**TASK.** *N* processors process bicolor images, presented as a raster sized *N* x *N* (see the figure). The current image is coded in a global two dimensional array int pic[32][32] as follow – the white pixels are coded with zeros, and non-white – with ones. The pixel in row *I* and column *J* is identified with its coordinates (*I*, *J*). Write parallel program to run on *N* processors, which:

|  |  |  |  |  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
|  |  |  |  |  |  |  |  |  |  | 1 |
|  |  |  |  |  |  |  |  |  |  | 2 |
|  |  |  |  |  |  |  |  |  |  | 3 |
|  |  |  |  |  |  |  |  |  |  | 4 |
|  |  |  |  |  |  |  |  |  |  | 5 |
|  |  |  |  |  |  |  |  |  |  | 6 |
|  |  |  |  |  |  |  |  |  |  | 7 |
|  |  |  |  |  |  |  |  |  |  | 8 |
|  |  |  |  |  |  |  |  |  |  | 9 |
|  |  |  |  |  |  |  |  |  |  | 10 |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |  |

А) find and print on the first line of the standard output the number of nonwhite pixels of the image;

Б) find and print on the second line of the standard output the lengths (in number of pixels) of the two sides of the rectangle with minimal face that contain the image;

В) find and print on the third line of the standard output the coordinates of upper left and down right corner of a non-trivial rectangle (more than one row and more than one column) of the image, composed of nonwhite pixels.

The sample of the figure will be coded as follow (row and column with index 0 are not used, i.e. always contain only zeros):

int pic[32][32]=

{ {0,0,0,0,0,0,0,0,0,0,0},

{0,0,0,0,0,0,0,0,0,0,0},{0,0,1,1,1,0,0,0,0,0,0},

{0,0,0,1,1,0,0,0,0,0,0},{0,0,0,0,1,0,1,0,1,0,0},

{0,0,0,0,1,1,1,1,1,1,0},{0,0,0,0,0,1,1,1,1,0,0},

{0,0,0,0,0,1,1,1,1,0,0},{0,0,0,0,0,1,0,0,1,0,0},

{0,0,0,0,0,1,0,0,1,0,0},{0,0,0,0,0,1,0,0,1,0,0}

}

In such case, the output of the program on first two lines have to be:

28

9 8

and one possible third line of the output could be:

(5,5) (7,8)