Assignment 2
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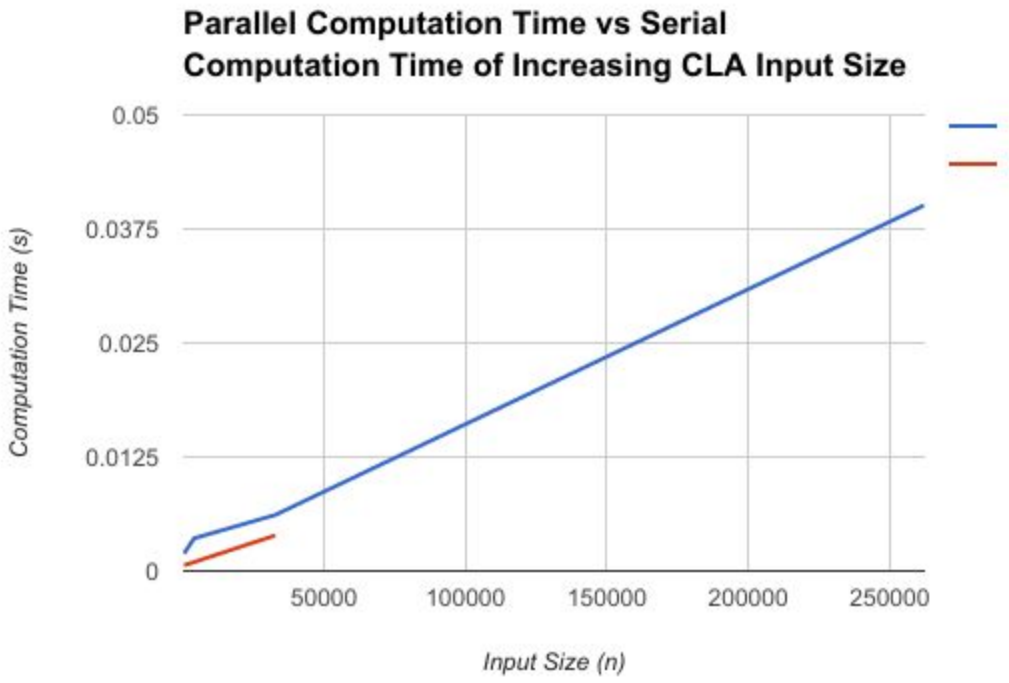
This assignment was a great exercise in both parallel computing, as well as memory management, and parallel file IO. My initial plan for the project was to make a CLA which was fully scalable, and could have any block size, input size, any number of IO files, and any number of ranks. Things went really well for the first week, I had the skeleton of the program written, and it was able to add numbers correctly using a dynamically allocated jagged array for the storage of the sectional propogates, generates and carries. Unfortunately, on 2/17, the #2 piston in my car melted, and I had to pull the engine so that I could rebuild it. As this is my only means of transport, it obviously took some of my priority away from this assignment, and I ran out of time to complete it. Excuses aside, I will explain what portions of my code are functional, and if possible I would like to continue working on it until completion.

The program currently only works with no memory errors when the input size is set to 512, however when using the self-generated input files, the program can support up to the full 262144 input size. The program can either take in 2 input files, which will be broken up into the desired number of files in preparation for MPI usage, or it can simply look into the folder named input depending on how many arguments are given to the program at runtime. File parsing and splitting is done in parallel, which makes it very fast, and that part of the program is fully scalable depending on number of ranks desired and number of files desired.

Running my program with increasing input size gives the following graph:



Unfortunately the serial implementation has a segmentation fault at higher values of n, so the only data we are able to obtain are shown above.

In the future I would like to continue working on this project, as I am extremely close to finishing it. It is disappointing that I was not able to make it how I would have liked, but I simply could not do everything required of me this week.