Assignment 6

CSE 326: Data Structures and Algorithms

Autumn Quarter, 1999, University of Washington.

Steven Tanimoto, Instructor

Due Friday, November 19 in class.

1. Consider the (2,3) tree on page 238 of the text (FIgure 7.13) to be a B-tree with $b = 3$. Show the tree after inserting A and again after inserting X into the resulting tree.

2. Starting again with the tree in Figure 7.13, show the result of deleting P and then the result of also deleting Q.

3. Do problem 12 about up-trees on page 334 of the text.

4. Do problem 14 about separately chained hash tables on page 292 of the text.

5. Do problem 17 about hashing (do only parts b and c) on page 293 using the data of Figure 8.5 on page 266.

   Please make the following modification to the instructions for this problem. Rather than assume the hash table is 31 entries long, as in the book, and that the hash function is the day of the month in which the person died, assume the hash table now has 25 places, and that the hash function is

   $$h_3(K) = (h(K) + h_2(K)) \bmod 25$$

   In other words, to get the hash value for person K, add the day of the month they died to the number of the month they died and take the remainder after dividing by 25.

   For John Hancock, this would be $(8 + 10) \bmod 25 = 18$.

   For C. Carroll, this would be $(14 + 11) \bmod 25 = 0$.