LAB 2 – Program with Persistent Data

All the material for this lab can be downloaded from webcourse (folder LabsMaterial\Lab2).

This includes: input files, example code and instructions.

1. Download the examples commented in class and understand their behaviours. In particular, how to read/write a file by line, character or by field.
   The example files are:
   a) marks.txt – text file needed to run marks1.c and marks2.c
   b) myfile.txt – text file used by readline.c and readchar.c
   c) readline.c – reading a file using fgets()
   d) readchar.c – reading a file character by character
   e) marks1.c – reading a file and processing it using fscanf() (done in class)
   f) marks1.c – reading a file and processing it using fscanf() (done in class, it computes the average marks and it creates different files for pass and fail students)

2. Filter and process data with fscanf()
   Download the file population.txt from webcourse. The file is a formatted text file with 3 columns: country, city and population
   Read the file using **fscanf()** and create a short c program to do the following:
   a. create a file with all the name of the cities in Ireland
   b. create a file with all the cities above 1 000 000 people.
   c. Display on the screen the sum of all the population of all the cities
   d. Display the name and the population of the city with the highest population

(you can write 4 small programs or insert all the functionality in one file).

3. Copy a file – text
   Write a program to copy a text file character by character using the instructions *fgetc* and *fputc*

4. Copy a file – binary
   Download the example code **copy_bin.c** from webcourse (the one done in class). Run the program (change the name of the file to copy and try different file size and format)

5. Test your program copy-text.c against copy_bin.c by copying the big text file "big_text.txt" that you can download from webcourse – lab2. Which is the fastest of the two?

6. Modify the program **copy_bin.c** so that the program creates 2 copies of the input file