Matrix Max Sum

Java May'19 Advanced Practice 3 - 06:24:57

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Time limit: 0.7s
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Author:
edward

Tags
Arrays
Difficulty
Easy

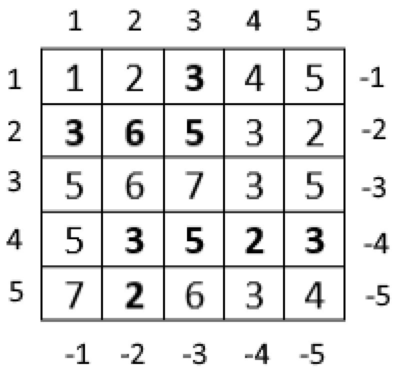
Allowed languages
C#, java, JavaScript

Write a program that finds the maximum sum between two given coordinates in a matrix. The coordinates are provided as a list of pairs, such as `2 3 -4 -2` where `2 3` is the first pair and `-4 -2` is the next one. The first number of the pair is the row coordinate **R** and the second one is the column coordinate **C**.

You need to follow a path from **R** to **C** and sum up all the values you encounter in cells. For example, with coordinates `2 3` you start from the **beginning** of the **2nd** row and move towards the **3rd** column. When you reach the column, you go **up** because the column coordinate **3** is positive.

With coordinates `-4 -2` you start from the **end** of the **4th** row (because **-4** is negative) and move towards the **2nd** column. When you reach it, you go **down** (**-2** is negative).

Check the following picture for a clearer idea.



	1	2	3	4	5	
1	1	2	**3**	4	5	-1
2	**3**	**6**	**5**	3	2	-2
3	5	6	7	3	5	-3
4	5	**3**	**5**	**2**	**3**	-4
5	7	**2**	6	3	4	-5
	-1	-2	-3	-4	-5	

Print the maximum sum you find to the standard output.

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Note

You always have to move horizontally in rows and vertically in columns. For example, in the above picture, the correct path with coordinates `-4 -2` is `3 -> 2 -> 5 -> 3 -> 2` and **NOT** `3 -> 4 -> 3 -> 6 -> 2`.

Input

- On the first line, you receive an integer **N** - the number of rows in the matrix
- On the next **N** lines, each row of the matrix is given, with columns separated by a space
- On the last line, the **R** and **C** coordinates are given, separated by spaces

Output

- On the only line of output, print the maximum sum found.

Constraints

- **N** will be an integer between 5 and 20, inclusive.
- All rows have the exact same length, also between 5 and 20, inclusive.
- The **R** and **C** coordinates will always be valid and inside the matrix.
- The **R C** pairs will be at least 1 and no more than 20.
- Matrix elements will have values in range -5000 and 5000.

Sample Tests

Input

Copy

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

Output

Copy

```
43
```

Input

Copy

```
1 22 3 41 5 2
2 13 4 -5 6 5
-6 5 9 31 2 8
3 14 5 -6 7 4
4 -5 6 -7 8 7
-3 -3 3 3 4 -3 -4 3
```

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Output

```
61
```

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Clarifications

No clarifications have been made at this time.

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