Today’s topics: Binary heaps. §§21.*.
Next class: B-trees. §19.8.

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

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

4. Depict the state of the following binary min-heap after all actions triggered by a `deleteMin` operation have completed. Repeat for three additional `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.

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\(^2\) *Idem*, §21.3.