Assignment #1

Create an MPI program that calculates the Mandelbrot set (discussed in class) in parallel **with two implementations** static and dynamic task assignments.

Note that the book has good explanation, and you can find a lot of implementations with google. You have to create a working implementation, understand how it works, and evaluate the performance.

Submit a report the contains the following information:

1. How did you parallelize the computation? This should include figures, drawings, block diagrams, or pseudo codes … (25%)
2. The setup you used. This includes the used MPI implementation, the node details (processors, memory, OS, …) (5%)
3. A working code with a script that runs the codes (Github link) (20%)
4. Screen shots showing that the implementation is working and the resulting image. (Needed, but no points)
5. The performance that includes speedup factor, efficiency, computation to communication ratio, and scalability. (20%)
6. Discuss your results and draw some conclusions. (30%)

If the performance is bad, 40% of the grade is deducted. To avoid this, you need to explain correctly why such results are obtained and what should be done to improve them.

The deadline is fixed, and any late assignments are going to get a zero.

This assignment is not a group assignment, any two similar assignments get a zero.