
Solution for Project 4

Due date: 17 April 2023 (midnight)

HPC Lab for CSE 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 Moodle (i.e. in electronic format).
- Summarize your results and the observations for all exercises by writing an extended Latex report. Use the Latex template from the webpage and upload the Latex summary as a PDF.
- Provide both executable package and sources (e.g. C/C++ files, Matlab, 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.

- 1. Ring maximum using MPI [10 Points]**
- 2. Ghost cells exchange between neighboring processes [20 Points]**
- 3. Parallelizing the Mandelbrot set using MPI [25 Points]**
- 4. Option A: Parallel matrix-vector multiplication and the power method [45 Points]**
- 5. Option B: Parallel PageRank Algorithm and the Power method [45 Points]**