实现区间树

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1 问题

在红黑树结构的基础之上，扩展为区间树

2 实验结果

首先，先插入区间 [17.5, 19.8]，[21.2, 23.1]，[5.6, 11.4]，[15.35, 18.28]，[4.67, 8.95]，[7.34, 10.87]，[20.45, 24.98]，[19.35, 25.8]，到区间树里。排序之后可得

```
Format : [low, high, max]
[4.67 , 8.95 , 8.95]    [5.6 , 11.4 , 18.28]    [7.34 , 10.87 , 10.87]  [15.35 , 18.28 , 18.28]
[17.5 , 19.8 , 25.8]    [18.35 , 25.8 , 25.8]   [20.45 , 24.98 , 25.8]  [21.2 , 23.1 , 23.1]
```

利用 interval_search 功能找重叠的区间，如果这样的区间不只有一个，则只返回第一次找到的区间。若没找到，返回 “This interval does not overlap with any interval in the tree ! ”

```
Interval overlapping with [14.65, 16.32] :
[15.35 , 18.28]
Interval overlapping with [12.4, 14.8] :
This interval does not overlap with any interval in the tree !
```

下面删除区间树里的节点 [15.35, 18.28]，[18.35, 25.8]，[20.45, 24.98]，且保持 max 的值。

```
Deleting [15.35, 18.28]...
[4.67 , 8.95 , 8.95]    [5.6 , 11.4 , 11.4]     [7.34 , 10.87 , 10.87]  [17.5 , 19.8 , 25.8]
[18.35 , 25.8 , 25.8]   [20.45 , 24.98 , 25.8]  [21.2 , 23.1 , 23.1]

Deleting [18.35, 25.8]...
[4.67 , 8.95 , 8.95]    [5.6 , 11.4 , 11.4]     [7.34 , 10.87 , 10.87]  [17.5 , 19.8 , 24.98]
[20.45 , 24.98 , 24.98] [21.2 , 23.1 , 23.1]

Deleting [20.45, 24.98]...
[4.67 , 8.95 , 8.95]    [5.6 , 11.4 , 11.4]     [7.34 , 10.87 , 10.87]  [17.5 , 19.8 , 23.1]
[21.2 , 23.1 , 23.1]
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