Evaluation Report

The purpose of the experiments was to see the difference parallel programming can do with a program and using multithreading. One of the main points I learned was that when you run a small and simple program, it won’t really matter if you use parallel programing because there won’t be that much of a difference. But once you get to bigger and more complex programs, or images such as the Mandelbrot. You will get to notice that it starts to take longer. Learned you can speed of the process by using multiple CPUs, and that’s what we did in the assignment. It’s doing the same amount of work, but it’s splitting it up into smaller pieces and assigning it to threads and get the job done faster. My specific command line that I used to experiment this was,

./mandel -x 0.2864 -y 0.0149 -s .100501 -m 3500 -n 1 -o mandel5.bmp

Of course, as I increased n, which is the number of threads. The program would start to finish faster. It took about 5.4 seconds to run with 1 thread. And about 3.07 seconds to run with 2 threads. So already one can see the difference it is making to use parallel programming.

Mandel A looks be circles put together of different sizes, touching either in some direction. You could call it a sideways snowman. Mandel B is just a huge spiral that slowing fades into almost the middle of the picture.

I believe the optimal threads were anything above 5 threads for both. Got them both at almost under a second. Because you get good speed but also not overdoing it. Because the difference in 10 to 50 threads is so small its hard to calculate the difference with the human eye. Sure, when you get to bigger programs, 50 threads might be more optimal, but for something like this I believe anything over 5 works great.

They have different shapes because of the modifications each one of them has. Both are scaled differently giving it a different look. They both are also different in areas of the x and y axis, but the thing that is different about Mandel B is that is also changes the width and height of the picture, instead of keeping the default version.

Throughout this experiment I was able not only to learn but also visualize the differences parallel programming can do. I was already aware of this topic before doing this assignment, but never actually put it into practice. This was a nice way to learn about it and see how I can implement multithreading into large programs to make it run faster and more efficient.