Jon Bowen

CS 3210

Homework 3

Discussion

a. Time to Complete

In total this assignment took about 20 hours to complete. The majority of that time was spent reading short tutorials and documentation on Common Lisp and playing with the language to gain familiarity. After becoming comfortable with the basics of the language, the assignment itself consumed around 3 hours.

Filling in function definitions initially was quite fast given the relatively simple nature of the functionality. However, much more time was spent refactoring them to forms that were easier to read, more efficient, and prepared for various edge cases.

b. Difficult Aspects

The most difficult aspect of this assignment was learning to think about problems from a functional programing perspective. Translating the concept of looping from procedural style constructs with loop control variables and code execution iterating over a single block of code to the use of base cases and recursive calls was a shift in mindset that took getting used to.

Gaining familiarity with the syntax was also a challenge. The repeated nesting of expressions in parenthesis definitely caused frequent syntax errors early on. Working more with the language, I developed a better feel for how to organize code to prevent such errors and add readability to the program.

Understanding that the “return value” of a function is just the value of the last evaluated expression took some time. This also caused a shift in the structure of my typical style. It seems like in Common Lisp that returning from a block of code early is generally not good practice and can lead to scoping issues where local variables become exposed externally. Restructuring functions so that the last expression in a given execution path is the desired returned value definitely took a shift in mindset.

c. Additional Comments

Going into this assignment I had some limited familiarity with functional programming from my efforts to learn Erlang for our class project. That experience combined with this assignment has definitely increased my interest in functional programming. I still have the feeling that I’m not “doing it right” in terms of style, organization, and mindset. It’s a feeling of having only scratched the surface, but I am motivated to learn more.