Activity: CUDA Vector Add

Preliminary

To use CUDA, add `module load cuda/11.2` in your `.bashrc`.

1 Vector Addition

The purpose of this basic activity is to make sure you understand the basics of using cuda. It is essentialyl a cuda hello world.

Question: Write a basic code that sends two vectors to the gpu and compute their sum and transfer it back to the CPU. A CPU version of that is provided.

Hint: Remember to check explicitly for errors!

Question: Measure the runtimes of the codes with `make bench` for vectors of size 1, 10, 100, ... , $n = 10^9$.

Question: Compare to the performance of the CPU implementation. You can compute a speedup table with `make table`, this will output the time and speedup in the form of a text table in `resulttable.txt`. Which is faster in which configuration? Why do you think that is?