int maxBoxesInWarehouse(int[] boxes, int[] warehouse) {

    }
}
```

Python3:

```
class Solution:
    def maxBoxesInWarehouse(self, boxes: List[int], warehouse: List[int]) -> int:
```

Python:

```

class Solution(object):
    def maxBoxesInWarehouse(self, boxes, warehouse):
        """
        :type boxes: List[int]
        :type warehouse: List[int]
        :rtype: int
        """

```

JavaScript:

```

/**
 * @param {number[]} boxes
 * @param {number[]} warehouse
 * @return {number}
 */
var maxBoxesInWarehouse = function(boxes, warehouse) {

};

```

TypeScript:

```

function maxBoxesInWarehouse(boxes: number[], warehouse: number[]): number {

};

```

C#:

```

public class Solution {
    public int MaxBoxesInWarehouse(int[] boxes, int[] warehouse) {

    }
}

```

C:

```

int maxBoxesInWarehouse(int* boxes, int boxesSize, int* warehouse, int
warehouseSize) {

}

```

Go:

```

func maxBoxesInWarehouse(boxes []int, warehouse []int) int {

}

```

Kotlin:

```

class Solution {
    fun maxBoxesInWarehouse(boxes: IntArray, warehouse: IntArray): Int {

    }
}

```

Swift:

```

class Solution {
    func maxBoxesInWarehouse(_ boxes: [Int], _ warehouse: [Int]) -> Int {

    }
}

```

Rust:

```

impl Solution {
    pub fn max_boxes_in_warehouse(boxes: Vec<i32>, warehouse: Vec<i32>) -> i32 {

    }
}

```

Ruby:

```

# @param {Integer[]} boxes
# @param {Integer[]} warehouse
# @return {Integer}
def max_boxes_in_warehouse(boxes, warehouse)

end

```

PHP:

```

class Solution {

    /**
     * @param Integer[] $boxes
     */
}

```

```

* @param Integer[] $warehouse
* @return Integer
*/
function maxBoxesInWarehouse($boxes, $warehouse) {

}

}

```

Dart:

```

class Solution {
  int maxBoxesInWarehouse(List<int> boxes, List<int> warehouse) {

  }
}

```

Scala:

```

object Solution {
  def maxBoxesInWarehouse(boxes: Array[Int], warehouse: Array[Int]): Int = {

  }
}

```

Elixir:

```

defmodule Solution do
  @spec max_boxes_in_warehouse(boxes :: [integer], warehouse :: [integer]) ::
    integer
  def max_boxes_in_warehouse(boxes, warehouse) do

  end
end

```

Erlang:

```

-spec max_boxes_in_warehouse(Boxes :: [integer()], Warehouse :: [integer()])
-> integer().
max_boxes_in_warehouse(Boxes, Warehouse) ->
.

```

Racket:


```
(define/contract (max-boxes-in-warehouse boxes warehouse)
  (-> (listof exact-integer?) (listof exact-integer?) exact-integer?)
)
```

Solutions

C++ Solution:

```
/*
 * Problem: Put Boxes Into the Warehouse I
 * Difficulty: Medium
 * Tags: array, greedy, sort, stack
 *
 * 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 maxBoxesInWarehouse(vector<int>& boxes, vector<int>& warehouse) {

    }
};
```

Java Solution:

```
/**
 * Problem: Put Boxes Into the Warehouse I
 * Difficulty: Medium
 * Tags: array, greedy, sort, stack
 *
 * 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 maxBoxesInWarehouse(int[] boxes, int[] warehouse) {

    }
}
```

```
}
```

Python3 Solution:

```
"""
Problem: Put Boxes Into the Warehouse I
Difficulty: Medium
Tags: array, greedy, sort, stack

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 maxBoxesInWarehouse(self, boxes: List[int], warehouse: List[int]) -> int:
        # TODO: Implement optimized solution
        pass
```

Python Solution:

```
class Solution(object):
    def maxBoxesInWarehouse(self, boxes, warehouse):
        """
        :type boxes: List[int]
        :type warehouse: List[int]
        :rtype: int
        """
```

JavaScript Solution:

```
/**
 * Problem: Put Boxes Into the Warehouse I
 * Difficulty: Medium
 * Tags: array, greedy, sort, stack
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 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
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 */
```

```

/**
 * @param {number[]} boxes
 * @param {number[]} warehouse
 * @return {number}
 */
var maxBoxesInWarehouse = function(boxes, warehouse) {

};

```

TypeScript Solution:

```

/**
 * Problem: Put Boxes Into the Warehouse I
 * Difficulty: Medium
 * Tags: array, greedy, sort, stack
 *
 * 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 maxBoxesInWarehouse(boxes: number[], warehouse: number[]): number {

};

```

C# Solution:

```

/*
 * Problem: Put Boxes Into the Warehouse I
 * Difficulty: Medium
 * Tags: array, greedy, sort, stack
 *
 * 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 MaxBoxesInWarehouse(int[] boxes, int[] warehouse) {

    }
}

```

```
}
```

C Solution:

```
/*
 * Problem: Put Boxes Into the Warehouse I
 * Difficulty: Medium
 * Tags: array, greedy, sort, stack
 *
 * Approach: Use two pointers or sliding window technique
 * Time Complexity: O(n) or O(n log n)
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 */

int maxBoxesInWarehouse(int* boxes, int boxesSize, int* warehouse, int
warehouseSize) {

}
```

Go Solution:

```
// Problem: Put Boxes Into the Warehouse I
// Difficulty: Medium
// Tags: array, greedy, sort, stack
//
// 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 maxBoxesInWarehouse(boxes []int, warehouse []int) int {

}
```

Kotlin Solution:

```
class Solution {
    fun maxBoxesInWarehouse(boxes: IntArray, warehouse: IntArray): Int {

    }
}
```

Swift Solution:

```
class Solution {  
    func maxBoxesInWarehouse(_ boxes: [Int], _ warehouse: [Int]) -> Int {  
  
    }  
}
```

Rust Solution:

```
// Problem: Put Boxes Into the Warehouse I  
// Difficulty: Medium  
// Tags: array, greedy, sort, stack  
//  
// 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 max_boxes_in_warehouse(boxes: Vec<i32>, warehouse: Vec<i32>) -> i32 {  
  
    }  
}
```

Ruby Solution:

```
# @param {Integer[]} boxes  
# @param {Integer[]} warehouse  
# @return {Integer}  
def max_boxes_in_warehouse(boxes, warehouse)  
  
end
```

PHP Solution:

```
class Solution {  
  
    /**  
     * @param Integer[] $boxes  
     * @param Integer[] $warehouse  
     * @return Integer  
     */  
}
```

```
function maxBoxesInWarehouse($boxes, $warehouse) {

}

}
```

Dart Solution:

```
class Solution {
  int maxBoxesInWarehouse(List<int> boxes, List<int> warehouse) {

  }
}
```

Scala Solution:

```
object Solution {
  def maxBoxesInWarehouse(boxes: Array[Int], warehouse: Array[Int]): Int = {

  }
}
```

Elixir Solution:

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defmodule Solution do
  @spec max_boxes_in_warehouse(boxes :: [integer], warehouse :: [integer]) ::
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  end
end
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-spec max_boxes_in_warehouse(Boxes :: [integer()], Warehouse :: [integer()])
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```
(define/contract (max-boxes-in-warehouse boxes warehouse)
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