2D Array - DS

by Shafaet

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Context

Given a 6×6 *2D Array*, A:

```
1 1 1 0 0 0
0 1 0 0 0 0
1 1 1 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
0 0 0 0 0 0
```

We define an hourglass in A to be a subset of values with indices falling in this pattern in A's graphical representation:

```
a b c
  d
e f g
```

There are 16 hourglasses in A, and an *hourglass sum* is the sum of an hourglass' values.

Task

Calculate the hourglass sum for every hourglass in A, then print the *maximum* hourglass sum.

Note: If you have already solved the Java domain's *Java 2D Array* challenge, you may wish to skip this challenge.

Input Format

There are 6 lines of input, where each line contains 6 space-separated integers describing *2D Array* A; every value in A will be in the inclusive range of -9 to 9.

Constraints

- $-9 \leq A[i][j] \leq 9$
- $0 \leq i, j \leq 5$

Output Format

Print the largest (maximum) hourglass sum found in A.

Sample Input

```
1 1 1 0 0 0
0 1 0 0 0 0
1 1 1 0 0 0
0 0 2 4 4 0
0 0 0 2 0 0
0 0 1 2 4 0
```

Sample Output

```
19
```

Explanation

A contains the following hourglasses:

```
1 1 1   1 1 0   1 0 0   0 0 0
  1       0       0       0
1 1 1   1 1 0   1 0 0   0 0 0

0 1 0   1 0 0   0 0 0   0 0 0
  1       1       0       0
0 0 2   0 2 4   2 4 4   4 4 0

1 1 1   1 1 0   1 0 0   0 0 0
  0       2       4       4
0 0 0   0 0 2   0 2 0   2 0 0

0 0 2   0 2 4   2 4 4   4 4 0
  0       0       2       0
0 0 1   0 1 2   1 2 4   2 4 0
```

The hourglass with the maximum sum (19) is:

```
2 4 4
  2
1 2 4
```

Submissions: 26968

Max Score: 15

Difficulty: Easy

More

Current Buffer (saved locally, editable) Java 7

```
1  import java.io.*;
2  import java.util.*;
3  import java.text.*;
4  import java.math.*;
5  import java.util.regex.*;
6
7  public class Solution {
8
9      public static void main(String[] args) {
10         Scanner in = new Scanner(System.in);
11         int arr[][] = new int[6][6];
12         for(int arr_i=0; arr_i < 6; arr_i++){
13             for(int arr_j=0; arr_j < 6; arr_j++){
14                 arr[arr_i][arr_j] = in.nextInt();
15             }
16         }
17
18         int sum         =   Integer.MIN_VALUE;       //possibility of sum being negative
19         int sum_temp    =   0;       //temporary sum
20         int temp_i;             //temporary i
21         int temp_j;             //temporary j
22
23
24         for(int i=0; i<4;i++)
25         {
26             for(int j=0;j<4;j++)
27             {
28                     sum_temp = arr[i][j]+arr[i][j+1]+arr[i][j+2]
```

```
                                    +arr[i+1][j+1]+
                                arr[i+2][j]+arr[i+2][j+1]+arr[i+2][j+2];
                if(sum_temp>sum)
                    sum = sum_temp;
//                System.out.println("i: "+i);
//                System.out.println("j: "+j);
            }
        }

        System.out.println(sum);


    }
}
```

Line: 1 Col: 1

Upload Code as File Test against custom input Run Code Submit Code