第三课（数组、链表跳）

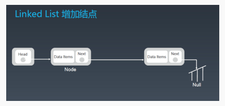
数组array

- definition
  - Java　int a[100]
  - python　list=[]
- insert

- delete

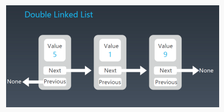
链表Linked list

- single linked list
  - definition
    - Insert



    - delete

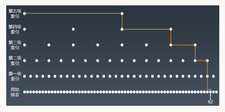
- double linked list



  - 相比single linked list
    - 可以往前走
    - 也可以往后走
- circular linked list
  - 头尾相连　循环链表
- big O（linked list）
  - prepend　O(1)
  - append　O(1)
  - loopup查找里面的元素　O(n)　因为要从开始开始找
  - insert　O(1)
  - delete　O(1)

skip list跳表

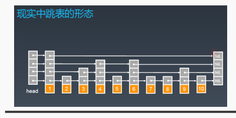
- 使用条件
  - 元素必须是有序的情况
- 用来取代
  - 二分查找　binary search
  - 平衡树　AVL TREE
- defin
  - 是一种 插入 /删除 /搜索 都是 O(log n) 的数据结构。 1989 年
  - 它最大的优势是原理简单、容易实现方便扩展效率更高。因此在一些热门的项目里用来替代平衡树，如 Redis edis、Level evelDB 等
- 结构说明
  - 主要是解决singular linked list 的查询O(n)的问题



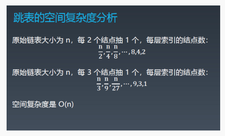
- 时间复杂度

- 现实中跳表的形态

子主题 1



- 跳表的空间复杂度分析



exercise for array

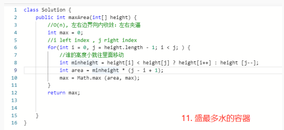
- 283　移动0
  - 上课

  - 交换算法

  - 前面count,后面改0

- 11　. 盛最多水的容器
  - height[i++]
    - =1　一开始想错了
    - i from 0 to 1

  - 运行过程
    - minheight = 1 i = 1 j = 8　area is 8
    - minheight = 7 i = 1 j = 7　area is 49
    - minheight = 3 i = 1 j = 6　area is 18
    - minheight = 8 i = 1 j = 5　area is 40
    - minheight = 4 i = 1 j = 4　area is 16
    - minheight = 5 i = 1 j = 3　area is 15
    - minheight = 2 i = 1 j = 2　area is 4
    - minheight = 6 i = 1 j = 1　area is 6



- 70. 爬楼梯
  - 其本质　斐波那契数列
    - base case　f0=1 f1=1
    - f(n)=f(n-1)+f(n-2)　when n>=2

- 15　三数之和
  - ❶ 暴力求解
    - 3层循环
    - 或者a+b=-c
  - ❷ hash　2重暴力
  - ❸ 夹逼　双指针左右夹逼
    - 精华点
      - 跳过所有重复的nums[i]
      - 先sort
      - 双指针一前一后思路
      - 根据两数之和改写

- 26. 删除排序数组中的重复项
  - ✪ 2 指针
    - i 做快指针
    - j做慢指针