Criterion E: Evaluation

Meeting the Criteria for Success:

1. GUI has simplistic design with readable instructions and self-intuitive commands and interactions for the user to control input of the two values to dictate the fractal generated.

2. The traditional fractal image is generated by default settings, then user controls after that.

3. The user is able to have two separate windows open. One is the GUI that can refresh the other window with a new fractal with different dimensions and the other can dictate the closing statements and allows the user to explore the fractal.

4. Access is readily available to change the default settings in the JTextFields of the initial GUI

5. The fractal is easy to navigate, loads fast, and is quite interesting to explore for the user on an entertainment level due to the advanced designs, infinitely repeating pattern, and fanciful colors.

Recommendations for Future Improvements:

As this product looks for extensibility for the future, I would look towards three options. The first is creating a far more complicated and advanced generator for the fractal. For the sake of reducing run-time lag and overly complicated calculations on a standard computer, each point is only run through 200 iterations of the Mandelbrot Set before a judgement is made as to its assignment of color. Hopefully with a more efficient algorithm or super computer more color variety and infinite limits can be added.

Secondly, I intend to add another feature for the user to capture screenshots of the fractal they are viewing and saving that image to their personal drive. I had meant to include this in the original design of the product, but it was not a fully developed idea at the time and was just not possible in this year. Adding an ImageGenerator class in the future would be the perfect addition for users who want to hold on to those amazing little fractals.

Lastly, another interesting addition would be including a way for the user to manipulate the colors used and the scale of color change within the fractal. This would be a simple matter of allowing the user it input a binary value or using a different method of RGB color generation for the fractal areas.

I am quite pleased with the results of this exploration and I have found that this application can be useful, at least at an entertaining level for friends. My hopes for the future is that this product could be used in the early mathematic classrooms to give students a visual representation of what fractals are and their complexities beyond just a static image from the internet. I am confident that with some refinement, I could add more functionality to this program to make it useful to all target groups.