

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 $Rate_i$ 。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： $1 \leq n \leq 10^5, 0 < A_i, B_i \leq 10, 0 < Rate_i \leq 100, 0 \leq \text{答案} \leq 10^9$ 。


 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.orzsiyuan.com/archives/ZJOI-2019/>) (<https://blog.orzsiyuan.com/archives/ZJOI-2019/>)
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(<https://blog.orzsiyuan.com/archives/hehezhou-AK-CSP-2019/>) (<https://blog.orzsiyuan.com/archives/hehezhou-AK-CSP-2019/>)
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CSP-2019/) (<https://blog.orzsiyuan.com/archives/Polynomial-Template/>) (<https://blog.orzsiyuan.com/archives/Polynomial-Template/>)
Template)  1080

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

- Codeforces (<https://blog.orzsiyuan.com/tag/Codeforces/>)
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