

## Digging for Oil

The Government of Siruseri has decided to auction off land in its oil-rich Navalur province to private contractors to set up oil wells. The entire area that is being auctioned off has been divided up into an  $M \times N$  rectangular grid of smaller plots.

The Geological Survey of Siruseri has data on the estimated oil reserves in Navalur. This information is published as an  $M \times N$  grid of non-negative integers, giving the estimated reserves in each of the plots.

In order to prevent a monopoly, the government has ruled that any contractor may bid for only one  $K \times K$  square block of contiguous plots.

The AOE oil cartel consists of a group of 3 colluding contractors who would like to choose 3 disjoint blocks so as to maximize their total yield.

Suppose that the estimated oil reserves are as described below:

```

1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1
1 8 8 8 8 8 1 1 1
1 8 8 8 8 8 1 1 1
1 8 8 8 8 8 1 1 1
1 1 1 1 8 8 8 1 1
1 1 1 1 1 1 8 8 8
1 1 1 1 1 1 9 9 9
1 1 1 1 1 1 9 9 9
    
```

If  $K = 2$ , the AOE cartel can take over plots with a combined estimated reserve of 100 units, whereas if  $K = 3$  they can take over plots with a combined estimated reserve of 208 units.

AOE has hired you to write a program to help them identify the maximum estimated oil reserves that they can take over.

### Input format

The first line of the input contains three integers  $M$ ,  $N$  and  $K$ , where  $M$  and  $N$  are the number of rows and columns in the rectangular grid of plots and  $K$  is the size of the square block for which bids can be made. The next  $M$  lines contain  $N$  non-negative integers—each line describes the estimated oil reserves for one row of plots.

**Output format**

A single line with a single integer indicating the maximum estimated oil reserves that can be taken over by the AOE cartel.

**Test Data**

You may assume that  $K \leq M$  and  $K \leq N$  and that at least three disjoint  $K \times K$  blocks are available. In 30% of the inputs,  $M, N \leq 12$ . In all inputs,  $M, N \leq 1500$ . The estimated oil reserve for each plot is always non-negative and never exceeds 500.

**Sample input**

```
9 9 3
1 1 1 1 1 1 1 1 1
1 1 1 1 1 1 1 1 1
1 8 8 8 8 8 1 1 1
1 8 8 8 8 8 1 1 1
1 8 8 8 8 8 1 1 1
1 1 1 1 8 8 8 1 1
1 1 1 1 1 1 8 8 8
1 1 1 1 1 1 9 9 9
1 1 1 1 1 1 9 9 9
```

**Sample output**

```
208
```