PROGRAMMING TECHNIQUES, A.A. 2023/2024
Exam rules

Premise

This document describes the exam rules of the programming techniques course, adding more details to the description already available in the online course sheet.

Modality of the exam

The 2023/2024 exam is a **Computer-based written test in class, using POLITO platform (Esami + Lockdown Browser).** The duration is 90 min. Remote exams are not allowed.

Some practical information:

- To be allowed in the examination room, you need to book the exam online by the due deadline and you need to carry with you a valid ID and/or Polito badge. NO DOCUMENT, NO EXAM.
- The exams are done in a regular classroom, not a laib. Hence, **you are required to take and use your own laptop, able to connect to POLITO/EDUROAM WiFi** (no hotspot allowed!) **and with Lockdown Browser already installed**. Before the end of the course, a sample exam will be made available in Portale della Didattica, for you to test the exam platform. It is your responsibility to ensure that the PC you take at the exam meets all the HW/SW requirements! Only in case of demonstrated unavailability of a laptop, and/or of unpredictable technical problems, you will be allowed to do the exam with paper and pen.
- Besides your laptop, you need to bring with you a reasonable number of protocol papers and pens, as well as a device able to take photos (for example, a smartphone).
- At the end of the exam, you will receive your submitted answers by email or, in case you did the exam on paper, you can take a snapshot of it with your smartphone.
- If you wish to finalize your exam and have it evaluated by the teachers, you will have to submit a **self-evaluation report** of the programming section through Portale della Didattica **within two days from the exam date** (details in the following sections). The specific deadline will be communicated during the exam: it is a final, hard deadline! If you do not submit such report in time, your exam is considered withdrawn.

Structure and content of the exam

The exam **typically** consists of 6 questions for a maximum of 33 points in total, grouped into two different sections: theory and programming. Before the end of the course, students will receive examples of questions of both categories.

- **Theory section:** questions 1, 2, 3 (15 points in total).

  This section involves all the theoretical aspects covered during the course. For example: union-find algorithms for online connectivity, sorting algorithms, complexity analysis, Boolean algebra and logic functions, as well as theoretical aspects of C language (pointers arithmetic, data types, etc.)

For the exam to be considered sufficient, the total score obtained in the theory section must be above a threshold TH1 (typically: 5 or 6 points).

- **C programming section:** questions 4, 5, 6 (18 points in total).

  This section typically asks to:
  1) analyze and/or debug and/or complete a given C code;
  2) implement C functions, whose specifications and/or prototype are given in the text, or a portion of a program.

  For the exam to be considered sufficient, the total score obtained in questions 4 and 5 must be above a threshold TH2 (typically: 5 or 6 points). When this threshold is not met, question 6 is not be evaluated.

Material available during the written exam:

- The exam platform provides access to appropriates websites for C language documentation (libraries and library functions prototypes). For example: https://www.tutorialspoint.com/c_standard_library/index.htm.
- Students are allowed to carry a **printed copy of the C cheat-sheet** which is made available in Portale della Didattica. It is forbidden to consult any other texts, notes, handouts, etc.
- During the exam, it is forbidden to use any electronic media in addition to the PC (no calculators/smartphones/smartwatches!)
- It is possible to use a reasonable number of WHITE papers to sketch notes or drafts during the exam. Take your own papers from home!

What happens after the written exam

Submission of report and self-correction of the programming section

After the written test, you will be given a short time (**typically, two days**) to carry out a **self-evaluation of the programming section**, incli]uding questions 4,5 and 6. You are given a chance to check your answers with the help of a programming IDE and a dubugger.

If you decide to finalize the exam, you must submit on “Portale della Didattica” under section “Elaborati” a compressed archive (.zip, .rar, .tar.gz, .7z, .gzip, etc...), with the following content:
- a very short .pdf report (2 pages maximum!!) with the corrected answers and/or briefly describing the adopted solutions (data structures, algorithms etc). The report should clearly highlight which mistakes were made during the exam, and how they were corrected at home.
- whenever the questions required to implement a C program or a portion of a C program, corrected .C files of such programs

You don’t need to include in your report the questions that were left blank.

The compressed archive should be named “**sXXXXXX_dd-mm-yyyy**”, where XXXXXX is your matricola ID and dd-mm-yyyy is the date of the written exam. **If the material is not uploaded by the given deadline, the exam is considered withdrawn.**

NB: **the self-evaluation report does not provide an additional score** and does not change the grade of the submitted exercises: its purpose is just to help the teachers understanding

the proposed solutions as well as to help you understanding your mistakes!

Evaluation

Each individual question is evaluated by assigning a score. To obtain a sufficient evaluation, the following two pre-conditions need to be verified:

1) Overall score for the theory section ≥ TH1
2) Overall score for the first two questions of the C programming section ≥ TH2

If any of the two pre-conditions is False, the exam is insufficient irrespective of the other sections. Otherwise, the final score is given by the sum of the scores of the individual questions (possibly rounded to the nearest integer). The exam is sufficient if the final rounded score is ≥18.

NB. The values of the thresholds TH1 and TH2 may change! They will be communicated at each exam.