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# 2D Array - DS

Problem

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Given a  $6 \times 6$  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  $6 \times 6$ .

## 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
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
```