

A STRIP OF LAND

PROBLEM

The residents of Dingilville are trying to locate a region to build an airport. The map of the land is at hand. The map is a rectangular grid of unit squares, each identified by a pair of coordinates (x,y) , where x is the horizontal (west-east) and y is the vertical (south-north) coordinate. The height of every square is shown on the map.

Your task is to find a rectangular region of squares with the largest area (i.e. a rectangular region consisting of the largest number of squares) such that

- the height difference between the highest and the lowest squares of the region is less than or equal to a given limit C , and
- the width (i.e. the number of squares along the west-east direction) of the region is at most 100.

In case there is more than one such region you are required to report only one of them.

ASSUMPTIONS

- $1 \leq U \leq 700$, $1 \leq V \leq 700$ where U and V designate the dimensions of the map. More specifically, U is the number of squares in the west-east direction, and V , in the south-north direction.
- $0 \leq C \leq 10$
- $-30,000 \leq H_{xy} \leq 30,000$ where the integer H_{xy} is the height of the square at coordinates (x, y) , $1 \leq x \leq U$, $1 \leq y \leq V$.
- The southwest corner square of the map has the coordinates $(1,1)$ and the northeast corner has the coordinates (U,V) .

INPUT

The input is a text file named **land.inp**.

- The first line contains three integers: U , V and C .
- Each of the following V lines contains the integers H_{xy} for $x = 1, \dots, U$. More specifically, H_{xy} occurs as the x 'th number on the $(V-y+2)$ 'th input line.

OUTPUT

The output must be a text file named **land.out** consisting of one line containing four integers locating the region found: X_{min} , Y_{min} , X_{max} , Y_{max} , where (X_{min}, Y_{min}) is the coordinates of the southwest corner square, and (X_{max}, Y_{max}) is the coordinates of the northeast corner square of the region.

EXAMPLE

land.inp:

```

10 15 4
41 40 41 38 39 39 40 42 40 40
39 40 43 40 36 37 35 39 42 42
44 41 39 40 38 40 41 38 35 37
48 38 33 39 36 37 32 36 38 40
39 40 39 39 40 40 41 43 41
39 40 41 38 39 38 39 39 39 42
36 39 39 39 39 40 39 41 40 41
31 37 36 41 41 40 39 41 40 40
40 40 40 42 41 40 39 39 39 39
42 40 44 40 38 40 39 39 37 41
41 41 40 39 39 40 41 40 39 40
47 45 49 43 43 41 41 40 39 42
42 41 41 39 40 39 42 40 42 42
41 44 49 43 46 41 42 41 42 42
45 40 42 42 46 42 44 40 42 41

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41 40 41 38 39 39 40 42 40 40
39 40 43 40 36 37 35 39 42 42
44 41 39 40 38 40 41 38 35 37
38 38 33 39 36 37 32 36 38 40
39 40 39 39 39 40 40 41 43 41
39 40 41 38 39 38 39 39 39 42
36 39 39 39 39 40 39 41 40 41
31 37 36 41 41 40 39 41 40 40
40 40 40 42 41 40 39 39 39 39
42 40 44 40 38 40 39 39 37 41
41 41 40 39 39 40 41 40 39 40
47 45 49 43 43 41 41 40 39 42
42 41 41 39 40 39 42 40 42 42
41 44 49 43 46 41 42 41 42 42
45 40 42 42 46 42 44 40 42 41

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land.out:

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4 5 8 11

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EVALUATION

Your program will be allowed to run 60 seconds.

No partial credit can be obtained for a test case.