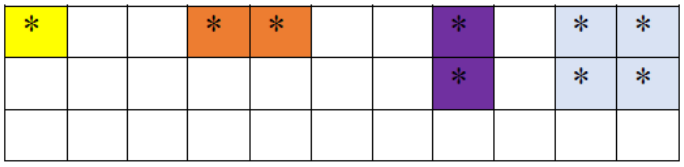
Ankara University
Computer Engineering
COM2067 LAB 1
Deadline: 21.10.2022 23:59

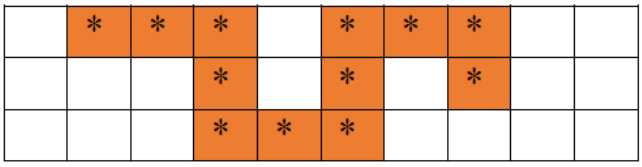
Consider a grid, with some cells empty and others containing an asterisk. Define two asterisks to be contiguous if they are adjacent to each other in the same row or in the same column. They are also considered as contiguous if they are next to each other diagonally. Now suppose that we define a blob as follows:

- A blob contains at least one asterisk
- If an asterisk is in a blob, then so is any asterisk that is contiguous to it.
- If a blob has more than two asterisks, then each asterisk in it is contiguous to at least one other asterisk in the blob.

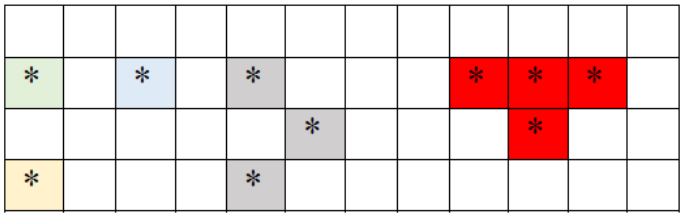
3x11 grid with 4 blobs



3x10 grid with 1 blob



4x12 grid with 5 blobs



Write a C program that reads the square grid from the user. First, reads number of rows, number of columns and then reads the grid. Compute and prints the number of blobs in the grid and number of asterisks in each blob in increasing order. For example, the input and output of your program for the grid given in the above 4x12 grid example will be as follows. The first two values entered represent the dimensions of the grid. The next pairs of values indicate the locations of the asterisks on the grid. Indices in the grid start from 0.

Input:	**Output:**
4 12 1 0 1 2 1 4 1 8 1 9 1 10 2 5 2 9 3 0 3 4 -1	5 1 1 1 3 4

Name your work as StudentID.c and upload it to the system. Make sure that your program is running in the Ubuntu environment. For the correct output format, carefully review the sample input and output files provided. You can perform the following operations to check the accuracy of your program.

1. Compile your program using the gcc command.

2. Using the ./a.out <input1> myOutput1.txt command, run your program with the input1.txt file and save your output to myOutput1.txt file.

3. Automatically compare the true output and your output using the diff myOutput1.txt output1.txt command. If there is no warning on the command prompt after entering this command, this means that your program is working correctly for these values. If you see a warning, this indicates a problem with your output.

4. Try commands in items 2 and 3 for other input files given to you.

5. Test your program for different inputs you will create yourself. Note that the input files given to you and the input files used during the evaluation may differ from each other.