COSC 251 – Programming Languages
Project 4
Spring 2011

Objective: Create a series of related functions in LISP

Your Task: Your task is to create a series of list manipulating functions. Some of the functions you need create would benefit from other functions that you create. The functions you'll need to create are (I will use L to denote a list and I to denote a single item):

(COUNT L) – will count the number of items in the list L (one level only).
(ADVCOUNT L) – will count the number of single items in the list L on all levels.
(EXISTS I L) – will return true if I appears in L, nil if it does not (single level).
(REVERSE L) – will return the reverse of L.
(APPENDITEM I L) – will add I to the end of L.
(APPENDLIST L1 L2) – will add the items in L1 to the end of L2.
(ADDLIST L1 L2) – will add L1 as an item to the end of L2.
(MAKESET L) – will make a set from L with no duplicate entries.
(REMOVE I L) – will remove the first instance of I found in L (single level).
(LAST L) – will return the last item (single level) in L.

You need not check to see if the input is in the correct format (as in an L is a list and an I is a single item) but you do need to handle certain errors. For instance, if a remove is called on an item that is not in the list, then nil should be returned.

Also, before any of you get any ideas, the only list processing functions that you are allowed to use is **cdr**, **car**, **list**, **cons and listp** and the variants of those functions (like **caar**). Any other list processing functions should be authorized by me ahead of time. Other functions (like setf/setq, let, etc.) are allowed, but if you have any concerns about your use of a particular function, ask.

You may work in pairs on this project. Teams must be sent to me via email by 5pm April 6th.

Expectations: The code should be clean, concise, well-commented and correct. If you use an outside source, be sure to document that source. Significant use of outside sources will result in a deduction. Grading rubric will be provided a week ahead of the due date.

DUE: April 18th, 11:59pm via Digital Dropbox