Today: priority queues, binary heaps; §§ 21.1,2,3.

Next class: Poster and portfolio exhibition.

Reminders: Newsgroup is required reading (and writing); use to advantage.

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

2. Using conventional graphical notation, depict the complete binary tree encoded by the following array, based on the textbook’s method.\(^1\)

\[
i: \quad 1 \quad 2 \quad 3 \quad 4 \quad 5 \quad 6 \quad 7 \quad 8 \quad 9 \quad 10 \quad 11 \quad 12 \quad 13 \quad 14 \\
a[i]: \quad 50 \quad 40 \quad 60 \quad 70 \quad 65 \quad 75 \quad 62 \quad 63 \quad 41 \quad 42 \quad 51 \quad 52 \quad 53 \quad 54
\]

3. Mark all violations of the \((min-)heap\) order property in the tree of Question 2 by annotating the corresponding edge with a \(V\).

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4. Depict the state of the following binary min-heap after all actions triggered by a \textit{deleteMin} operation have completed. Repeat for three additional \textit{deleteMin} operations.
5. Starting with the final heap of Question 4, depict the state of the heap after all actions triggered by a \textit{insert}(57) operation have completed. Repeat for operations \textit{insert}(33), \textit{insert}(67), and \textit{insert}(40).
6. *Heapify* the tree of Question 2 using the `buildHeap` operation from the textbook.\(^2\) Depict intermediate states of the tree, including at least the states after `buildHeap` completes each level of the tree.

\(^2\) *Idem*, §21.3.