Università della Svizzera italiana | Faculty of Informatics | Institute of Computing CI

Numerical Computing **2022**

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Solution for Project 6

Due date: Wednesday, December 21, 2022, 11:59 PM

Numerical Computing 2022 — Submission Instructions
(Please, notice that following instructions are mandatory: submissions that don't comply with, won't be considered)

- Assignments must be submitted to iCorsi (i.e. in electronic format).
- Provide both executable package and sources (e.g. C/C++ files, Julia). If you are using libraries, please add them in the file. Sources must be organized in directories called:
  Project_number_lastname_firstname
  and the file must be called:
  project_number_lastname_firstname.zip
  project_number_lastname_firstname.pdf
- The TAs will grade your project by reviewing your project write-up, and looking at the implementation you attempted, and benchmarking your code's performance.
- You are allowed to discuss all questions with anyone you like; however: (i) your submission must list anyone you discussed problems with and (ii) you must write up your submission independently.

The purpose of this project is to implement the Simplex Method to find the solution of linear programs, involving both the minimisation and the maximisation of the objective function.

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2. Implementation of the Simplex Method [30 points] **2**

3. Applications to Real-Life Example: Cargo Aircraft [25 points] **2**

4. Cycling and Degeneracy [10 points] **2**

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1. Graphical Solution of Linear Programming Problems [20 points]

2. Implementation of the Simplex Method [30 points]

3. Applications to Real-Life Example: Cargo Aircraft [25 points]

4. Cycling and Degeneracy [10 points]

5. Reproducing the obtained results

In the `src/` folder inside the submission archive you can find a `Makefile`.

Run command `make` while having the current working directory set as the `src/` folder to plot and store all the results used for this report. All the plots and blurred/unblurred images are saved inside the `src/out` folder. Make sure to uncomment the `png(...)` statements for the files you want to generate.