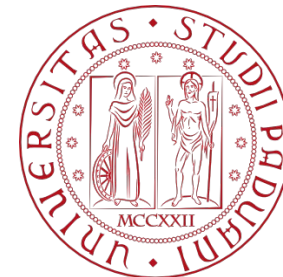


# COMPUTER ENGINEERING LABORATORY

**Luigi Rizzo**

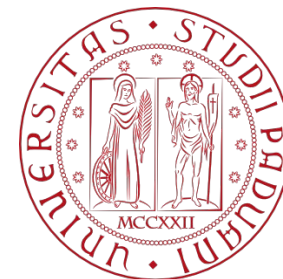
[luigi.rizzo@unipd.it](mailto:luigi.rizzo@unipd.it)

October 2024-January 2025



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# Lab exercises



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Problem: Sequences of ordered even and odd numbers

Write a program that reads a sequence of positive integers (maximum 100), from a file passed as argument, terminated by 0, counts the total number of entered numbers and prints it, then creates two arrays, one containing even integers in ascending order and one containing odd integers in descending order, and prints the number of elements and the elements of the two arrays, one array content per row.

Execute the program for the sequence stored in file sequence1.txt and for the sequence stored in file sequence2.txt (both included in the archive input.20-12.zip) providing the requested indications for both sequences.

Problem: Define the `bookNode` type, which allows you to represent information relating to books.

In particular, for each book it is necessary to represent the following data:

- `bookTitle`: a string of maximum 255 characters;
- `bookAuthors`: a string of maximum 255 characters;
- `bookYear`: an integer representing the year of publication;
- `bookPages`: an integer representing the book number of pages;

# Binary search trees



Considering as example the data provided in the files `books.csv` and `books2.csv` (included in the archive `input.20-12.zip`) write a C program for creating a BST according to year of publication and a BST according to alphabetical order of book authors and add the functions for printing (or saving to file) the height and the inorder traversal of the two BSTs.

Each line in the files contains the following information: book title, book authors, book year of publication, (integer value from 0 to 2024), book number of pages (integer value from 10 to 1000) separated by ';' character. The maximum number of books is not greater than 100.

Suggestion: after reading a whole line from the input file you can use the function `strtok` in order to obtain the four values to be stored in the BSTs .