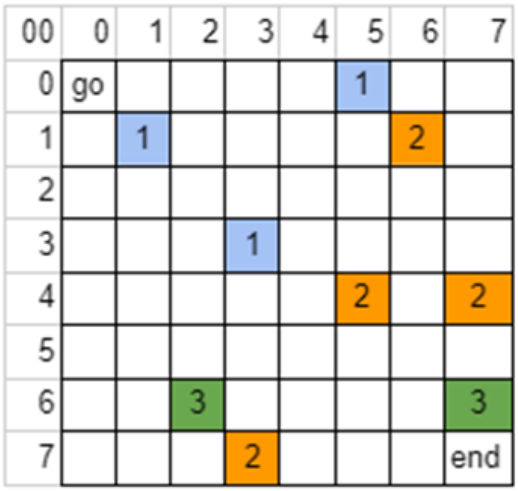
Shopee Xpress Delivery

Max. score: 100

This problem is no longer available for practice. Apology for any inconvenience!



Description

Bob is a Shopee Xpress deliveryman and is delivering a package to his destination. He started his journey from one of our Shopee warehouses at position *(0, 0)*, and his destination is at the bottom-right corner of the map. For example, if the map is an 8x8 grid, the destination is *(7, 7).*

Each step, his car can move 1 square up, down, left, or right. If his car reaches a black hole, it can teleport to any other location connected to the black hole at no cost, he also can skip the teleport feature. For example, if the car reaches black hole A at position (1, 1), Bob can teleport to position (0, 5) without costing an additional step.

Find the least number of steps (shortest path) that Bob can take to move from *(0, 0)* to the destination.

So, one path of least steps for example map is:

0,0 -> 0,1 -> 1,1/0,5 -> 1,5-> 1,6/7,3 -> 7,2 -> 6,2/6,7-> 7.7 , the answer is *7.*

Input:

The first line contains two numbers ***M***, ***N*** *(* $1 \leq M, N \leq 1000$ *)*. ***M*** refers to the number of rows in the map, and ***N*** refers to the number of columns in the map.

The next ***M*** rows contain ***N*** values x_{ij} *(* $0 \leq x[i][j] \leq 255$ *)*, where 0 means that position *(i, j)* is an empty square, and non-zero values mean that a black hole is present in the square. Non-zero values are guaranteed to have at least *2* or more instances on the map.

Output:

To print the integer of the least number of steps needed.

SAMPLE INPUT

```
8 8
0 0 1 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 0 0
0 0 0 0 0 0 1 0
0 0 0 0 0 0 0 0
```

SAMPLE OUTPUT

```
4
```

Explanation

NA

Time Limit:	4.0 sec(s) for each input file.
Memory Limit:	256 MB
Source Limit:	1024 KB
Marking Scheme:	Score is assigned when all the testcases pass.
Allowed Languages:	Bash, C, C++, C++14, C++17, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, Java 14, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Python 3.8, Racket, Ruby, Rust, Scala, Swift-4.1, Swift, TypeScript, Visual Basic