## MaxComp

For a matrix, let's call a subset of cells, S, **connected** if there is a path between any two cells of S which consists only of cells from S. A path is a sequence of cells $u_1$, $u_2$, ..., $u_k$ where $u_i$ and $u_{i+1}$ are adjacent for any $i = \overline{1, k-1}$

Given a matrix A with N rows and M columns, we define the following formula for a connected subset S of A:

$$\boldsymbol{weight}(S) = \max\{A(s) | s \in S\} - \min\{A(s) | s \in S\} - |S|$$

where $|*|$ represents the cardinality of a set and A(s) represents the value of the cell s in A.

### INPUT

The first line of input contains two number N and M representing the dimensions of the matrix A.

The following N lines describe the matrix. The i-th line contains M integers where the j-th value represents A(i,j).

### OUTPUT

Print the maximum value of $\boldsymbol{weight}(S)$ between all connected components S of the given matrix.

### GENERAL CONSTRAINTS

- $0 \leq A(i,j) \leq 10^9$
- $1 \leq N, M \leq 10^3$

### SUBTASKS

- For 15 points: $1 \leq N * M \leq 20$
- For other 15 points: $N = 1$
- For other 30 points: $N, M \leq 50$

### EXAMPLES

| *Standard input* | *Standard output* |
|---|---|
| 2 3<br>2 4 3<br>5 7 5 | 2 |

*Explanation:*

One of the optimal connected subsets is {(1,1),(1,2),(2,2)}. {(1,1),(2,2)} is not a solution because there is no path between (1,1) and (2,2).