Extra Credit 4.

Sort a given random array of *n* numbers where each element is at most *k* index away from its position in the sorted array. (Hint: You could make min/max heaps using the first *k+1* numbers and then 1- delete the root *once* 2- add the next element to the heap 3-Repeat 1 and 2 until you cover all the elements. The time complexity of your solution should be $O(nlogk)$.)

Example 1: Input: a = [2, 8, 0, 17, 5, 12] , k = 2,
(Hint: a number at index *4* in our sorted array, can be located in *2, 3, 4, 5, 6* indices in the given array.)
Output: [0 2 5 8 12 17]