

UNIVERSITY OF PARMA

*Department of Engineering and Architecture*

*Degree course in Computer, Electronic and Communications Engineering*

**PRACTICAL TEXT IN COMPUTER SCIENCE & PROGRAMMING LABORATORY**

December 21<sup>st</sup>, 2023

Nome: \_\_\_\_\_ Cognome: \_\_\_\_\_ Matr: \_\_\_\_\_ Postazione \_\_\_\_\_

Write a program using the C language (name the project with your student ID) that behaves as described below. The available time is 120 minutes. At the end of the time, the saved files on **U:\** are going to be automatically collected. Additional documents, files... are available in **T:\Bertozzi**, and it is recommended to use WordPad to read text files.

You have some ASCII files containing the layout of a crossword puzzle. The files have the following format: the first line contains the size of the layout (number of rows and columns), followed by the characters that make up the layout, possibly interspersed with spaces and/or line breaks. Black squares are indicated by the character '#'.

Develop a C program that:

1. prompts the user for the name of a file containing the crossword puzzle
2. reads and stores, using dynamic memory allocation and any other necessary variables, the content of the specified file
3. calls a print function **void stampaschema(??)** that prints the content of the matrix
4. calls a **void stampaorizzontali(??)** function that prints only the horizontal words of the layout with a character count greater than two
5. calls a **void stampaverticali(??)** function that prints only the vertical words of the layout with a character count greater than two

**The code must be developed following the proposed order. For each point, the functionality must be adequately verified before moving on to the next one. Perform any deallocations of memory when dynamically allocated areas are no longer in use.**