

00 : 07 : 37  
HRS MIN SEC

# March Circuits '18

LIVE

Mar 17, 2018, 04:30 PM CET - Mar 26, 2018, 05:30 PM CEST

INSTRUCTIONS

PROBLEMS

SUBMISSIONS

LEADERBOARD

ANALYTICS

JUDGE

[← Problems / Laser Tanks](#)

## Laser Tanks

Max. Marks: 100

Several tanks have been arranged in  $N \times N$  grid with each cell containing exactly one tank. These tanks are laser tanks - they shoot continuous laser beams instead of bullets. Each tank can shoot in two directions - upwards and rightwards, but in only one direction at a time. Tank located in  $i^{\text{th}}$  row and  $j^{\text{th}}$  column can shoot in upwards direction with power  $V_{ij}$  and in rightwards direction with power  $H_{ij}$ .

However, if any horizontal laser beam meets vertical laser beam, they create a big explosion. That's why, you have to assign directions to tanks in such a way that no explosion happens and maximum firepower is achieved. Firepower is defined as total power of all laser beams which have been shot by the tanks.

### INPUT:

First line of input will consist of integer  $N$  denoting size of the grid. Next  $N$  lines will contain  $N$  integers,  $j^{\text{th}}$  integer in the  $i^{\text{th}}$  line will contain  $H_{ij}$ . Similarly, Next  $N$  lines will contain  $N$  integers denoting matrix  $V_{ij}$ .

### OUTPUT:

Output the maximum total firepower that can be achieved.

### CONSTRAINTS:

$$1 \leq N \leq 1000$$

$$1 \leq V_{ij} \leq 10^5$$

$$1 \leq H_{ij} \leq 10^5$$

#### SAMPLE INPUT



```
2
1 2
1 2
2 2
1 2
```



## SAMPLE OUTPUT



7

## Explanation

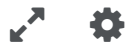
**Time Limit:** 1.0 sec(s) for each input file.**Memory Limit:** 256 MB**Source Limit:** 1024 KB**Marking Scheme:** Marks are awarded if any testcase passes.**Allowed Languages:** C, C++, C++14, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Racket, Ruby, Rust, Scala, Swift, Visual Basic

## CODE EDITOR

Enter your code or [Upload your code](#) as file.

Save

C++14 (g++ 5.4.0)



```
1  #include <iostream>
2  #include <vector>
3  #include <algorithm>
4
5  #define speed std::ios_base::sync_with_stdio(false); std::cin.tie(nullptr); std:
6  typedef long long int int64;
7
8  int main()
9  {
10     speed;
11     int64 n; std::cin >> n;
12     int64 sum1 = 0;
13     int64 sum2 = 0;
14
15
16     for(int row = 0; row<n; ++row)
17         for(int col = 0; col<n; ++col)
18             {
19                 int64 temp; std::cin >> temp;
20                 sum1 += temp;
21             }
22
23     for(int row = 0; row<n; ++row)
24         for(int col = 0; col<n; ++col)
25             {
26                 int64 temp; std::cin >> temp;
27                 sum2 += temp;
28             }
29
30     std::cout << std::max(sum1, sum2) << std::endl;
31
```

?

```
32
33     return 0;
34 }
35
```

35:1

 Provide custom input

 Press Ctrl-space for autocomplete suggestions.

3  
3 4 3  
1 2 5  
7 9 10  
2 3 5  
6 4 6

3

COMPILE & TEST

SUBMIT

LIVE EVENTS

Log ID: 43714049 / Mar 26, 2018, 05:22 PM CEST

RESULT:  Compiled & Run

| Time (sec) | Memory (KiB) | Language |
|------------|--------------|----------|
| 0.110234   | 64           | C++14    |

Input

```
3
3 4 3
1 2 5
7 9 10
2 3 5
6 4 6
7 8 9
```

Your Code's Output

50

Compilation Log

Compiled successfully.

Execution Log

No execution log!

 Tip: You can submit any number of times you want. Your best submission is considered for computing total score.

Your Rating:     

COMMENTS (57) 

SORT BY: Relr ? 



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Post

**Rahul Saxena** 7 days ago

Please give clear explanation , the problem statement is very much ambiguous. Does the laser penetrates through the tanks or not ? Will the starting point of a laser be considered while determining collisions or not ?

▲ 13 votes ● Reply ● Message ● Permalink

**Arthur Vinícius** 7 days ago

Based on my AC submission: The laser do penetrate through the tanks. Starting point of a laser is considered while determining collisions.

▲ 8 votes ● Reply ● Message ● Permalink

**Ayush Agarwal** 6 days ago

Horizontal laser from every tank except the last column will always penetrate the tank at its immediate left. Right ?

▲ 0 votes ● Reply ● Message ● Permalink

**Debabrata Biswal** 6 days ago

it will penetrate every tank on the same row which are to its right.

▲ 0 votes ● Reply ● Message ● Permalink

**Ayush Agarwal** 6 days ago

It will penetrate the tank so it should not be selected , right ?

▲ 0 votes ● Reply ● Message ● Permalink

**Debabrata Biswal** Edited 6 days ago

selection is not based on penetration.It's based on whether placing a certain kind of tank at certain position causes an explosion and if it does you can't place that kind of tank at that particular place.

▲ 0 votes ● Reply ● Message ● Permalink

**Mohammed Yusuf** Edited 4 days ago

Below is my understanding and hope it is correct..  
For the input example

```
2
1 2
1 2
2 2
1 2
```

first line indicats matrix size N. For above input there are 4 Tanks (2x2)

```
T1 T2
T3 T4
```

each tank can shoot upwards and rightwards. Their will be some power associated for each. Upward is consider as Vertical and rightward is consider as Horizontal.

now next N line (2 lines for our case) will be the power of Horizontal shoot. and next N lines will be the power of Vertical shoot.

so horizontal shoot power is

```
1 2
1 2
```

Vertical shoot power is

```
2 2
1 2
```

putting all together

?

T1 T2  
H(1) H(2)  
V(2) V(2)  
T3 T4  
H(1) H(2)  
V(1) V(2)

So the task is to find the maximum power achieved by all tank. With just one condition that the laser beam should not cross each other.

e.g. take a 3x3 matrix

1 2 3  
4 5 6  
7 8 9

e.g. if you are counting Horizontal power of 4 then you should not count the Vertical power of 8 and 9. Cos if 8 & 9 shoots vertical then it will cut across the horizontal beam of 4

▲ 2 votes ● Reply ● Message ● Permalink



**NIKUNJ KHOKHAR** Edited 7 days ago

IS LOCATION OF TANK IS ALSO INCLUDED IN THE SHOOTED DIRECTION ?

▲ 9 votes ● Reply ● Message ● Permalink



**Venu Rajavarapu** 6 days ago

in a same row or column two lazer tanks shooting horizontal and vertical direction..is it collision or not?

▲ 8 votes ● Reply ● Message ● Permalink



**Harsh Vardhan Sharma** 7 days ago

Please give sample explanation.

▲ 7 votes ● Reply ● Message ● Permalink



**Rahul Saxena** 6 days ago

All tanks will shoot vertically , so total power =  $2+2+2+1 = 7$

▲ 0 votes ● Reply ● Message ● Permalink



**Yashwant kumar** 7 days ago

what a bad expalanation of the problem?

▲ 6 votes ● Reply ● Message ● Permalink



**Pradyuman** 7 days ago

Do you mean Description?

▲ 0 votes ● Reply ● Message ● Permalink



**Shivam Pandey** 7 days ago

ha ha ha Yes Explanation is highly aplauded

▲ 0 votes ● Reply ● Message ● Permalink



**sShuvo Ehsan** Edited 6 days ago

What will be the answer for this test case ?Is it 54 is the correct answer ?

3  
3 4 3  
1 2 5  
7 9 10  
2 3 5  
6 4 6  
7 8 9

▲ 0 votes ● Reply ● Message ● Permalink



**Pankhania Rashmit** 6 days ago

can you..how?

▲ 0 votes ● Reply ● Message ● Permalink

**sShuvo Ehsan** 6 days ago

?



What is the correct answer for above test case ?

▲ 0 votes ● Reply ● Message ● Permalink



**Arnab Banerjee** 6 days ago

How are you getting 54?

▲ 0 votes ● Reply ● Message ● Permalink



**Anita Bhadouria** 6 days ago

I am getting 51

▲ 0 votes ● Reply ● Message ● Permalink



**Abhishek Verma** 5 days ago

i m getting 50 with all vertical shoot

▲ 0 votes ● Reply ● Message ● Permalink



**Akash Verma** 5 days ago

2v 3v 5v

6v 4v 6v

7v 9h 10h

gives 52

▲ 3 votes ● Reply ● Message ● Permalink



**Mehul Gupta** 5 days ago

Anyone getting AC plzz give correct answer???

▲ 0 votes ● Reply ● Message ● Permalink



**Mayur Vaid** 5 days ago

52

▲ 2 votes ● Reply ● Message ● Permalink



**Mayur Vaid** 5 days ago

Answer is 52

▲ 0 votes ● Reply ● Message ● Permalink



**Soumya Sarkar** 7 days ago

Problem is not clear. Please give explanation

▲ 4 votes ● Reply ● Message ● Permalink



**Ganesh Jadhav** 3 days ago

Solve dp problems first then you will easily understand this one.

▲ 0 votes ● Reply ● Message ● Permalink



**Hare Krishna** 7 days ago

can anyone explain how output is coming as 7?

▲ 1 vote ● Reply ● Message ● Permalink



**Rahul Saxena** 6 days ago

All tanks will shoot vertically , so total power =  $2+2+2+1 = 7$

▲ 2 votes ● Reply ● Message ● Permalink



**Sathyam Tripathi** 6 days ago

right bottom-most tank can shoot horizontally and the rest can shoot vertically. This could be a solution right?

▲ 0 votes ● Reply ● Message ● Permalink



**Rahul Saxena** 6 days ago

Yes it can be

▲ 0 votes ● Reply ● Message ● Permalink

**Pankhania Rashmit** 6 days ago

?



if all will shoot vertically towards each other then...will it be collision or not?

▲ 0 votes ● Reply ● Message ● Permalink



**Nikhil Mundra** 6 days ago

Nope

▲ 0 votes ● Reply ● Message ● Permalink



**Nilesh Hirani** 6 days ago

configurations like these are not allowed, right? (H denotes horizontal fire and V denotes vertical fire)

H

V

and H V

▲ 2 votes ● Reply ● Message ● Permalink



**sShuvo Ehsan** 6 days ago

A vertical will destroy all the cells above that cell , won't it ?

▲ 0 votes ● Reply ● Message ● Permalink



**Mayur Vaid** 5 days ago

Yes, configuration like this is not allowed.

▲ 1 vote ● Reply ● Message ● Permalink



**Venu Rajavarapu** 5 days ago

what will be the output for

3

5 2 3

6 1 2

7 3 4

3 2 3

7 1 1

6 2 3

▲ 1 vote ● Reply ● Message ● Permalink



**Dude masters** 5 days ago

i think 34.... not sure

▲ 1 vote ● Reply ● Message ● Permalink



**Deepank Pruthi** 5 days ago

my answer is 33 , what's the correct answer ?

▲ 1 vote ● Reply ● Message ● Permalink



**Praveen Kumar Mekala** 4 hours ago

33

▲ 0 votes ● Reply ● Message ● Permalink



**Mayur Vaid** 5 days ago

Very nice question, but very poor explanation.

▲ 2 votes ● Reply ● Message ● Permalink



**Ganesh Jadhav** 3 days ago

I do not think so. But problem is really good.

▲ 0 votes ● Reply ● Message ● Permalink



**Dude masters** 7 days ago

can anyone have strong test cases of this question

▲ 1 vote ● Reply ● Message ● Permalink



**Ajay Saundeeep** 5 days ago

This comment has been deleted.

● Reply ● Message ● Permalink

?

**amit singh** 5 days ago

Yes,collision takes place

▲ 1 vote ● Reply ● Message ● Permalink

**Felipe Mota** 5 days ago

What's upward and rightward direction in this problem ?

▲ 1 vote ● Reply ● Message ● Permalink

**Deepank Pruthi** 5 days ago

stuck on score 20 , not able to get what's the issue..

▲ 1 vote ● Reply ● Message ● Permalink

**Karolis Kusas** 5 days ago

Tried all possible directions, got AC with downwards and leftwards.

▲ 1 vote ● Reply ● Message ● Permalink

**Pankhania Rashmit** 6 days ago

How can the right top most tank can shoot

▲ 0 votes ● Reply ● Message ● Permalink

**Rahul Saxena** 6 days ago

Right most top tank can shoot horizontally , and vertically if no tanks on its left shoot horizontally.

▲ 0 votes ● Reply ● Message ● Permalink

**Ayush Agarwal** 6 days ago

For the right most top tank : It is not possible for the tank at its left to shoot horizontally as it will create an explosion right ?

▲ 0 votes ● Reply ● Message ● Permalink

**Subhendu Ranjan Mishra** 6 days ago

Poorly written problem statement. No explanation provided for the example case.

▲ 0 votes ● Reply ● Message ● Permalink

**Mohd Abdullah** 6 days ago

Language clarity is horrible for this problem !

▲ 0 votes ● Reply ● Message ● Permalink

**Hare Krishna** 5 days ago

Is this a DP problem?

▲ 0 votes ● Reply ● Message ● Permalink

**Ganesh Jadhav** 4 days ago

Yup.

▲ 0 votes ● Reply ● Message ● Permalink

**Nikhil Rathore** 4 days ago

Is it necessary for every tank to shoot

▲ 0 votes ● Reply ● Message ● Permalink

**Aayush chauhan** 4 days ago

Are different rows independent of each other.....?

▲ 0 votes ● Reply ● Message ● Permalink

**Vikas Jha** 2 days ago

Great Question,

It is open to interpretation. And since explanation can make us all reach the same interpretation, there isn't an explanation either.

▲ 0 votes ● Reply ● Message ● Permalink

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