William Urdahl

May 1, 2020

# Reflection

In this project, I learned and implemented the C programming language. C is different from every language I had used before. C is one of the first “high” level programming languages and served as an ancestor for many programming languages that came after it. While C has functions like Java and python, C does not have classes, so it was an interesting exercise to use structs (collections of variables) to fill that gap. Another interesting problem was that I had to be much more cognizant of memory and variables. I had encountered pointers in java through the Java object pointers, but in C they were much more pervasive. Strings don’t explicitly exist in C, but they are rather pointers to the first element in an array of characters, terminated by a null character. It was fascinating using pointers because I could use functions that change the value at a pointer, rather than return another value. Accompanying pointers was memory allocation. I never had to consider the allocation of memory in other languages, so it was quite frustrating at the beginning when I could not figure out why a simple variable was not working. While C is “high” level programming language, it is much closer to the metal than Java and python. Because of this, I was able to more closely understand what my computer was doing at every step in the process. An example of this is in the creation of a substring method. C allowed me to create a method that would copy the information at a certain spot in the memory, which I could use to take substring of a string. This project was a great way to learn more deeply about programming principles and ideas.