极客大学算法训练营
第十一课
二分查找

覃超

Sophon Tech 创始人，前 Facebook 工程师

二分查找的前提

1. 目标函数单调性（单调递增或者递减）
2. 存在上下界（bounded）
3. 能够通过索引访问（index accessible)

代码模版

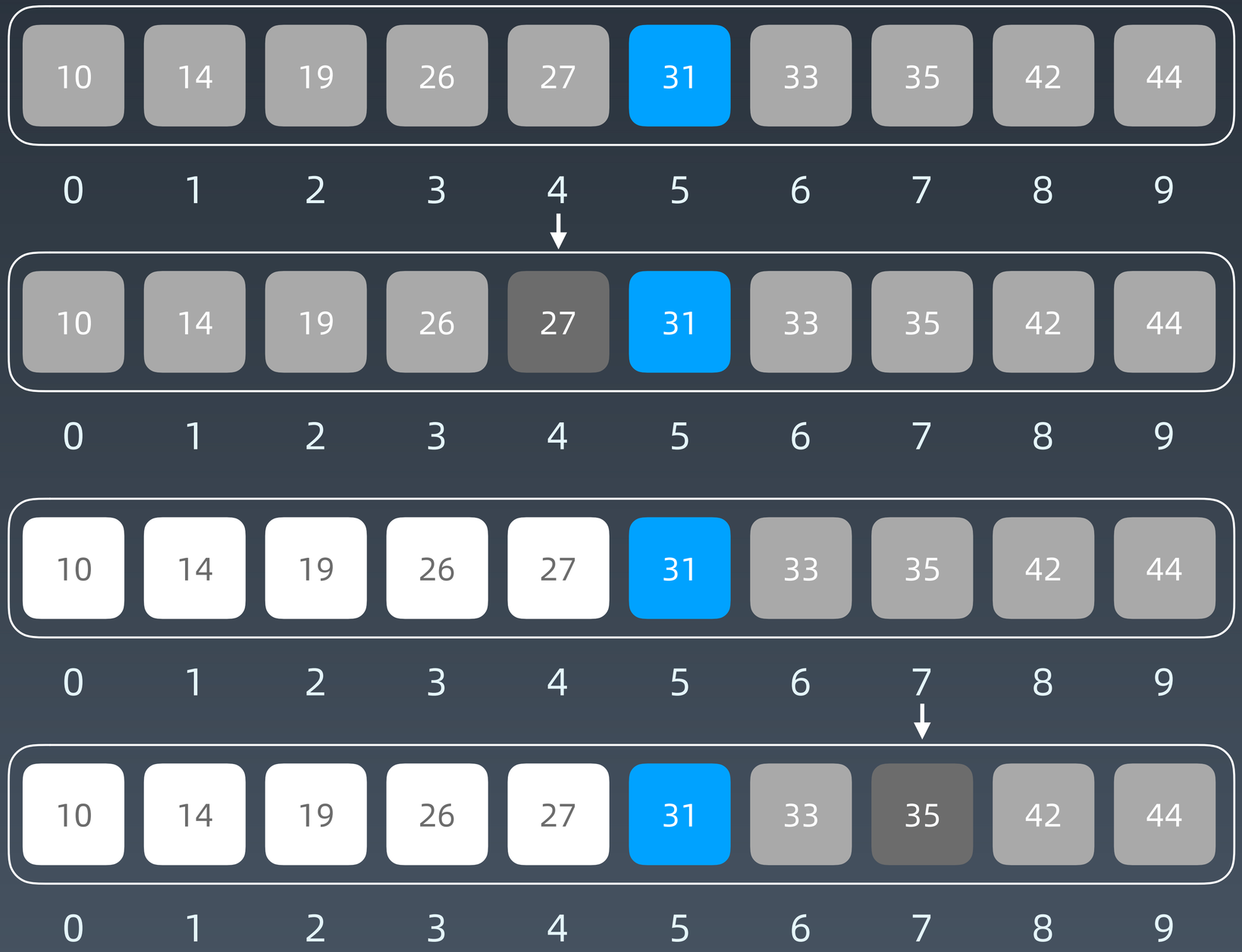
```
left, right = 0, len(array) - 1
while left <= right:
    mid = (left + right) / 2
    if array[mid] == target:
        # find the target!!
        break or return result
    elif array[mid] < target:
        left = mid + 1
    else:
        right = mid - 1
```

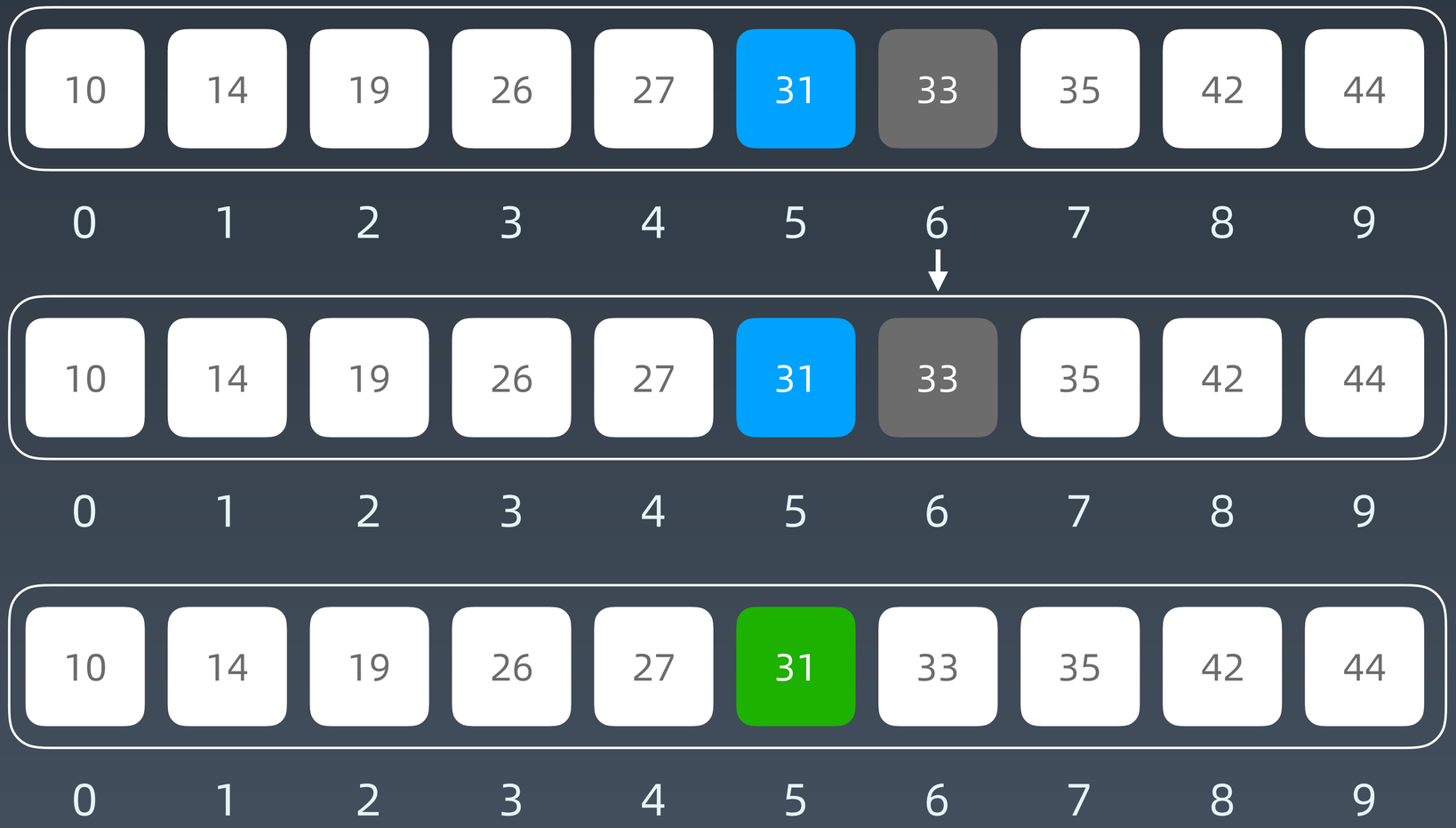
示例

在递增数组里

[10, 14, 19, 26, 27, 31, 33, 35, 42, 44]

查找：31


10 14 19 26 27 31 33 35 42 44
0 1 2 3 4 5 6 7 8 9
10 14 19 26 27 31 33 35 42 44
0 1 2 3 4 5 6 7 8 9
10 14 19 26 27 31 33 35 42 44
0 1 2 3 4 5 6 7 8 9
10 14 19 26 27 31 33 35 42 44
0 1 2 3 4 5 6 7 8 9


10 14 19 26 27 31 33 35 42 44
0 1 2 3 4 5 6 7 8 9
10 14 19 26 27 31 33 35 42 44
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实战题目

1. https://leetcode-cn.com/problems/sqrtx/
   https://www.beyond3d.com/content/articles/8/ （扩展阅读）

2. https://leetcode.com-cn/problems/valid-perfect-square/

Homework

1. https://leetcode-cn.com/problems/search-in-rotated-sorted-array/
2. https://leetcode-cn.com/problems/search-a-2d-matrix/
3. https://leetcode-cn.com/problems/find-minimum-in-rotated-sorted-array/

THANKS!