# 剑指 Offer 题解

## 前言

题目来自《何海涛. 剑指 Offer[M]. 电子工业出版社, 2012.》，刷题网站推荐：

* [牛客网](https://www.nowcoder.com/ta/coding-interviews?from=cyc_github)
* [Leetcode](https://leetcode-cn.com/problemset/lcof/)

## 数组与矩阵

* [3. 数组中重复的数字](3.%20%E6%95%B0%E7%BB%84%E4%B8%AD%E9%87%8D%E5%A4%8D%E7%9A%84%E6%95%B0%E5%AD%97.md)
* [4. 二维数组中的查找](4.%20%E4%BA%8C%E7%BB%B4%E6%95%B0%E7%BB%84%E4%B8%AD%E7%9A%84%E6%9F%A5%E6%89%BE.md)
* [5. 替换空格](5.%20%E6%9B%BF%E6%8D%A2%E7%A9%BA%E6%A0%BC.md)
* [29. 顺时针打印矩阵](29.%20%E9%A1%BA%E6%97%B6%E9%92%88%E6%89%93%E5%8D%B0%E7%9F%A9%E9%98%B5.md)
* [50. 第一个只出现一次的字符位置](50.%20%E7%AC%AC%E4%B8%80%E4%B8%AA%E5%8F%AA%E5%87%BA%E7%8E%B0%E4%B8%80%E6%AC%A1%E7%9A%84%E5%AD%97%E7%AC%A6%E4%BD%8D%E7%BD%AE.md)

## 栈队列堆

* [9. 用两个栈实现队列](9.%20%E7%94%A8%E4%B8%A4%E4%B8%AA%E6%A0%88%E5%AE%9E%E7%8E%B0%E9%98%9F%E5%88%97.md)
* [30. 包含 min 函数的栈](30.%20%E5%8C%85%E5%90%AB%20min%20%E5%87%BD%E6%95%B0%E7%9A%84%E6%A0%88.md)
* [31. 栈的压入、弹出序列](31.%20%E6%A0%88%E7%9A%84%E5%8E%8B%E5%85%A5%E3%80%81%E5%BC%B9%E5%87%BA%E5%BA%8F%E5%88%97.md)
* [40. 最小的 K 个数](40.%20%E6%9C%80%E5%B0%8F%E7%9A%84%20K%20%E4%B8%AA%E6%95%B0.md)
* [41.1 数据流中的中位数](41.1%20%E6%95%B0%E6%8D%AE%E6%B5%81%E4%B8%AD%E7%9A%84%E4%B8%AD%E4%BD%8D%E6%95%B0.md)
* [41.2 字符流中第一个不重复的字符](41.2%20%E5%AD%97%E7%AC%A6%E6%B5%81%E4%B8%AD%E7%AC%AC%E4%B8%80%E4%B8%AA%E4%B8%8D%E9%87%8D%E5%A4%8D%E7%9A%84%E5%AD%97%E7%AC%A6.md)
* [59. 滑动窗口的最大值](59.%20%E6%BB%91%E5%8A%A8%E7%AA%97%E5%8F%A3%E7%9A%84%E6%9C%80%E5%A4%A7%E5%80%BC.md)

## 双指针

* [57.1 和为 S 的两个数字](57.1%20%E5%92%8C%E4%B8%BA%20S%20%E7%9A%84%E4%B8%A4%E4%B8%AA%E6%95%B0%E5%AD%97.md)
* [57.2 和为 S 的连续正数序列](57.2%20%E5%92%8C%E4%B8%BA%20S%20%E7%9A%84%E8%BF%9E%E7%BB%AD%E6%AD%A3%E6%95%B0%E5%BA%8F%E5%88%97.md)
* [58.1 翻转单词顺序列](58.1%20%E7%BF%BB%E8%BD%AC%E5%8D%95%E8%AF%8D%E9%A1%BA%E5%BA%8F%E5%88%97.md)
* [58.2 左旋转字符串](58.2%20%E5%B7%A6%E6%97%8B%E8%BD%AC%E5%AD%97%E7%AC%A6%E4%B8%B2.md)

## 链表

* [6. 从尾到头打印链表](6.%20%E4%BB%8E%E5%B0%BE%E5%88%B0%E5%A4%B4%E6%89%93%E5%8D%B0%E9%93%BE%E8%A1%A8.md)
* [18.1 在 O(1) 时间内删除链表节点](18.1%20%E5%9C%A8%20O%281%29%20%E6%97%B6%E9%97%B4%E5%86%85%E5%88%A0%E9%99%A4%E9%93%BE%E8%A1%A8%E8%8A%82%E7%82%B9.md)
* [18.2 删除链表中重复的结点](18.2%20%E5%88%A0%E9%99%A4%E9%93%BE%E8%A1%A8%E4%B8%AD%E9%87%8D%E5%A4%8D%E7%9A%84%E7%BB%93%E7%82%B9.md)
* [22. 链表中倒数第 K 个结点](22.%20%E9%93%BE%E8%A1%A8%E4%B8%AD%E5%80%92%E6%95%B0%E7%AC%AC%20K%20%E4%B8%AA%E7%BB%93%E7%82%B9.md)
* [23. 链表中环的入口结点](23.%20%E9%93%BE%E8%A1%A8%E4%B8%AD%E7%8E%AF%E7%9A%84%E5%85%A5%E5%8F%A3%E7%BB%93%E7%82%B9.md)
* [24. 反转链表](24.%20%E5%8F%8D%E8%BD%AC%E9%93%BE%E8%A1%A8.md)
* [25. 合并两个排序的链表](25.%20%E5%90%88%E5%B9%B6%E4%B8%A4%E4%B8%AA%E6%8E%92%E5%BA%8F%E7%9A%84%E9%93%BE%E8%A1%A8.md)
* [35. 复杂链表的复制](35.%20%E5%A4%8D%E6%9D%82%E9%93%BE%E8%A1%A8%E7%9A%84%E5%A4%8D%E5%88%B6.md)
* [52. 两个链表的第一个公共结点](52.%20%E4%B8%A4%E4%B8%AA%E9%93%BE%E8%A1%A8%E7%9A%84%E7%AC%AC%E4%B8%80%E4%B8%AA%E5%85%AC%E5%85%B1%E7%BB%93%E7%82%B9.md)

## 树

* [7. 重建二叉树](7.%20%E9%87%8D%E5%BB%BA%E4%BA%8C%E5%8F%89%E6%A0%91.md)
* [8. 二叉树的下一个结点](8.%20%E4%BA%8C%E5%8F%89%E6%A0%91%E7%9A%84%E4%B8%8B%E4%B8%80%E4%B8%AA%E7%BB%93%E7%82%B9.md)
* [26. 树的子结构](26.%20%E6%A0%91%E7%9A%84%E5%AD%90%E7%BB%93%E6%9E%84.md)
* [27. 二叉树的镜像](27.%20%E4%BA%8C%E5%8F%89%E6%A0%91%E7%9A%84%E9%95%9C%E5%83%8F.md)
* [28. 对称的二叉树](28.%20%E5%AF%B9%E7%A7%B0%E7%9A%84%E4%BA%8C%E5%8F%89%E6%A0%91.md)
* [32.1 从上往下打印二叉树](32.1%20%E4%BB%8E%E4%B8%8A%E5%BE%80%E4%B8%8B%E6%89%93%E5%8D%B0%E4%BA%8C%E5%8F%89%E6%A0%91.md)
* [32.2 把二叉树打印成多行](32.2%20%E6%8A%8A%E4%BA%8C%E5%8F%89%E6%A0%91%E6%89%93%E5%8D%B0%E6%88%90%E5%A4%9A%E8%A1%8C.md)
* [32.3 按之字形顺序打印二叉树](32.3%20%E6%8C%89%E4%B9%8B%E5%AD%97%E5%BD%A2%E9%A1%BA%E5%BA%8F%E6%89%93%E5%8D%B0%E4%BA%8C%E5%8F%89%E6%A0%91.md)
* [33. 二叉搜索树的后序遍历序列](33.%20%E4%BA%8C%E5%8F%89%E6%90%9C%E7%B4%A2%E6%A0%91%E7%9A%84%E5%90%8E%E5%BA%8F%E9%81%8D%E5%8E%86%E5%BA%8F%E5%88%97.md)
* [34. 二叉树中和为某一值的路径](34.%20%E4%BA%8C%E5%8F%89%E6%A0%91%E4%B8%AD%E5%92%8C%E4%B8%BA%E6%9F%90%E4%B8%80%E5%80%BC%E7%9A%84%E8%B7%AF%E5%BE%84.md)
* [36. 二叉搜索树与双向链表](36.%20%E4%BA%8C%E5%8F%89%E6%90%9C%E7%B4%A2%E6%A0%91%E4%B8%8E%E5%8F%8C%E5%90%91%E9%93%BE%E8%A1%A8.md)
* [37. 序列化二叉树](37.%20%E5%BA%8F%E5%88%97%E5%8C%96%E4%BA%8C%E5%8F%89%E6%A0%91.md)
* [54. 二叉查找树的第 K 个结点](54.%20%E4%BA%8C%E5%8F%89%E6%9F%A5%E6%89%BE%E6%A0%91%E7%9A%84%E7%AC%AC%20K%20%E4%B8%AA%E7%BB%93%E7%82%B9.md)
* [55.1 二叉树的深度](55.1%20%E4%BA%8C%E5%8F%89%E6%A0%91%E7%9A%84%E6%B7%B1%E5%BA%A6.md)
* [55.2 平衡二叉树](55.2%20%E5%B9%B3%E8%A1%A1%E4%BA%8C%E5%8F%89%E6%A0%91.md)
* [68. 树中两个节点的最低公共祖先](68.%20%E6%A0%91%E4%B8%AD%E4%B8%A4%E4%B8%AA%E8%8A%82%E7%82%B9%E7%9A%84%E6%9C%80%E4%BD%8E%E5%85%AC%E5%85%B1%E7%A5%96%E5%85%88.md)

## 贪心思想

* [14. 剪绳子](14.%20%E5%89%AA%E7%BB%B3%E5%AD%90.md)
* [63. 股票的最大利润](63.%20%E8%82%A1%E7%A5%A8%E7%9A%84%E6%9C%80%E5%A4%A7%E5%88%A9%E6%B6%A6.md)

## 二分查找

* [11. 旋转数组的最小数字](11.%20%E6%97%8B%E8%BD%AC%E6%95%B0%E7%BB%84%E7%9A%84%E6%9C%80%E5%B0%8F%E6%95%B0%E5%AD%97.md)
* [53. 数字在排序数组中出现的次数](53.%20%E6%95%B0%E5%AD%97%E5%9C%A8%E6%8E%92%E5%BA%8F%E6%95%B0%E7%BB%84%E4%B8%AD%E5%87%BA%E7%8E%B0%E7%9A%84%E6%AC%A1%E6%95%B0.md)

## 分治

* [16. 数值的整数次方](16.%20%E6%95%B0%E5%80%BC%E7%9A%84%E6%95%B4%E6%95%B0%E6%AC%A1%E6%96%B9.md)

## 搜索

* [12. 矩阵中的路径](12.%20%E7%9F%A9%E9%98%B5%E4%B8%AD%E7%9A%84%E8%B7%AF%E5%BE%84.md)
* [13. 机器人的运动范围](13.%20%E6%9C%BA%E5%99%A8%E4%BA%BA%E7%9A%84%E8%BF%90%E5%8A%A8%E8%8C%83%E5%9B%B4.md)
* [38. 字符串的排列](38.%20%E5%AD%97%E7%AC%A6%E4%B8%B2%E7%9A%84%E6%8E%92%E5%88%97.md)

## 排序

* [21. 调整数组顺序使奇数位于偶数前面](21.%20%E8%B0%83%E6%95%B4%E6%95%B0%E7%BB%84%E9%A1%BA%E5%BA%8F%E4%BD%BF%E5%A5%87%E6%95%B0%E4%BD%8D%E4%BA%8E%E5%81%B6%E6%95%B0%E5%89%8D%E9%9D%A2.md)
* [45. 把数组排成最小的数](45.%20%E6%8A%8A%E6%95%B0%E7%BB%84%E6%8E%92%E6%88%90%E6%9C%80%E5%B0%8F%E7%9A%84%E6%95%B0.md)
* [51. 数组中的逆序对](51.%20%E6%95%B0%E7%BB%84%E4%B8%AD%E7%9A%84%E9%80%86%E5%BA%8F%E5%AF%B9.md)

## 动态规划

* [10.1 斐波那契数列](10.1%20%E6%96%90%E6%B3%A2%E9%82%A3%E5%A5%91%E6%95%B0%E5%88%97.md)
* [10.2 矩形覆盖](10.2%20%E7%9F%A9%E5%BD%A2%E8%A6%86%E7%9B%96.md)
* [10.3 跳台阶](10.3%20%E8%B7%B3%E5%8F%B0%E9%98%B6.md)
* [10.4 变态跳台阶](10.4%20%E5%8F%98%E6%80%81%E8%B7%B3%E5%8F%B0%E9%98%B6.md)
* [42. 连续子数组的最大和](42.%20%E8%BF%9E%E7%BB%AD%E5%AD%90%E6%95%B0%E7%BB%84%E7%9A%84%E6%9C%80%E5%A4%A7%E5%92%8C.md)
* [47. 礼物的最大价值](47.%20%E7%A4%BC%E7%89%A9%E7%9A%84%E6%9C%80%E5%A4%A7%E4%BB%B7%E5%80%BC.md)
* [48. 最长不含重复字符的子字符串](48.%20%E6%9C%80%E9%95%BF%E4%B8%8D%E5%90%AB%E9%87%8D%E5%A4%8D%E5%AD%97%E7%AC%A6%E7%9A%84%E5%AD%90%E5%AD%97%E7%AC%A6%E4%B8%B2.md)
* [49. 丑数](49.%20%E4%B8%91%E6%95%B0.md)
* [60. n 个骰子的点数](60.%20n%20%E4%B8%AA%E9%AA%B0%E5%AD%90%E7%9A%84%E7%82%B9%E6%95%B0.md)
* [66. 构建乘积数组](66.%20%E6%9E%84%E5%BB%BA%E4%B9%98%E7%A7%AF%E6%95%B0%E7%BB%84.md)

## 数学

* [39. 数组中出现次数超过一半的数字](39.%20%E6%95%B0%E7%BB%84%E4%B8%AD%E5%87%BA%E7%8E%B0%E6%AC%A1%E6%95%B0%E8%B6%85%E8%BF%87%E4%B8%80%E5%8D%8A%E7%9A%84%E6%95%B0%E5%AD%97.md)
* [62. 圆圈中最后剩下的数](62.%20%E5%9C%86%E5%9C%88%E4%B8%AD%E6%9C%80%E5%90%8E%E5%89%A9%E4%B8%8B%E7%9A%84%E6%95%B0.md)
* [43. 从 1 到 n 整数中 1 出现的次数](43.%20%E4%BB%8E%201%20%E5%88%B0%20n%20%E6%95%B4%E6%95%B0%E4%B8%AD%201%20%E5%87%BA%E7%8E%B0%E7%9A%84%E6%AC%A1%E6%95%B0.md)

## 位运算

* [15. 二进制中 1 的个数](15.%20%E4%BA%8C%E8%BF%9B%E5%88%B6%E4%B8%AD%201%20%E7%9A%84%E4%B8%AA%E6%95%B0.md)
* [56. 数组中只出现一次的数字](56.%20%E6%95%B0%E7%BB%84%E4%B8%AD%E5%8F%AA%E5%87%BA%E7%8E%B0%E4%B8%80%E6%AC%A1%E7%9A%84%E6%95%B0%E5%AD%97.md)

## 其它

* [17. 打印从 1 到最大的 n 位数](17.%20%E6%89%93%E5%8D%B0%E4%BB%8E%201%20%E5%88%B0%E6%9C%80%E5%A4%A7%E7%9A%84%20n%20%E4%BD%8D%E6%95%B0.md)
* [19. 正则表达式匹配](19.%20%E6%AD%A3%E5%88%99%E8%A1%A8%E8%BE%BE%E5%BC%8F%E5%8C%B9%E9%85%8D.md)
* [20. 表示数值的字符串](20.%20%E8%A1%A8%E7%A4%BA%E6%95%B0%E5%80%BC%E7%9A%84%E5%AD%97%E7%AC%A6%E4%B8%B2.md)
* [44. 数字序列中的某一位数字](44.%20%E6%95%B0%E5%AD%97%E5%BA%8F%E5%88%97%E4%B8%AD%E7%9A%84%E6%9F%90%E4%B8%80%E4%BD%8D%E6%95%B0%E5%AD%97.md)
* [46. 把数字翻译成字符串](46.%20%E6%8A%8A%E6%95%B0%E5%AD%97%E7%BF%BB%E8%AF%91%E6%88%90%E5%AD%97%E7%AC%A6%E4%B8%B2.md)
* [61. 扑克牌顺子](61.%20%E6%89%91%E5%85%8B%E7%89%8C%E9%A1%BA%E5%AD%90.md)
* [64. 求 1+2+3+...+n](64.%20%E6%B1%82%201%2B2%2B3%2B...%2Bn.md)
* [65. 不用加减乘除做加法](65.%20%E4%B8%8D%E7%94%A8%E5%8A%A0%E5%87%8F%E4%B9%98%E9%99%A4%E5%81%9A%E5%8A%A0%E6%B3%95.md)
* [67. 把字符串转换成整数](67.%20%E6%8A%8A%E5%AD%97%E7%AC%A6%E4%B8%B2%E8%BD%AC%E6%8D%A2%E6%88%90%E6%95%B4%E6%95%B0.md)