CSE 310 Recitation 4

Objectives:

1. Exercise on partition of Quick Sort
2. Exercise on operations on Heap.

Instruction

1. For all recitation exercise, we highly recommend that you submit a typed solution with the original questions inside; in case you don't have enough time to do so, a hand-written one is acceptable only when: **the solution is clearly written and must be saved in .pdf format**. Note: **unreadable answer receives no credits!**
2. All recitation exercises must be submitted through the link posted on Canvas, we do NOT accept any submissions through emails!

Question

1. [2 pts] Illustrate the operation of PARTITION procedure step-by-step in QuickSort algorithm on the following array A. Clearly mark index i, j as the Figure 7.1 show on textbook pp.172.

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13	19	9	5	12	8	7	4	21	2	6	11

2. [2 pts] Illustrate the operation of BUILD-MAX-HEAP on the array $A =\{5, 3, 17, 10, 84, 19, 6, 22, 9\}$, draw the relevant binary tree step-by-step. (Note: you can use Figure 6.3 on textbook pp.158 as one example)

3. [3 pts] Illustrate the operation of MAX-HEAP-INSERT $(A, 10)$ on the heap $A = \{15, 13, 9, 5, 12, 8, 7, 4, 0, 6, 2, 1\}$, draw the relevant binary tree step-by-step (Note: see Figure 6.5 on textbook pp.165 as an example)

4. [3 pts] Illustrate the operation of HEAPSORT on max heap *A*: {84, 22, 19, 10, 3, 17, 6, 5, 9}, draw the relevant binary tree step-by-step (Note: see Figure 6.4 on textbook pp.161 as an example)