CS161: Design and Analysis of Algorithms **Spring 2001**

Assignment #4

Due: Thursday, May 24th, 2001. In class.

Problem 1. Do problem 14.1–3 in CLR. (page 265)

Problem 2. Do problem 14.2–3 in CLR. (page 267)

Problem 3. Do problem 14.4–6 in CLR. (page 277)

Problem 4. Recall that in a standard Skip-List structure each element is iteratively replicated in the vertical direction with probability 1/2. Suppose that instead we continue to replicate vertically with probability 1/4 at each step.

a. What is the expected number of linked lists in the structure after n elements are inserted?

b. How does the expected running time for the find operation in this modified structure compare to the running in the standard Skip List structure? Justify your answer.

Problem 5. Do problem 15–1 in CLR. (page 295)