

Today's topic: Skew and pairing heaps; Ch. 23.

Next class: graphs, shortest-path algorithm; Ch. 23.

1. List the members of your group below. Underline your name.

2. Use merge-based insertions, insert the keys, $1, 2, \dots, 10$ into an initially empty skew heap. Then perform three merge-based deleteMin operations. Depict the state of the tree after each operation.

3. Consider an initially empty pairing heap that is maintained using a simple one-pass linking strategy in which subtrees are merged one at a time in left-to-right order. Trace the insertion of the keys $1, 2, \dots, 10$ into this heap. Then perform two *deleteMin* operations, followed by one *decreaseKey* operation that changes the key 7 to 2. Depict the state of the heap after each operation.

4. Repeat Question 3 using a two-pass linking strategy that merges pairs of subtrees left to right in the first pass and then merges the merged pairs also in left-to-right order in the second pass. (In the second pass, we proceed left-to-right, merging the result of the previous merges in this pass with the next subtree.)

5. Repeat Question 4 using a right-to-left second pass. Explain any differences between this strategy and that of the textbook.