CSE 3302/5307 Lab Assignment 1 - corrected

Due July 13, 2015

Goals:

Understanding of Scheme and elementary functional programming concepts, especially the three types of "eaters".

Requirements:

1. Write the following three Scheme functions:

   a. (`sum` x low high) - will compute $\sum_{i=low}^{high} x^i$. if low is larger than high, then the result is 0.

   b. (`largest` lat i j) - will determine the largest value appearing between positions i and j (inclusive) in a lat. The lat is guaranteed to have length no smaller than j The `car` of the original lat will be position 1. i will not be larger than j. Do not use `drop` and `take`.

   c. (`replacer` s) - will replace a value in an S-exp s by the string `"XYZ"` if this value is the smallest value that has appeared up to this point going left-to-right (ignoring parentheses).

2. Submit your racket source file on Blackboard by 12:45 p.m. on July 13.

```
> (sum 2 0 5)
63
> (sum 2 1 5)
62
> (sum 0.5 5 20)
0.062499046325683594

> (largestLat '(10 9 8 7 6 1 2 3 5 4) 3 5)
8
> (largestLat '(10 9 8 7 6 1 2 3 5 4) 5 10)
6
> (largestLat '(2 3 5 4 10 9 8 7 6 1) 3 5)
10

> (replacer '(10 1 (2 3 (5) 9) 8 (7 6 4)))
'("XYZ" "XYZ" (2 3 (5) 9) 8 (7 6 4))
> (replacer '(9 8 10 (((1))) (2 3 (5) 4) (6 7)))
'("XYZ" "XYZ" 10 ((("XYZ"))) (2 3 (5) 4) (6 7))
```

Getting Started:

1. Helper functions are expected and are very useful.

2. Error checking is not expected.

3. `set!` will be useful for `replacer` , but not the other two functions.

4. Do not use a "very positive constant" in the implementation of `replacer`.