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COS 226 Fall 2009 Class Exercise 14 4 questions; }4\mathrm{ pgs. Due 2009-11-10 3:15 p.m.
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1. List the members of your group below:
2. Sort the following array in ascending order using insertion sort. ${ }^{1}$ Depict the state of the array after each insertion operation.

| i: | 0 | 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 | 13 |
| ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: | ---: |
| $\mathrm{a}[\mathrm{i}]:$ | 50 | 40 | 60 | 70 | 65 | 75 | 62 | 63 | 41 | 42 | 51 | 52 | 53 | 54 |

[^0]3. Sort the array of Question 2 in ascending order using selection sort. Depict the state of the array after each selection operation.
4. Sort the array of Question 2 in ascending order using in-place heapsort. ${ }^{2}$ Depict intermediate states of the array, and the corresponding binary heaps in the usual graphical notation, including at least the states after the initial buildHeap operation and each deleteMax operation. Note that the first data item is in a [0] and not a [1] as in the previous class.

[^1][additional space for answering the earlier question]


[^0]:    ${ }^{1}$ Mark Allen Weiss, Data Structures and Problem Solving Using Java, 3rd edition (Addison-Wesley, 2006), §8.3.

[^1]:    ${ }^{2}$ Idem, §21.5.

