

## COMP 280 : Assignment 8

due: Tuesday, March 28, 2000

Write the following programs in Prolog. Turn in a printout of your programs and your test cases. Be sure to test them before turning them in. Write your programs as declaratively as possible (*e.g.* don't use the if-then-else construct more than necessary) – this is a new style of programming and the goal is for you to become comfortable with it.

1. (2 pts) `member(Element,List)` iff `Element` is a member of the list `List`. Use your program to produce all members of a list that are greater than some integer.
2. (2 pts) `putLast(Element,OldList,NewList)` iff `NewList` consists of the elements of `OldList` followed by `Element`. (ie, `putLast(2,[1,3],[1,3,2])` is true).
3. (2 pts) `consecutive(X,Y,L)` iff `X` and `Y` are consecutive elements of list `L`.
4. (3 pts) `palindrome(L)` iff the list `L` is a palindrome, *i.e.* reads the same backwards and forwards.
5. (3 pts) `rotate(L,N,R)` if `R` is the result of rotating the list `L` by `N` steps to the right. (*e.g.*, `rotate([a,b,c,d,e],2,[d,e,a,b,c])` is true).
6. (4 pts) `permutation(L1,L2)` iff list `L2` is a permutation of list `L1`. (You should be able to use your program to generate all permutations.)