



2D Array - DS ☆

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**Problem**

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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

```

We define an hourglass in *A* to be 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*, and 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.

For example, given the 2D array:

```

-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

```

We calculate the following **16** hourglass values:

```

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

```

Our highest hourglass value is **28** from the hourglass:

```

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. It should return an integer, the maximum hourglass sum in the array.

`hourglassSum` has the following parameter(s):

- `arr`: an array of integers

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
```

Java 8



```
1  import java.io.*;
2  import java.math.*;
3  import java.security.*;
4  import java.text.*;
5  import java.util.*;
6  import java.util.concurrent.*;
7  import java.util.regex.*;
8
9  public class Solution {
10
11      // Complete the hourglassSum function below.
12      static int hourglassSum(int[][] arr) {
13
14
15      }
16
17      private static final Scanner scanner = new Scanner(System.in);
18
19      public static void main(String[] args) throws IOException {
20          BufferedWriter bufferedWriter = new BufferedWriter(new FileWriter(System.getenv(
21              "OUTPUT_PATH")));
22
23          int[][] arr = new int[6][6];
24
25          for (int i = 0; i < 6; i++) {
26              String[] arrRowItems = scanner.nextLine().split(" ");
27              scanner.skip("(\\r\\n|\\[\\n\\r\\u2028\\u2029\\u0085])?");
28
29              for (int j = 0; j < 6; j++) {
```

Line: 1 Col: 1

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