WEEK4

段雷

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01上周趣题

akuna OA

There are a number of products that Acme Corp. needs to have produced. For each product there is a worst case and an expected cost. Before starting a project, Acme must have at least enough cash on hand to pay the worst cost. Products can be produced in any order. If every product is produced at expected cost, determine the minimum beginning cash requirement to get all products produced.

Example:
worstCase = [6, 5, 7]
expected = [4, 2, 1]

The optimal order of production is product 2, then 1, then 0. If Acme starts with 9 units of cash on hand, they will have enough to start product 2 (9>=7), and it will cost them 1 in the end. They will have 9−1=8 cash on hand and be able to produce product 1(8>=5). It will cost them 2 in the end. They will have 8−2=6 on hand and can start product 0(6>=6) and will pay 4 in the end. They will have 6−4=2 units cash on hand at the end. The minimum starting amount is 9.
1<=n<=10^5 1 <= expected[i] <= worstCase[i] <= 10^5

国王的游戏

问题描述

恰逢 H 国国庆，国王邀请 n 位大臣来玩一个有奖游戏。首先，他让每个大臣在左、右手上面分别写下一个整数，国王自己也在左、右手上各写一个整数。然后，让这 n 位大臣排成一排，国王站在队伍的最前面。排好队后，所有的大臣都会获得国王奖赏的若干金币，每位大臣获得的金币数分别是：排在该大臣前面的所有人的左手上的数的乘积除以他自己右手上的数，然后向下取整得到的结果。

国王不希望某一个大臣获得特别多的奖赏，所以他想请你帮他重新安排一下队伍的顺序，使得获得奖赏最多的大臣，所获奖赏尽可能的少。注意，国王的位置始终在队伍的最前面。

输入格式

第一行包含一个整数 n，表示大臣的人数。

第二行包含两个整数 a 和 b，之间用一个空格隔开，分别表示国王左手和右手上的整数。

接下来 n 行，每行包含两个整数 a 和 b，之间用一个空格隔开，分别表示每个大臣左手和右手上的整数。

输出格式

一个整数，表示重新排列后的队伍中获奖赏最多的大臣所获得的金币数。

样例输入

```
3
1 1
2 3
7 4
4 6
```

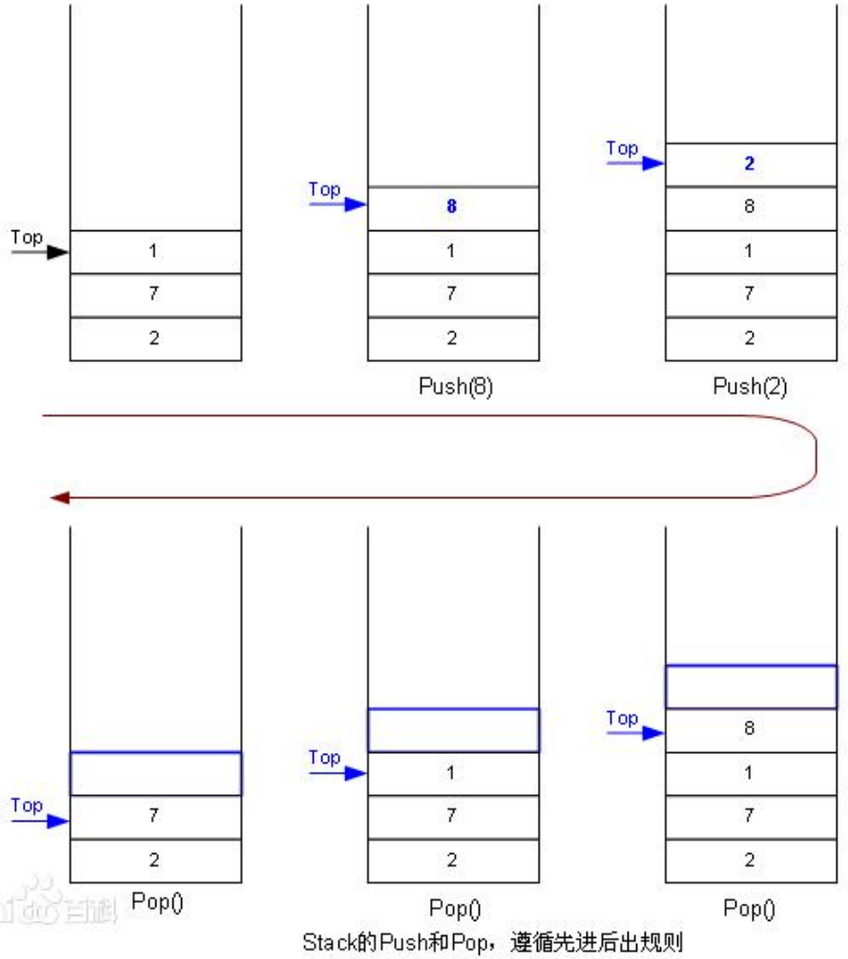
样例输入

```
2
```

02栈、队列

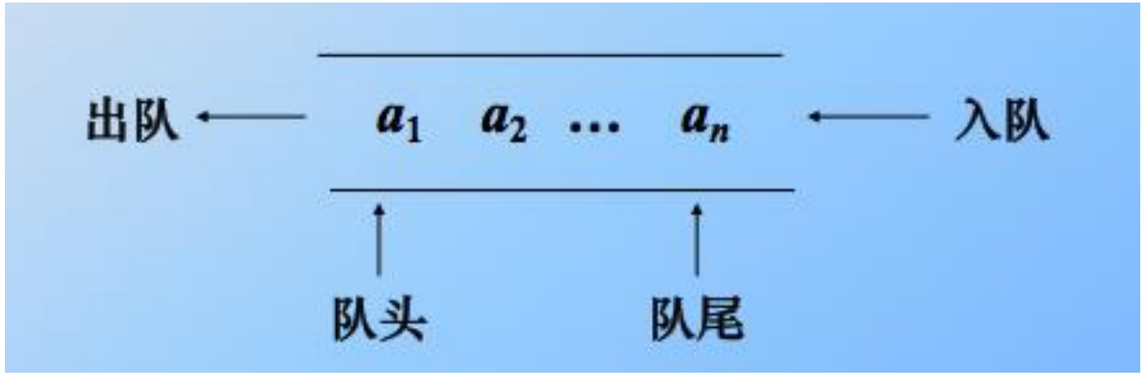
栈(stack)、队列(queue)

栈（LIFO)



Stack的Push和Pop，遵循先进后出规则

队列(FIFO)



栈

20. Valid Parentheses

Easy 3399 160 Favorite Share

Given a string containing just the characters `'('`, `')'`, `'{'`, `'}'`, `'['` and `']'`, determine if the input string is valid.

An input string is valid if:

1. Open brackets must be closed by the same type of brackets.
2. Open brackets must be closed in the correct order.

Note that an empty string is also considered valid.

Example 1:

```
Input: "()"
Output: true
```

Example 2:

```
Input: "()[]{}"
Output: true
```

Example 3:

```
Input: "(]"
Output: false
```

队列

933. Number of Recent Calls

Easy 164 880 Favorite Share

Write a class `RecentCounter` to count recent requests.

It has only one method: `ping(int t)`, where t represents some time in milliseconds.

Return the number of `ping`s that have been made from 3000 milliseconds ago until now.

Any ping with time in `[t - 3000, t]` will count, including the current ping.

It is guaranteed that every call to `ping` uses a strictly larger value of `t` than before.

Example 1:

```
Input: inputs = ["RecentCounter","ping","ping","ping","ping"], inputs = [[],
[1],[100],[3001],[3002]]
Output: [null,1,2,3,3]
```

Note:

1. Each test case will have at most `10000` calls to `ping`.
2. Each test case will call `ping` with strictly increasing values of `t`.
3. Each call to ping will have `1 <= t <= 10^9`.

栈、队列

用两个栈实现一个队列?

用两个队列实现一个栈?

03题目讲解

HW 1
leetcode3

3. Longest Substring Without Repeating Characters

Medium 6455 377 Favorite Share

Given a string, find the length of the **longest substring** without repeating characters.

Example 1:

```
Input: "abcabcbb"
Output: 3
Explanation: The answer is "abc", with the length of 3.
```

Example 2:

```
Input: "bbbbb"
Output: 1
Explanation: The answer is "b", with the length of 1.
```

Example 3:

```
Input: "pwwkew"
Output: 3
Explanation: The answer is "wke", with the length of 3.
             Note that the answer must be a substring, "pwke" is a
subsequence and not a substring.
```

HW 2
leetcode17

17. Letter Combinations of a Phone Number

Medium 2606 337 Favorite Share

Given a string containing digits from `2-9` inclusive, return all possible letter combinations that the number could represent.

A mapping of digit to letters (just like on the telephone buttons) is given below. Note that 1 does not map to any letters.

Example:

```
Input: "23"
Output: ["ad", "ae", "af", "bd", "be", "bf", "cd", "ce", "cf"].
```

Note:

Although the above answer is in lexicographical order, your answer could be in any order you want.

HW 3
leetcode698

698. Partition to K Equal Sum Subsets

Medium 1032 59 Favorite Share

Given an array of integers `nums` and a positive integer `k`, find whether it's possible to divide this array into `k` non-empty subsets whose sums are all equal.

Example 1:

```
Input: nums = [4, 3, 2, 3, 5, 2, 1], k = 4
Output: True
Explanation: It's possible to divide it into 4 subsets (5), (1, 4), (2,3),
(2,3) with equal sums.
```

Note:

- `1 <= k <= len(nums) <= 16`.
- `0 < nums[i] < 10000`.

HW 4
leetcode90

90. Subsets II

Medium 1086 53 Favorite Share

Given a collection of integers that might contain duplicates, ***nums***, return all possible subsets (the power set).

Note: The solution set must not contain duplicate subsets.

Example:

```
Input: [1,2,2]
Output:
[
  [2],
  [1],
  [1,2,2],
  [2,2],
  [1,2],
  []
]
```