

Homework 3

February 7, 2014

1 ML Functions

1. Write a function `insert` that inserts an integer into a list of integers sorted in non-decreasing order and returns the resulting list. For example, `insert(10, [5, 6, 11, 12])` should return the result of `[5, 6, 10, 11, 12]`.
2. Write a function `sort` that takes a list of integers and sorts them in non-decreasing order using the insertion-sort algorithm. For example, `sort [5, 0, 4, 3, 1]` should return `[0, 1, 3, 4, 5]`.
3. Write a function `sqsum` that takes a positive integer n and return the sum of the square of 1 to n . For example, `sqsum 5` should return the result of $1*1 + 2*2 + 3*3 + 4*4 + 5*5$.
4. Write a function `less` of the type `int * int list -> int list` so that `less(e,L)` is a list of all the integers in `L` that are less than `e`. For example, `less (4, [1,2,3,5,6])` should return `[1,2,3]`.