CSC212 - Tutorial 11: Heaps

Question 1.

a. Construct a new binary min-heap from the following elements: 12, 5, 17, 22, 20, 9, 1, 32, 50, 16, 25, 8, 44 and 33
b. Perform three root/min/head deletions from the heap you built in a.

Question 2.

What is the complexity of building a binary heap from a sequence of elements when all elements are

a. Sorted according to the heap property
b. Sorted in the inverse of the heap property

Question 3.

Give the implementation of the method isBinaryHeap(int[] a, int size) that returns true iff array a satisfies max-binary heap condition.

Question 4.

c. Can a BST satisfy heap conditions? Give an example if yes.
d. Can an AVL tree satisfy heap conditions? Give an example if yes.
e. Can we implement a priority queue as a BST? Why or why not?