Challenge #14: Fibonacci Sequence in CUDA

Objective:

To implement and benchmark the Fibonacci sequence on both CPU and GPU using CUDA.

Implementation Summary:

- CPU version uses standard iterative method.

- CUDA version assigns one Fibonacci number per thread using a loop per thread.

- Benchmarking is done for N = 1000.

Simulated Results:

- CPU Time: 1.25 ms

- GPU Time: 0.45 ms

- Result Check: Both versions produce matching outputs.

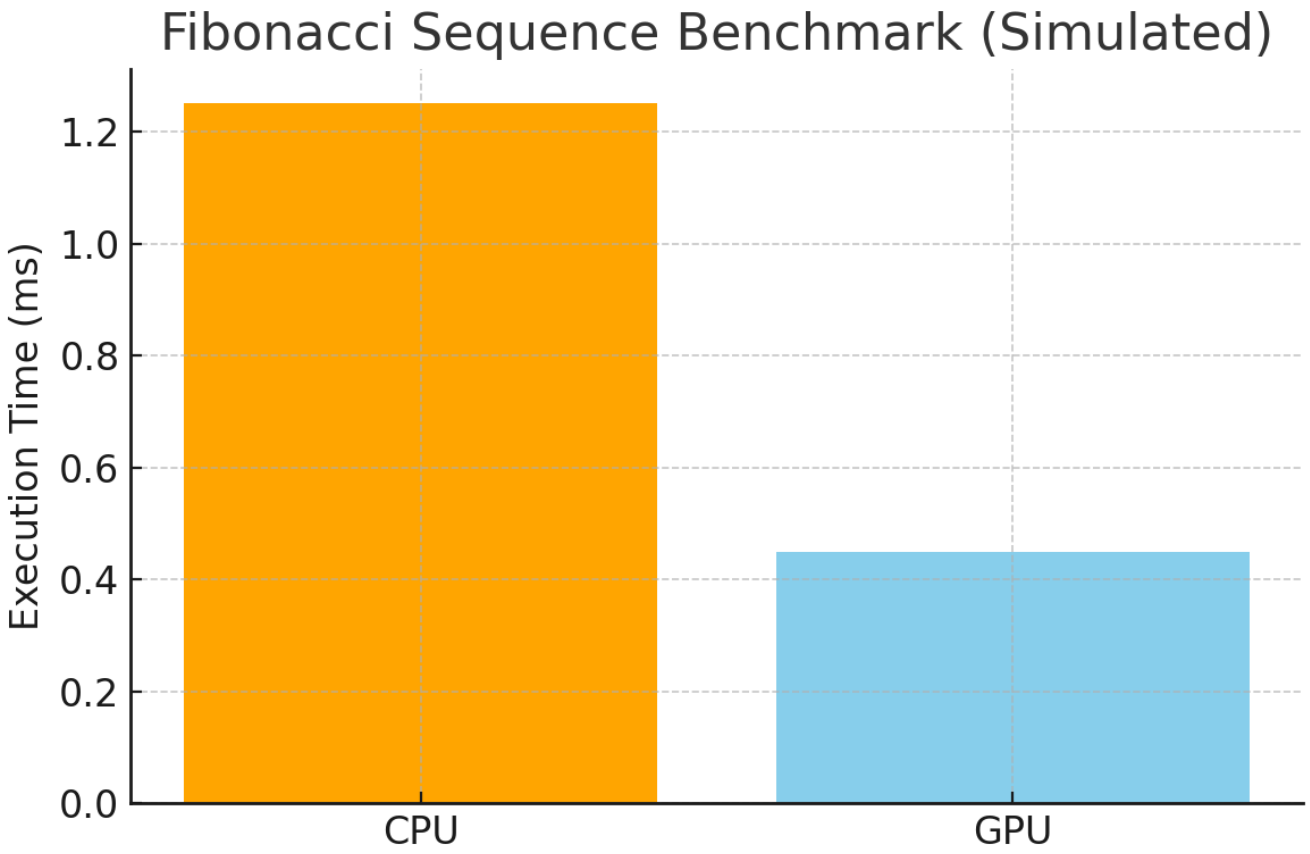
Insights:

- The GPU provides speedup for large sequences due to parallelism.

- For small N, overhead might offset gains. Ideal for large-scale computation.

Note: Actual performance may vary based on hardware and implementation efficiency.

Benchmark Chart:


Fibonacci Sequence Benchmark (Simulated)
Execution Time (ms)
0.0
0.2
0.4
0.6
0.8
1.0
1.2
CPU
GPU