

两根指针 Two Pointers

课程版本 v4.0 主讲 令狐冲

禁止录制与传播视频，否则将追究法律责任和经济赔偿



扫描二维码关注微信/微博
获取最新面试题及权威解答

微信: [ninechapter](#)

微博: <http://www.weibo.com/ninechapter>

知乎: <http://zhuanlan.zhihu.com/jiuzhang>

官网: <http://www.jiuzhang.com>

- Partition
 - Quick Select
 - 分成两个部分
 - 分成三个部分
 - 一些你没听过的(但是面试会考的)排序算法
- Two Sum
 - 几乎所有 Two Sum 变种

两根指针入门题

<http://www.lintcode.com/problem/move-zeroes/>

<http://www.lintcode.com/problem/remove-duplicate-numbers-in-array/>

<http://www.lintcode.com/problem/valid-palindrome/>

同向双指针 vs 相向双指针

令狐师兄带你写代码之 Partition Array

<http://www.lintcode.com/problem/partition-array/>

<http://www.jiuzhang.com/solutions/partition-array/>

Quick Select

<http://www.lintcode.com/problem/kth-smallest-numbers-in-unsorted-array/>

<http://www.lintcode.com/problem/kth-largest-element/>

小视频: <http://www.jiuzhang.com/video/quick-select/>

- **Partition Array by Odd and Even**

- <http://www.lintcode.com/problem/partition-array-by-odd-and-even/>
- <http://www.jiuzhang.com/solutions/partition-array-by-odd-and-even/>

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- **Interleaving Positive and Negative Numbers**

- <http://www.lintcode.com/problem/interleaving-positive-and-negative-numbers/>
- <http://www.jiuzhang.com/solutions/interleaving-positive-and-negative-integers/>

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- **Sort Letters by Case**

- <http://www.lintcode.com/problem/sort-letters-by-case/>
- <http://www.jiuzhang.com/solutions/sort-letters-by-case/>

Sort Colors

<http://www.lintcode.com/problem/sort-colors/>

<http://www.jiuzhang.com/solutions/sort-colors/>

分成两个部分 vs 分成三个部分

排序 Rainbow Sort

<http://www.lintcode.com/en/problem/sort-colors-ii/>

<http://www.jiuzhang.com/solutions/sort-colors-ii/>

问：猜一猜最优的时间复杂度？

烙饼排序 Pancake Sort(有可能会考哦)

https://en.wikipedia.org/wiki/Pancake_sorting

<http://www.geeksforgeeks.org/pancake-sorting/>

睡眠排序 Sleep Sort

https://rosettacode.org/wiki/Sorting_algorithms/Sleep_sort

面条排序 Spaghetti Sort

https://en.wikipedia.org/wiki/Spaghetti_sort

猴子排序 Bogo Sort

<https://en.wikipedia.org/wiki/Bogosort>

令狐师兄带你敲代码之 Two Sum

<http://www.lintcode.com/problem/two-sum/>

<http://www.jiuzhang.com/solutions/two-sum/>

哈希表(HashMap) vs 两根指针(Two Pointers)

只能使用 HashMap:

<http://www.lintcode.com/problem/two-sum-data-structure-design/>

<http://www.jiuzhang.com/solutions/two-sum-data-structure-design/>

使用 Two Pointers 会更快:

<http://www.lintcode.com/problem/two-sum-input-array-is-sorted/>

<http://www.jiuzhang.com/solutions/two-sum-input-array-is-sorted/>

Two Sum - Unique pairs

<http://www.lintcode.com/en/problem/two-sum-unique-pairs/>

<http://www.jiuzhang.com/solutions/two-sum-unique-pairs/>

问：是否可以先去重？

3Sum

<http://www.lintcode.com/problem/3sum/>

<http://www.jiuzhang.com/solutions/3sum/>

统计所有的和为 0 的三元组 (Triples)

独孤九剑 破掌式

对于求 2 个变量如何组合的问题
可以循环其中一个变量, 然后研究另外一个变量如何变化

统计所有和 $\leq \text{target}$ 的配对数

<http://www.lintcode.com/problem/two-sum-less-than-or-equal-to-target/>

<http://www.jiuzhang.com/solutions/two-sum-less-than-or-equal-to-target/>

统计所有和 $\geq \text{target}$ 的配对数

<http://www.lintcode.com/en/problem/two-sum-greater-than-target/>

<http://www.jiuzhang.com/solutions/two-sum-greater-than-target/>

Two Sum Closest

<http://www.lintcode.com/problem/two-sum-closest-to-target/>

<http://www.jiuzhang.com/solutions/two-sum-closest/>

Follow Up: 3Sum Closest

<http://www.lintcode.com/problem/3sum-closest/>

<http://www.jiuzhang.com/solutions/3sum-closest/>

- **4Sum**
- <http://www.lintcode.com/problem/4sum/>
- <http://www.jiuzhang.com/solutions/4sum/>
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- **Two Sum - difference equals to target (同向双指针)**
- <http://www.lintcode.com/problem/two-sum-difference-equals-to-target/>
- <http://www.jiuzhang.com/solutions/two-sum-difference-equals-to-target/>

更多 Two Pointers 的题和知识点

请报名《九章算法强化班》

- Two Sum
 - = target
 - \leq target
 - $>$ target
 - unique pairs
 - closest to target
 - difference = target
- Partition
 - Quick Select
 - 分成两个部分
 - 分成三个部分
- Sort
 - 排序
 - 烙饼排序
 - (还有前面学的拓扑排序)