Java programming exercise – Sequence search in a matrix

Objective

The objective of this exercise is to find the longest sequence of values sorted in ascendant order in adjacent coordinates of a matrix formed by randomly distributed numbers.

The program should obtain the dimensions and the values of the matrix from the standard input and send the detected sequence to standard output in ascending order.

In the evaluation of the exercise, it will be validated the correct behavior of the program, as well as the code structure, programming practices, application of OOP principles and the design and efficiency of the algorithm.

Specification of requirements

- The input of the program is obtained from the standard input and starts at first line with the number of columns followed by the number of rows separated by a single space, then at subsequent lines each row of the matrix is provided with values separated by a single space;

- The output of the program should be sent to the standard output in a single line with values sorted in ascending order;

- Consider that the numbers in the matrix are unique and range from **1** to **N x M** where **N** represents the number of columns and **M** represents the number of rows;

- Consider that adjacent coordinated share the same column or row;

- Assume that the input is provided as required and there is only a possible sequence with the maximum number of elements;

- There is no need to specify user prompts for input as the program is to be tested automatically;

Example

5 8 7

6 9 1

4 3 2

Input:

3 3

5 8 7

6 9 1

4 3 2

Output

1 2 3 4