2D Array - DS ★

94 more points to get your next star!

Rank: **1181249** | Points: **106/200**

Problem Solving ★★

Problem Submissions Leaderboard Editorial

Given a 6×6 *2D Array*, arr:

```
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
```

An hourglass in A is a subset of values with indices falling in this pattern in arr's graphical representation:

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

There are 16 hourglasses in arr. An *hourglass sum* is the sum of an hourglass' values. Calculate the hourglass sum for every hourglass in arr, then print the *maximum* hourglass sum. The array will always be 6×6.

Example

$arr =$

```
-9 -9 -9  1 1 1
 0 -9  0  4 3 2
-9 -9 -9  1 2 3
 0  0  8  6 6 0
 0  0  0 -2 0 0
 0  0  1  2 4 0
```

The 16 hourglass sums are:

```
-63, -34, -9, 12,
-10,  0, 28, 23,
-27, -11, -2, 10,
  9,  17, 25, 18
```

The highest hourglass sum is 28 from the hourglass beginning at row 1, column 2:

```
0 4 3
  1
8 6 6
```

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

Function Description

Complete the function *hourglassSum* in the editor below.

hourglassSum has the following parameter(s):

- *int arr[6][6]*: an array of integers

Returns

- *int:* the maximum hourglass sum

Input Format

Each of the 6 lines of inputs $arr[i]$ contains 6 space-separated integers $arr[i][j]$.

Constraints

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

Output Format

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

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

arr 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
```

Change Theme Language Java 8

```
13  class Result {
14
15      /*
16       * Complete the 'hourglassSum' function below.
17       *
18       * The function is expected to return an INTEGER.
19       * The function accepts 2D_INTEGER_ARRAY arr as parameter.
20       */
21
22      public static int hourglassSum(List<List<Integer>> arr) {
```

```
        int max=Integer.MIN_VALUE;

        int r=arr.size();
        int c=arr.size();
        for(int i=0;i<r-2;i++){
            for(int j=0;j<c-2;j++){
                int sum=arr.get(i).get(j)+arr.get(i).get(j+1)+arr.get(i).get(j+2)+arr.get
(i+1).get(j+1)+arr.get(i+2).get(j)+arr.get(i+2).get(j+1)+arr.get(i+2).get(j+2);
                max=Math.max(max,sum);
            }
        }
        return max;
    }


}
public class Solution {
```

Line: 26 Col: 9

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

Congratulations!

You have passed the sample test cases. Click the submit button to run your code against all the test cases.

Sample Test case 0

Sample Test case 1

Sample Test case 2

Input (stdin) Download

```
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
```

Your Output (stdout)

```
19
```

Expected Output Download

```
19
```