COSC 341 WINTER 2010 ML part 1

Distributed: 1/28/10
Due: 2/4/10 (one week)

Write and execute the following ML functions

1. Compute the length of a list (do not use the built-in length function).

2. Cycle a list once. That is, given a list $[a_1, a_2, \ldots, a_n]$ produce the list $[a_2, \ldots a_n, a_1]$.

3. Given an integer i and a list L, cycle L i times, where "cycle" is as defined in #2. That is, if $L = [a_1, a_2, \ldots, a_n]$, then the desired result is $[a_{i+1}, \ldots, a_n, a_1, \ldots a_i]$. (use recursion)

4. Compute x^i, where x is a real and i is a nonnegative integer. This function takes two parameters, x and i, and need not behave well if $i < 0$. (use recursion)

5. Given a list of one or more integers return the sum of the elements in the list. (use recursion)

6. Given a list of one or more integers, return a list where every element has been negated.

Turn in:
* Listing of code. The documentation of the code should clearly identify the function corresponding to 1-6 above.
* Hardcopy of runs of each function. Each function should be run on at least three different parameter sets. The parameters should provide reasonable coverage over allowable inputs.

Grade based on:
* Correctness of functions 70%
* Style and elegance 10%
* Reasonable test cases 20%