For my algorithms and data structures problem, I chose to work with some existing code that I had done on some Project Euler problems, which is a website full of math problems meant to be solved programmatically using data structures and algorithms. I’ve done these before in 2014, so this code would be a few years old and would need to be reviewed and cleaned up and refactored using the knowledge that I’ve gained in the last 4 years. When I was reviewing these problems, it really occurred to me just how different my coding skills were in 2014 and now, and that I needed to do a lot to move these problems into a more usable form that makes sense. I think the biggest thing that I can take away from this section of the project is that before I would often go with brute force simple solutions to solve problems, but ultimately that’s not acceptable, particularly when it comes to the work environment rather than simply my own personal enrichment.

The first thing that I noticed when going through this code was that I did not make very professional comments in my code, so I tried to clean that up and ensure that the comments were easy to read and would make sense to someone else who was reading them. Then, I added extra comments to explain what was going on in each algorithm. Since this is a collection of many small problems, this meant explaining each algorithm, as well as cleaning up the naming and conventions on the code itself so that less commentary would be needed to understand what was being done. Finally, refactoring and improvements to the algorithms was done, which I felt like was a smaller portion of this exercise than I liked. I could’ve spent much more time making sure that the algorithms I had chosen were optimal, though for many of these the brute force algorithm was enough to solve the problem in a trivial amount of time. There are more advanced problems I chose to leave out to make this not an overwhelming exercise (I chose 10 of the 50 problems I had implemented) which in the future would be good for me to add to this portfolio beyond the scope of this course. Since I put this on Github, I can do this iteratively to continue to improve and make sure this is an artifact that I could share with a future employer.

Moving forward, this artifact stands as a basic example of my coding abilities and capability to apply algorithms to solve problems. I’m not the proudest of this set as far as an example of my skills on the more advanced side, so I can add more problems to this to improve later. I think this does enough to showcase my capability to develop, and does so in multiple languages, but I would like to see myself move beyond this and build further on my code samples. I hope that my other artifacts will also showcase other aspects of my abilities to create a well-rounded portfolio. With this initial exercise done, I will definitely do more improvements on some of the brute force solutions if I find myself with extra time before the end of the course period.