

CS 4100, Fall 2019

Lisp Programming

The purpose of this assignment is to get some hands-on experience using Lisp.

At one of the computers in the lab booted into OSX, you should be able to type “clisp” at the command line. If you have problems, check with Deep or me. To get out of clisp type “ctrl d”.

Please write code for the following problems. This needs to be your own work: you have the tools to do it. See the Lisp slides and out textbook. Any resources used must be cited. You should upload a text file to the homework submission system that shows your programs and the results of running them.

For example:

```
[1]> (print "Hello World")  
  
"Hello World"  
"Hello World"
```

1. Write “Hello World” using the `print` function (it will print twice, this is fine).
2. Write a function that computes one root of a quadratic equation using the quadratic formula. In other words, use $\frac{-b + \sqrt{b^2 - 4ac}}{2a}$. Test your function by calling it on at least:

```
(a b c) = (1 2 1);  
(a b c) = (1 4 4);  
(a b c) = (1 -4 4).
```
3. Write the recursive `append` function we discussed in class and test it and `cons` on pieces of your favorite quotation (text).
4. Write a recursive function that computes the length of a list.
For example, `(mylen '(1 2 3 4))` should output 4.
And `(mylen '(blue green yellow brown red))` should output 5.
5. Write a recursive function to write a list in reverse order.
For example, `(myrev '(1 2 3 4))` should output `(4 3 2 1)`.
(Hint: there is a built-in function `list(arg)` that turns `arg` into a list.)