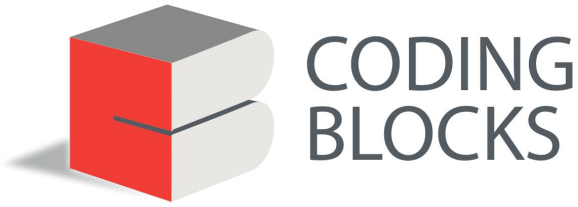

Crux Assignment (Hashtables, Heaps)

1. ~~1.~~ Implement Maps using HashTables.
2. ~~2.~~ Write an efficient function for extracting unique characters from a given string.
3. ~~3.~~ You are given with an array of integer contain number in no particular order. Write a program find the longest possible sequence of consecutive numbers using the numbers from the array. Best solution takes O(n) time.

   e.g. Input = [2, 12, 9, 16, 10, 5, 3, 20, 25, 11, 1, 8, 6] Output = [8, 9, 10, 11, 12]

   Input = [15, 13, 23, 21, 19, 11, 16] Output = [15, 16]

4. Given an array find the number which comes with maximum frequency. It must work in O(n) time complexity.
   a. ~~a.~~ for a sorted array
   b. ~~b.~~ for an unsorted array
5. ~~5.~~ Implement Priority Queue using Heap
6. Merge k sorted arraylists into one(Using Heap)
7. Write a class which implements following functions(Using Heap)
   a. Insert(int nextElement): I can insert numbers into your object using this function. It should run in O(logn) time, where n is the number of elements inserted so far.
   b. int median(): returns the median of the numbers inserted so far. Must work in O(1)
   c. void removeMedian(): Removes one or both medians from the object.

Class Problems:

1. Sort an almost sorted array. Each element is within k index of its final location.
2. Find k largest or k smallest elements in an array.