Assignment 8

A. Which, if any, of the following algorithms, bubble-sort, heap-sort, insertion sort, merge-sort, and quick-sort, are stable? Briefly justify your answer.
B. Is the bucket-sort algorithm in-place? Why or why not?
C. Illustrate the performance of the radix-sort algorithm on the following input sequence (22, 15, 26, 44, 10, 3, 9, 13, 29, 25).
D. Implement a Priority Queue ADT using the Heap ADT provided in the attached Heap.js. Note that the Heap stores keys (only elements), but the PQ stores items, i.e., (key, element) items.
E. Implement a PQ-Sort based on the Priority Queue from D.

C-4.13 Suppose we are given two sequences A and B of *n* elements, possibly containing duplicates, on which a total order relation is defined (i.e., has a comparator). Using a Priority Queue design an efficient pseudo-code algorithm for determining if A and B contain the same set of elements (possibly in different orders and possibly containing duplicates). What is the running time of this method?