**Write-Up**

This assignment was a good reintroduction to programming after the summer break. I had the Wikipedia article for Rational Numbers up on one monitor and VS Code on the other to line by line implement the arithmetic operations. Basic class structure was easy; the constructors and member variables were not complex. The most difficult relatively was ensuring we never get a 0 or negative denominator and that was taken care of by some if statements. The arithmetic operations were only slightly more difficult, mostly in ensuring all of my numerators and denominators were in the correct places for my operations. The most difficult, and also most interesting, part of this project was actually the toString function. I realized there were two parts to this function: converting improper fractions to proper fractions with a leading integer and reducing the remaining fraction. A simple while loop took care of turning our improper fraction into a proper one. For reducing the remaining fraction, I knew I would need to find the greatest common denominator and I wanted to shop around for the different methods of finding the GCD. I read some interesting things about the Euclidean algorithm for finding the GCD and watched a video that ran through the arithmetic steps. It seemed pretty efficient, so I created a function to implement it. With the GCD in hand, all I had to do was some conditional String concatenation and toString was finished.

For testing all of my arithmetic operations I used the provided MainApp file. For testing my Euclidean GCD and toString function, I wrote my own main method with some test cases to check.

A computer screen shot of numbers and letters

Description automatically generated