Homework 13: CounterHeap

Assigned: December 7
Due: December 12, 17:59:59

Yunchao Wang(wangyunchao@sjtu.edu.cn) is responsible for this homework.

1 Environment

You must do this homework on Linux. (both windows and Mac was not supported)
And you can download source code from website or QQ group. You can use "tar -zxvf CounterHeap.tar.gz" to decompress the souce code.

2 Introduction

In this homework, your mission is to implement a CounterHeap base on the Heap you implement last week. You should start with the code TA provided. Firstly, you should replace Heap.h with homework12's Heap.h (which you have done last week).
And you can only edit CounterHeap.h and CounterHeap.cpp.

3 CounterHeap

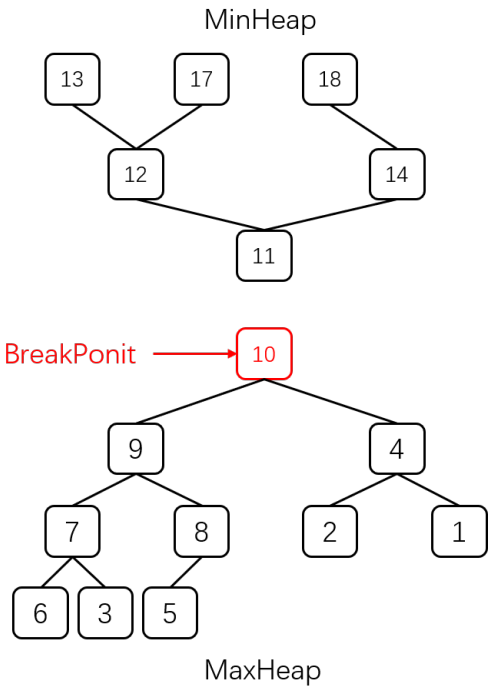
If you already know what is a CounterHeap(对顶堆), just skip this part.
For a CounterHeap, it stores the small elements in a maxHeap, and stores the

large elements in a minHeap.

By using CounterHeap, you can get an element with specific ranking(like median and so on) in O(1) time complexity.

And we always call this specific ranking BreakPoint. (Both maxHeap's top and minHeap's top can be regarded as BreakPoint, it's up to you)

As follow:



4 The score program

You can evaluate your implementation by yourself.

Make the program first by typing "make" under CounterHeap folder.

Try "./score" under CounterHeap folder to evaluate your program.

The score program will first evaluate your Heap, and then evaluate your Coun-

terHeap.

5 Hand-in

You should use the "handin" script to genterate your submit package, you can use it as follows:

```
./handin 51703XXXXXX_ZhangSan_Homework13
```

and it will genterate a tar.gz file like "51703XXXXXX_ZhangSan_Homework13.tar.gz", then, upload the tar.gz file onto the website.
Otherwise, you will lose your point.