

# 标签 斜率优化 下的文章

🏠 首页 (<https://blog.orzsiyuan.com/>) / 斜率优化

「CEOI 2017」 Building Bridges (<https://blog.orzsiyuan.com/archives/CEOI-2017-Building-Bridges-1/>)

题目链接: LOJ 2483 (<https://loj.ac/problem/2483>)

有  $n$  根柱子依次排列，每根柱子都有一个高度。第  $i$  根柱子的高度为  $h_i$ 。

现在想要建造若干座桥，如果一座桥架在第  $i$  根柱子和第  $j$  根柱子之间，那么需要  $(h_i - h_j)^2$  的代价。

在造桥前，所有用不到的柱子都会被拆除，因为他们会干扰造桥进程。第  $i$  根柱子被拆除的代价为  $w_i$ ，注意  $w_i$  不一定非负，因为可能政府希望拆除某些柱子。

现在政府想要知道，通过桥梁把第 1 根柱子和第  $n$  根柱子连接的最小代价。注意桥梁不能在端点以外的任何地方相交。

数据范围:  $2 \leq n \leq 10^5$ ,  $0 \leq h_i, |w_i| \leq 10^6$ 。

👤 Siyuan (<https://blog.orzsiyuan.com/author/1/>) ⏰ 2019 年 04 月 05 日

「NOI 2007」货币兑换 (<https://blog.orzsiyuan.com/archives/NOI-2007-Cash/>)

题目链接: LOJ 2353 (<https://loj.ac/problem/2353>)

小 Y 最近在一家金券交易所工作。该金券交易所只发行交易两种金券: A 纪念券 (以下简称 A 券) 和 B 纪念券 (以下简称 B 券)。每个持有金券的顾客都有一个自己的帐户。金券的数目可以是一个实数。每天随着市场的起伏波动，两种金券都有自己当时的价值，即每一单位金券当天可以兑换的人民币数目。我们记录第  $i$  天中 A 券和 B 券的价值分别为  $A_i$  和  $B_i$  (元 / 单位金券)。为了方便顾客，金券交易所提供了一种非常方便的交易方式：比例交易法。比例交易法分为两个方面：

- 卖出金券：顾客提供一个  $[0, 100]$  内的实数  $OP$  作为卖出比例，其意义为：将  $OP\%$  的 A 券和  $OP\%$  的 B 券以当时的价值兑换为人民币。
- 买入金券：顾客支付  $IP$  元人民币，交易所将会兑换给用户总价值为  $IP$  的金券，并且，满足提供给顾客的 A 券和 B 券的比例在第  $i$  天恰好为  $Rate_i$ 。

注意：同一天内可以进行多次操作。

小 Y 是一个很有经济头脑的员工，通过较长时间的运作和行情测算，他已经知道了未来  $n$  天内的 A 券和 B 券的价值  $A_i, B_i$  以及  $\text{Rate}_i$ 。他还希望能够计算出来，如果开始时拥有  $S$  元钱，那么  $n$  天后最多能够获得多少元钱。

数据范围： $1 \leq n \leq 10^5$ ,  $0 < A_i, B_i \leq 10$ ,  $0 < \text{Rate}_i \leq 100$ ,  $0 \leq \text{答案} \leq 10^9$ 。

● Siyuan (<https://blog.orzsiyuan.com/author/1/>) ○ 2019 年 03 月 12 日

「算法笔记」斜率优化 (<https://blog.orzsiyuan.com/archives/Slope-Optimization/>)

斜率优化，一种根据决策单调性来优化动态规划的思想。

● Siyuan (<https://blog.orzsiyuan.com/author/1/>) ○ 2019 年 01 月 05 日



## 热门文章

(<https://blog.2019游记> (<https://blog.orzsiyuan.com/archives/ZJOI-2019/>)  
2019) ○ 6051

(<https://blog.2019算法模板复习> (<https://blog.orzsiyuan.com/archives/hehezhou-AK-CSP-2019/>)  
AK- ○ 2892  
CSP-  
2019) (<https://blog.多项式模板> (<https://blog.orzsiyuan.com/archives/Polynomial-Template/>)  
Template) ○ 1080

(<https://blog.2017数表> (<https://blog.orzsiyuan.com/archives/SDOI-2017-Number-Table/>)  
2017- ○ 1028  
Number-  
Table/) (<https://blog.2019单唱> (<https://blog.orzsiyuan.com/archives/TJOI-2019-Sing-Dance-Rap-and-Basketball/>)  
Sing- ○ 843  
Dance-  
Rap-  
and-  
Basketball/)

## 博客信息

■ 文章数目

187

 评论数目	243
 运行天数	1年25天
 最后活动	4 个月前

## 标签云

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