



Parallel Algorithms - Spring 2024

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Teacher Assistant:

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Homework 4

Deadline: 08/03/1403

The goal of this homework is to use CUDA to implement a parallel word frequency counting algorithm and compare its performance to a sequential version.

You will need to use a CUDA Compiler, preferably nvcc and a profiling tool, preferably gprof to profile your program.

- Develop a CUDA kernel that counts word frequencies in parallel. It takes text data as input and outputs an array containing the frequency of each unique word.
- Write a sequential version of the word frequency counting algorithm and measure its performance.
- Compare the performance of the CUDA and sequential implementations and analyze the speedup.

Report Format:

An explanation of how to run your code (Linux commands to run your code).

A complete analysis of your profiling.

Reminders:

Each homework has to be done individually.

Send the report and the source code as a ZIP file to saraabbasi847@gmail.com. File's name and email subject should be like this:

PA-S24-YOUR NAME-YOUR STUDENT NUMBER-HW4

Best of Luck!