

Problem 6: Park Placement

On your first day as an urban planner for your hometown government, your boss urgently assigns you the task of determining the best location for a new park in the city. You are provided with a city map, represented as a grid of numerical values indicating the type of each area. Additionally, you have a list of types suitable for building a park. Your goal is to identify the largest square park that can be established within the city.

The first line of input contains three integers (R, C, and N) indicating the number of rows, number of columns, and number of preferred locations, respectively ($1 \leq R, C \leq 1000$; $1 \leq N \leq 1000$). The second line of input contains N integers indicating the types of land suitable for a park. Finally, the next R lines contain C integers indicating the type of each block of land in the city. All values are separated by a single space.

Output the area of the largest possible park.

Sample input 1

```
5 15 4
1 2 3 4
9 9 9 9 9 9 1 3 1 3 9 9 9 9 9
9 9 9 9 9 9 3 3 3 2 9 9 9 9 9
9 9 9 9 9 9 2 2 3 1 9 9 9 9 9
9 9 9 9 9 9 2 8 3 3 9 9 9 9 9
9 9 9 9 9 9 9 9 9 9 9 9 9 9 9
```

Sample output 1

9

Two possible 3×3 parks are possible. If the eight on the fourth row were a suitable type, the area of the largest park would be 16.

Sample input 2

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

Sample output 2

1

Three possible 1×1 parks are possible, but no 2×2 park is possible.

Sample input 3

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

Sample output 3

0

There are no possible parks.