University of Washington

Department of Computer Science and Engineering

CSE 373

Problem Set 2

Due Fri., Oct. 16, 12:30pm

please type your answers, turn in readable, documented pseudo-code. No programming is required for this assignment.

Reading: read ch. 3.

1. (2 points) What is the main advantage of representing a polynomial as a linked list, as opposed to an array?
2. (2 points) What are the tradeoffs between the singly-linked list and the doubly-linked list implementations of the list ADT? Which representation requires more memory? Which representation is faster, and for what operations?
3. (4 points) Exercise 3.4. How did you use the fact that the lists are sorted? What would the running time of the procedure be if the lists were unsorted?
4. (6 points) Exercise 3.6. What is the running time of the procedure if the two polynomials have M and N terms respectively?
5. (2 points) Exercise 3.17 Part A.
6. (4 points) The simplest representation of a linked list is simply a pointer to the first element in the list. List the complexity of the queue ADT operations for this implementation. How would you change the linked list representation to make these operations all be O(1)? What is an advantage of implementing a queue as an array instead of a linked list?