Day 11: 2D Arrays

Objective

Today, we are building on our knowledge of arrays by adding another dimension. Check out the Tutorial tab for learning materials and an instructional video.

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.

Example

In the array shown above, the maximum hourglass sum is 7 for the hourglass in the top left corner.

Input Format

There are 6 lines of input, where each line contains 6 space-separated integers that describe the 2D Array A.

Constraints

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

Output Format

Print the maximum hourglass sum 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
```