Homework 12: Heap

Assigned: November 30
Due: December 5, 17:59:59

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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 Heap.tar.gz" to decompress the souce code.

2 Introduction

In this homework, your mission is to implement a Heap base on Map. You should start with the code TA provided.
And you can only edit Heap.h.

3 Heap

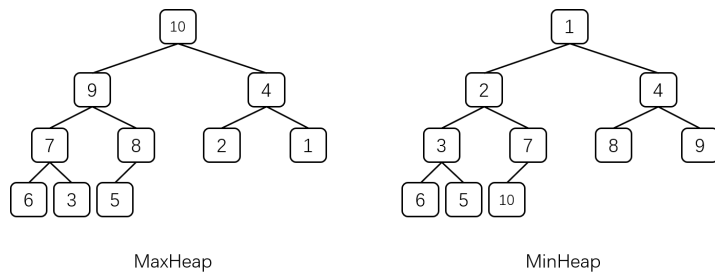If you already know what is a Heap, just skip this part.

3.1 What's a Heap looks like

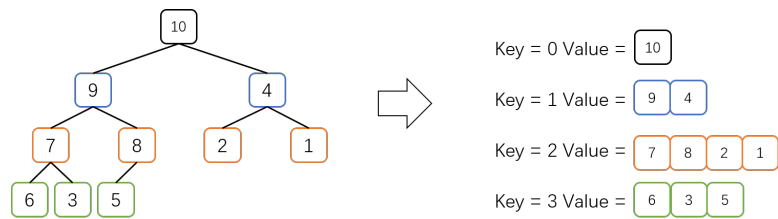A Heap looks a complete binary tree.
For a maxHeap, you should ensure the parent node is larger than the children.
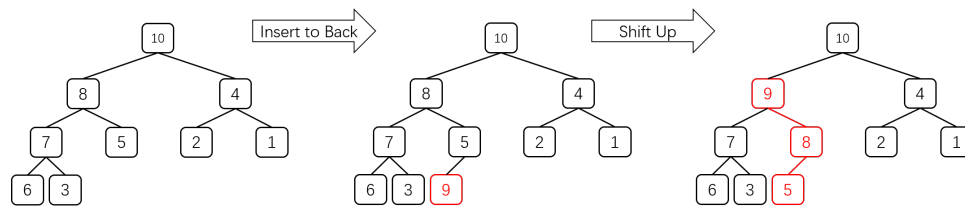For a minHeap, you should ensure the parent node is smaller than the children.
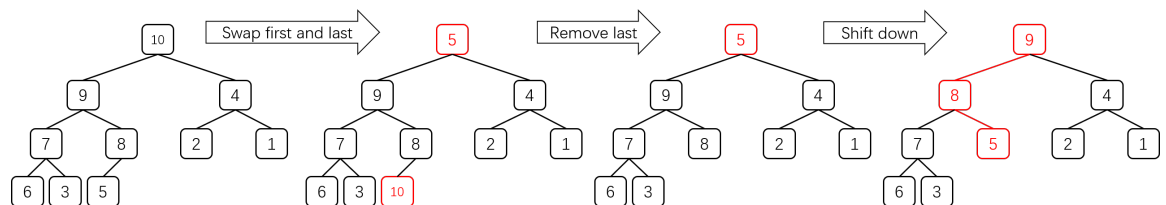As follow:

MaxHeap   MinHeap

3.2 Store a Heap into a Map

Key = 0 Value = 10

Key = 1 Value = 9 4

Key = 2 Value = 7 8 2 1

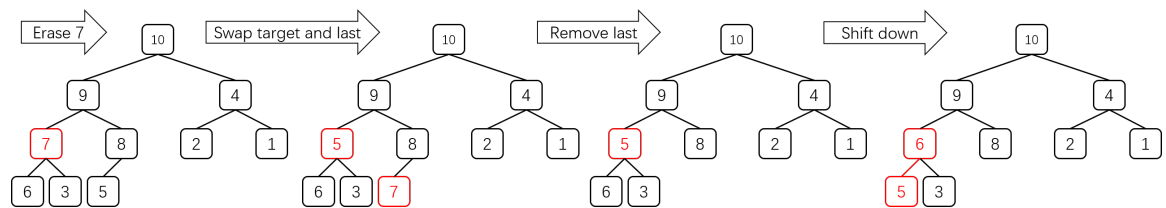Key = 3 Value = 6 3 5

3.3 Insert Operation

3.4 Pop Operation

3.5   Erase Operation

4   The score program

You can evaluate your implementation by yourself.
Make the program first by typing "make" under Heap folder.
Try "./score" under Heap folder to evaluate your program.

5   Hand-in

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

```
./handin 51703XXXXXX_ZhangSan
```

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