

ECO-FRIENDLY TRIP

The Joshes are planning a boat trip through the pacific ocean. The pacific ocean is a grid of cells with N rows and N columns. The Joshes start in the top-left cell and would like to get to the bottom-right cell. There are two types of *moves* their boat can make:

- Down: The boat moves to the cell below the current cell.
- Right: The boat moves to the cell to the right of the current cell.

On their trip, the Joshes do not want to disturb the fish living in the ocean. The cell in the i th row and j th column has a_{ij} fish living in it. Before and after each move, the boat will *pollute* all the cells in a $K \times K$ square centred on its current cell (K is odd).

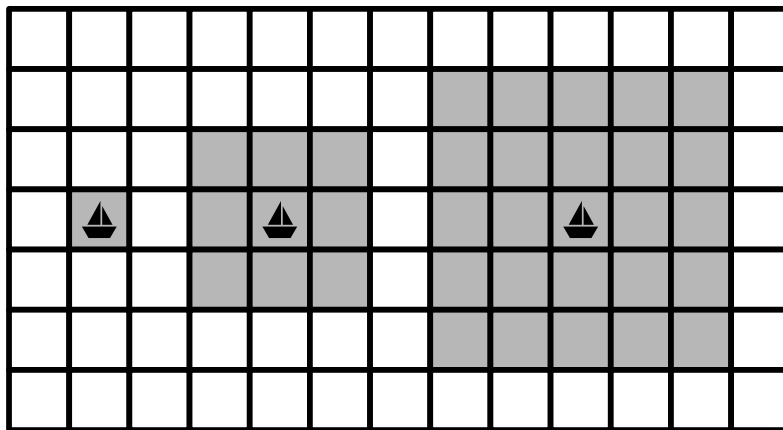


Figure 1: The polluted cells for $K = 1$, $K = 3$ and $K = 5$ are shown above.

At the end of the trip, the *eco-score* of their trip is the total number of fish living in cells that were polluted. Note that if a cell is polluted multiple times, the fish in it are still only counted once.

What is the minimum eco-score the Joshes can achieve?

Subtasks and Constraints

For all subtasks:

- $2 \leq N \leq 2000$
- $1 \leq K \leq N$
- K is odd.
- $0 \leq a_{ij} \leq 100$, for all i and j .

Additional constraints for each subtask are given below.

Subtask	Points	Additional constraints
1	20	$K = 1$
2	50	$K = 3$
3	30	No additional constraints.

Input

- The first line of input contains the two integers N and K .
- N lines follow, containing N integers each. In the i th of these lines, the j th integer is a_{ij} .

Output

Output a single integer, the minimum eco-score the Joshes can achieve.

Sample Input 1

```
6 3
3 1 5 8 9 5
2 4 8 0 4 4
9 1 3 2 4 7
8 8 7 2 0 9
6 9 1 2 0 1
2 9 5 3 4 4
```

Sample Output 1

82

Sample Input 2

```
4 1
20 3 6 42
18 15 92 99
70 35 40 51
8 3 100 36
```

Sample Output 2

200

Explanation

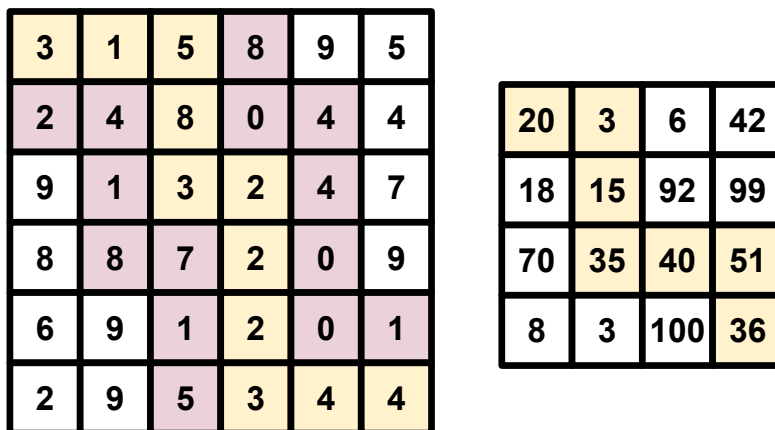


Figure 2: Sample Input 1 and Sample Input 2. The cells travelled through are shaded yellow. The polluted cells are the cells shaded yellow and the cells shaded red.