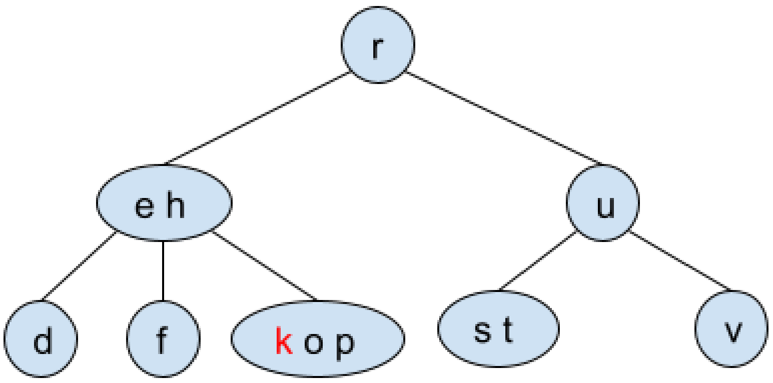
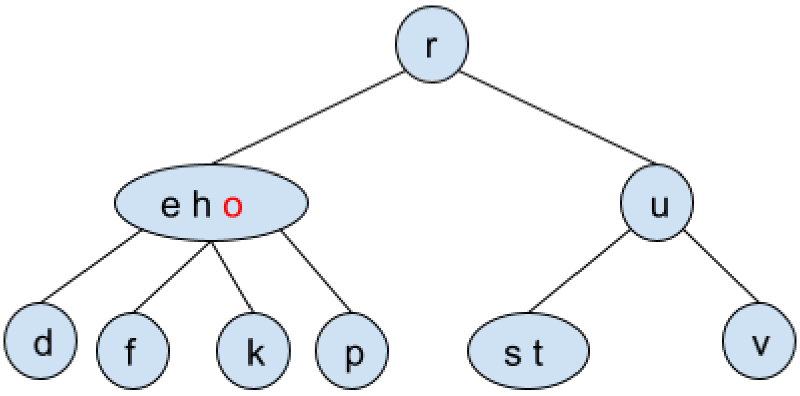
1.
BST在最好的情況下搜尋時間複雜度為O(logn), 但如果插入節點是有序地會就會退化成O(n), 想減少比較次數就需要降低樹的高度。
2-3 Tree允許一個節點存放兩個元素, 最多可以擁有三個子樹, 大大的降低樹高, 並且所有葉節點都會在同一層, 能夠建立出平衡的樹。

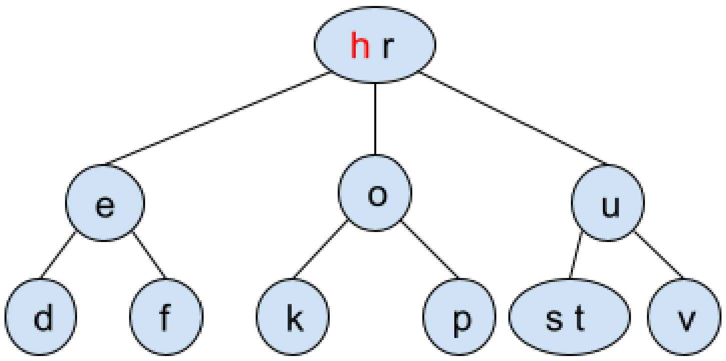
2.
```
/**
策略:
1. 先找到最接近且大於等於 "from" value 在哪
2. 找到後, 設 had found "from" value 為 true, 並根據情況對 norder traverse node
3. inorder traverse 直到找到最接近且小於等於 "to" value 後, 設 done 為 true, 結束 inorder traverse
**/

void traverseValueBetween(int from, int to, Node *r)
{
        if (r is leaf) return;

        if (traversion had finish) return;

        if (r has two values)
        {
                if (had found "from" value && traversion not finish) inorder until "to" value;

                if (r.small > from)
                {
                        traverseValueBetween(from, to, r->left);
                        if (had found "from" value && traversion not finish)
                        {
                                mark "r" node had been traversed;
                                inorder until "to" value;
                        }
                }
                else if (r.small == from)
                {
                        found from, and mark "found" to true;
                        mark "r" node had been traversed;
                        if (traversion not finish)  inorder until "to" value;
                }
                else if (r.small < from && r.large > from)
                {
                        traverseValueBetween(from, to, r->middle);
                if (had found "from" value && traversion not finish)
                {
                    mark "r" node had been traversed;
                    inorder until "to" value;
                }
            }
            else if (r.large == from)
            {
                found from, and mark "found" to true;
                mark "r" node had been traversed;
                if (traversion not finish) inorder until "to" value;
            }
            else if (r.large < from)
            {
                traverseValueBetween(from, to, r->right);
            }
        }
        else if (r has one value)
        {
            if (had found "from" value && traversion not finish) inorder until "to" value;

            if (r.small > from)
            {
                traverseValueBetween(from, to, r->left);
                if (had found "from" value && traversion not finish)
                {
                    mark "r" node had been traversed;
                    inorder until "to" value;
                }
            }
            else if (r.small == from)
            {
                found from, and mark "found" to true;
                mark "r" node had been traversed;
                if (traversion not finish) inorder until "to" value;
            }
            else if (r.small < from)
            {
                traverseValueBetween(from, to, r->right);
            }
        }
        return;
    }
```

3.

Insert k







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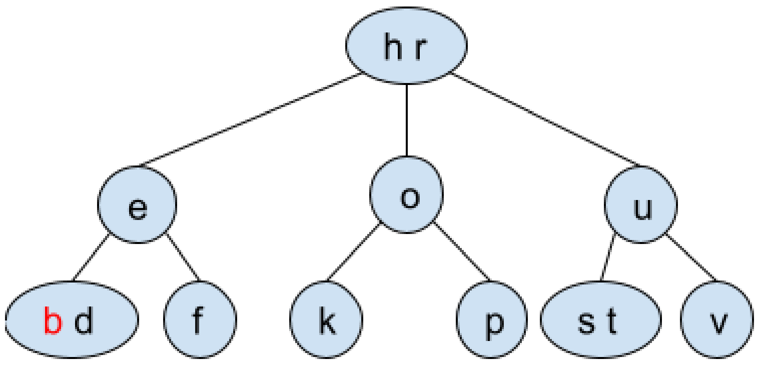

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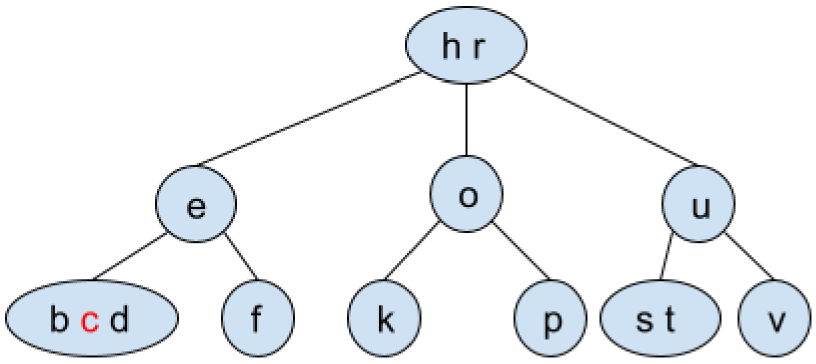

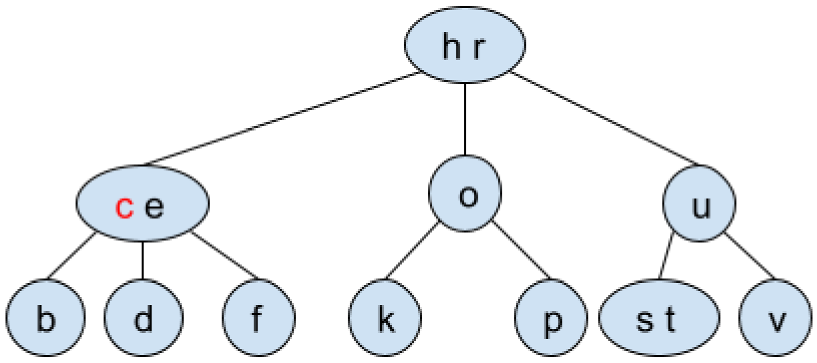

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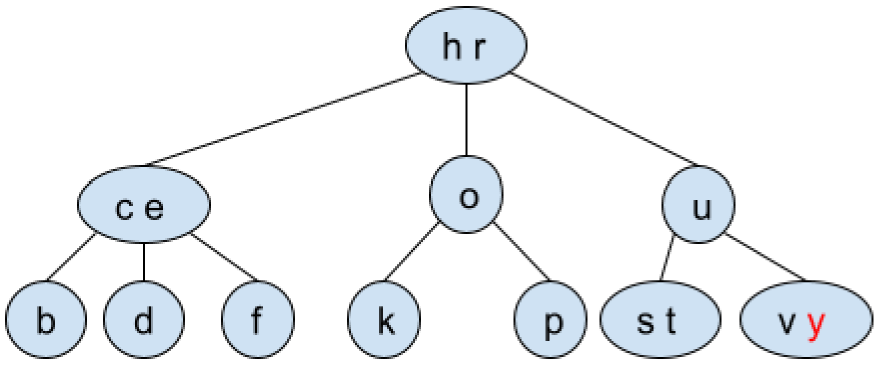

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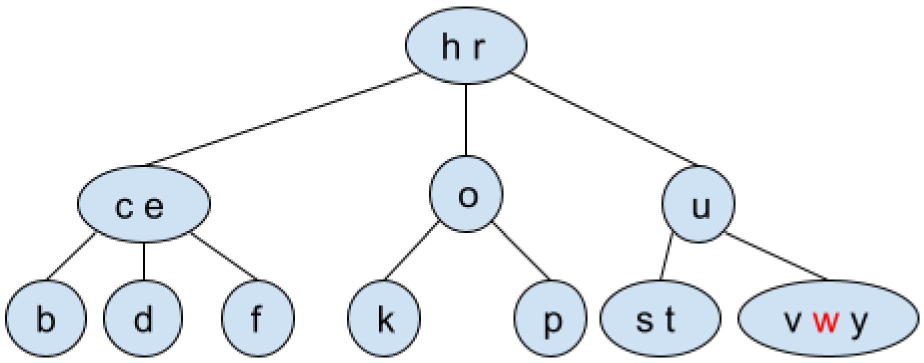
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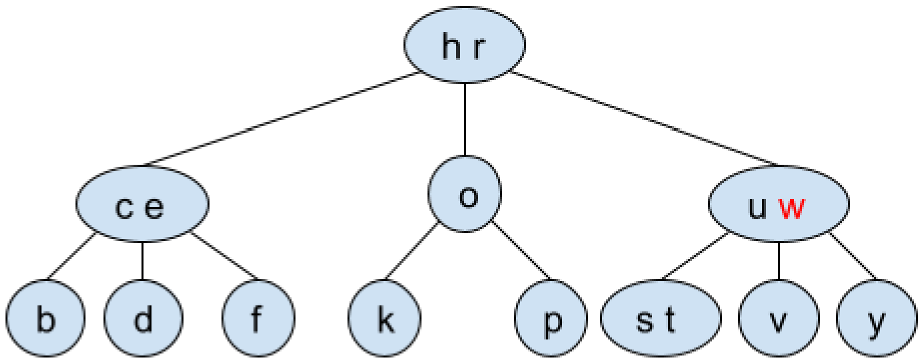
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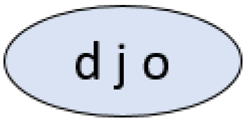

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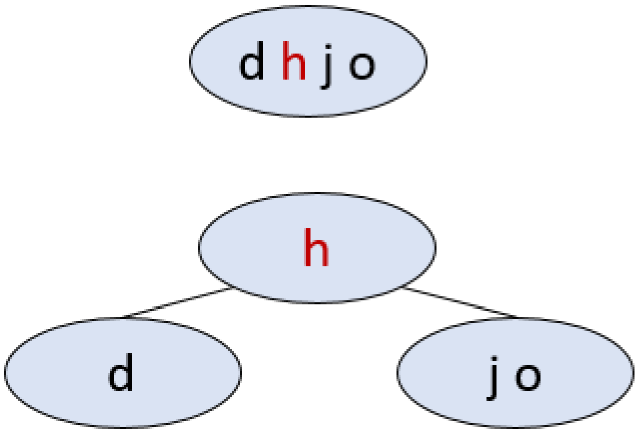

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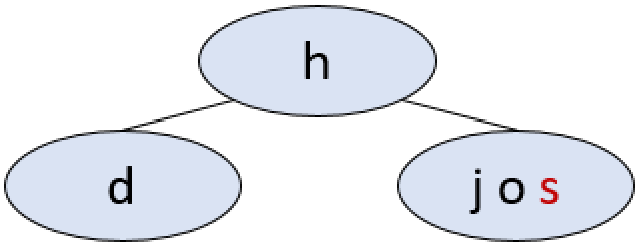

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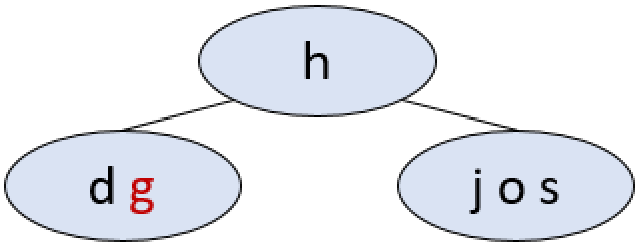

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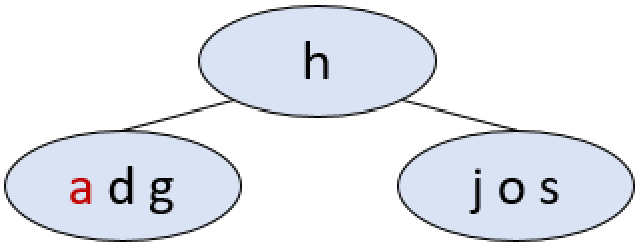

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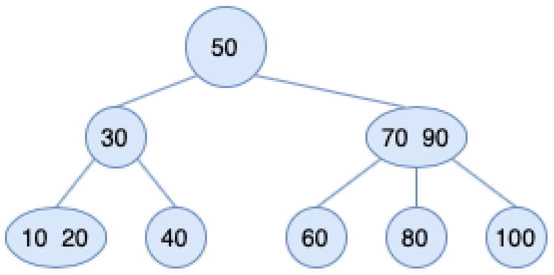

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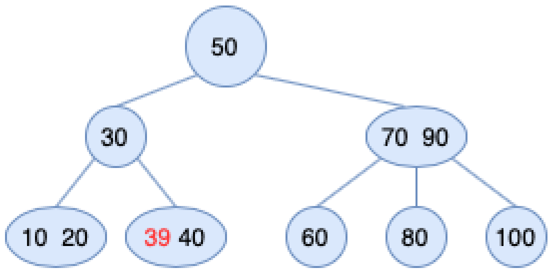

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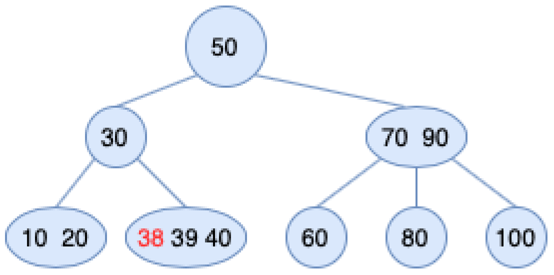

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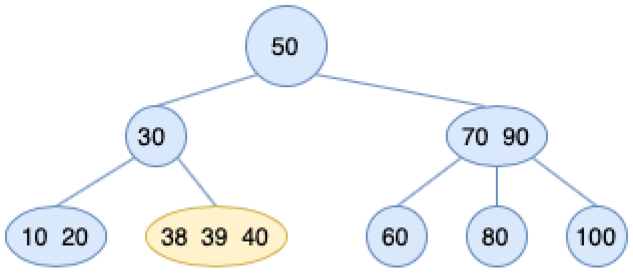

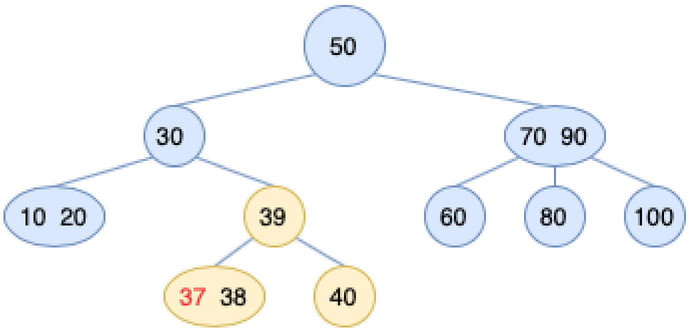

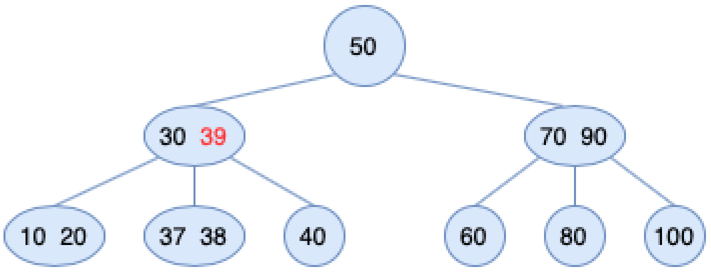

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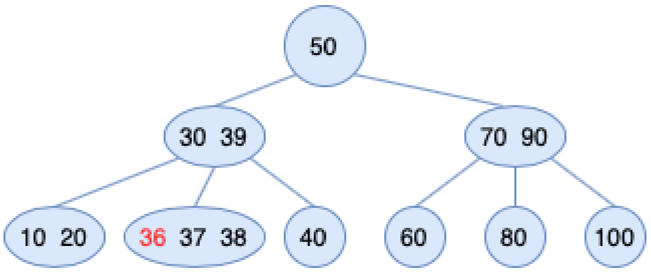

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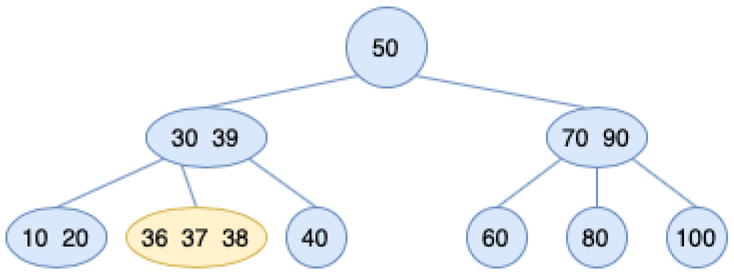

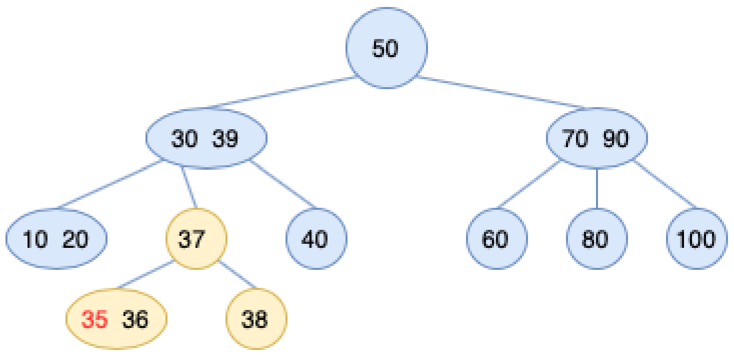

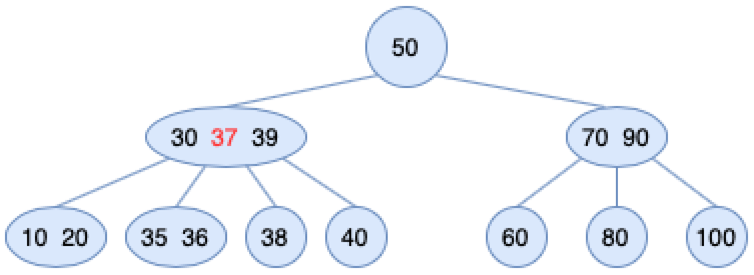

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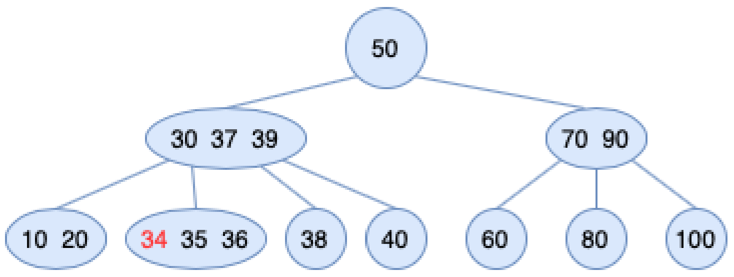

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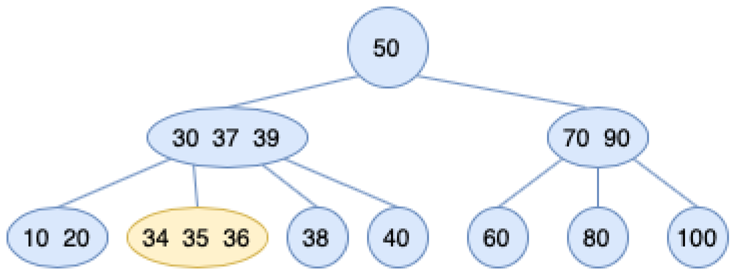

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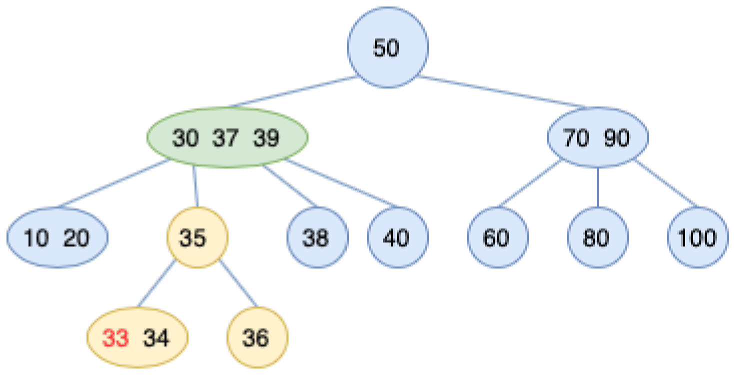

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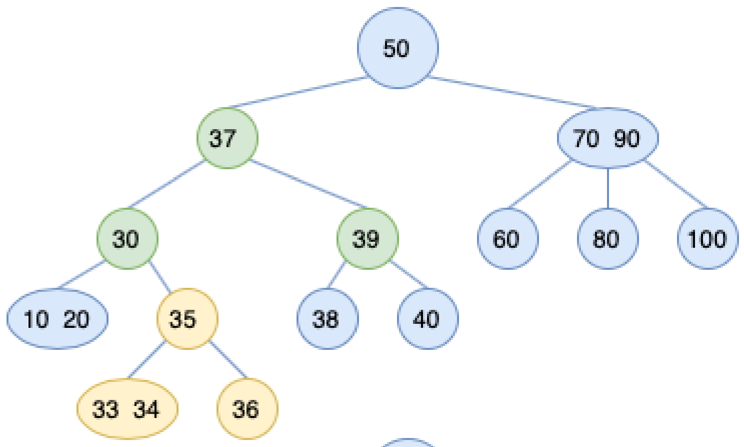

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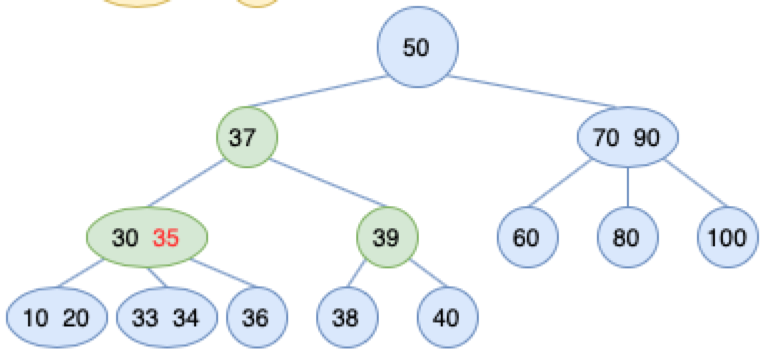

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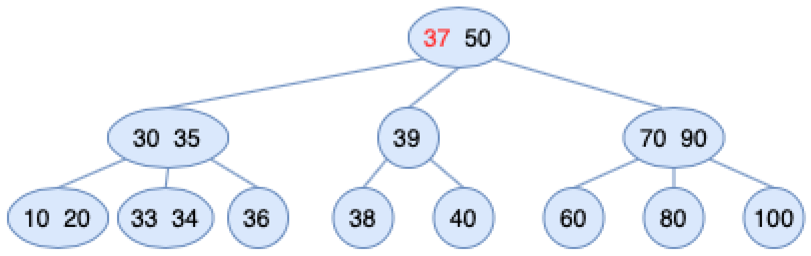

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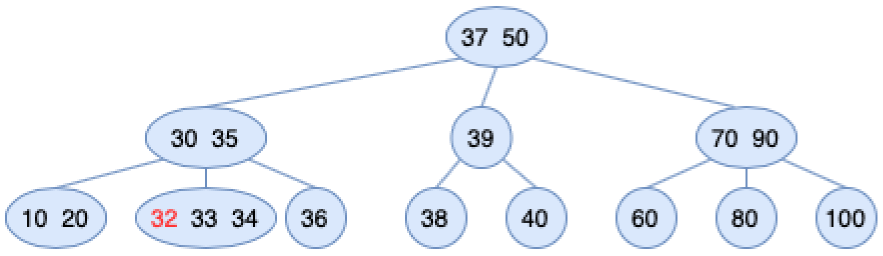
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