CSE 373 – Data Structures
Homework 5

Assigned: Wednesday, May 8, 2002
Due: Wednesday, April 15, 2002
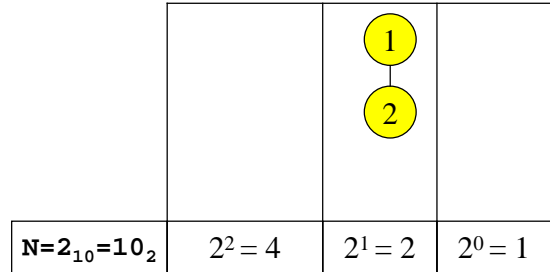   At the start of class

Remember:
    Attach a copy of winpidplot.dot
    Attach a copy of your plot of the binary heap
    Attach a copy of your turnin receipt
   Do a web turnin of bheap.c.

Your name: _____

Student number: _____

1. Go look at your grade sheet on the web and review the grades that are recorded. Are they correctly recorded? (Yes or No) If not, state which grades you believe were not recorded correctly.

2. Consider a binary heap whose order property is max order. Insert the elements with values 7, 3, 4, 5 in the heap. Refer to the binary heap lecture, slide 12, for the format of the drawings requested below.

   a. Draw 4 tree views of the heap showing the elements in the correct positions after each insertion.

   b. Draw the same heap as an array after all the inserts are done. Show the index where each value is stored and the correct value. Remember to leave index 0 empty, and start with the root at index 1.

3. Consider the two binomial queues shown on
    the right.

a. Is the heap order minimum or maximum?

$N=2_{10}=10_2$	$2^2=4$	$2^1=2$	$2^0=1$

b. What is the minimum element in the N=3
    queue?

$N=3_{10}=11_2$	$2^2=4$	$2^1=2$	$2^0=1$
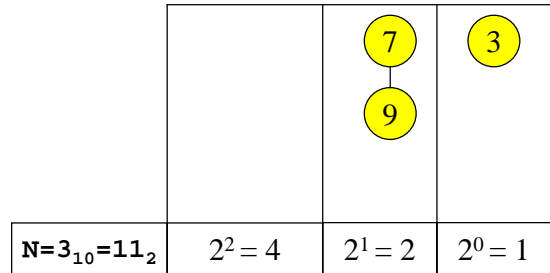
c. Draw a similar drawing that shows all the elements in their proper positions after
    these two queues are merged into one 5-element binomial queue.

d. Delete the minimum element from the 5-element binomial queue you drew in (3c).
    Now draw a similar drawing that shows all the elements in their proper positions in
    the resulting 4-element binomial queue.