All Contests > SRBD Code Contest - 2023 (Round 2) > Magic Card

# **Magic Card**

🔒 locked

Problem

Submissions

Time Limit: C/C++ (2s) , Java (3s)

Memory Limit: 512MB

Mr. Rakib has n assets where  $asset_i$  represents the price of the i'th asset. He distributed his first m assets to Ratul and remaining of the assets to Rahat.

You have p magic cards each of which can modify the price of any one asset. A magic card is a pair of single-digit numbers (x, y) which can replace a digit x from a price of an asset to the digit y. Initially the price of any asset is without any leading zeroes, but it can have leading zeroes after the use of a magic card.

You can choose a subset of magic cards from the p cards where every x from the card pairs must be distinct. Each of the cards from the chosen subset can be used at most once. Also note that you cannot use more than one card on any digit. Read the sample explanation for further clarity.

Help Mr. Rakib to reduce the absolute difference between the two boys' sum of assets by using the magic cards.

#### **Input Format**

The first line contains an integer T denoting the number of test cases. Then T testcases follow.

The first line of each testcase contains two integers n and m, where n denotes the total number of assets and m denotes the number of assets Ratul receives.

The second line contains n positive integers denoting the price of the assets.

The third line contains an integer p denoting the number of magic cards.

Then p lines follow, each containing a pair of integers (x, y) describing a magic card.

### Constraints

$$1 \le T \le 10$$

$$1 \leq m \leq n \leq 99999$$

$$1 \leq asset_i \leq 9999$$

$$1 \le p \le 45$$

$$0 \le x, y \le 9$$

## **Output Format**

For each test case print an integer, the minimum absolute difference after using the magic cards, on a separate line.

## Sample Input 0

3

3 2

1 1 99

2

```
1 2
2 3
6 3
12 56 78 90 11 22
4
1 3
2 5
7 5
8 1
7 3
234 678 678 7655 5 231 78
6
2 6
7 0
5 9
6 8
2 4
7 1
```

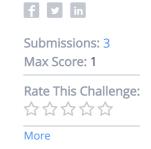
## Sample Output 0

```
96
0
17
```

## **Explanation 0**

Please be aware that the sample input contains extra newlines between testcases only for reading convenience and the remaining dataset does not contain any extra newlines.

- 1<sup>st</sup> testcase:
  - Change the 1st asset's price 1's only digit 1 with card (1, 2) to turn it to 2.
  - The absolute difference of their sum is now |(2 + 1) 99| = 96.
  - Note that the card (1, 2) could only be used once on one of Ratul's assets.
  - Note that the card (2, 3) could not be used to modify the first asset after the first card, because you cannot use multiple cards on the same digit.
- 2<sup>nd</sup> testcase:
  - If you change 3rd asset's price 78's first digit with card (7, 5), then new price will be 58.
  - Then change 6th asset's price 22's second digit with (2, 5), then new price will be 25.
  - Now sum of Ratul assets is 12 + 56 + 58 = 126 and Rahat's is 90 + 11 + 25 = 126.



10 }			
			Line: 1 Col: 1
<u> ♣ Upload Code as File</u> ☐ <b>Test a</b>	ngainst custom input	Run Code	Submit Code

Interview Prep | Blog | Scoring | Environment | FAQ | About Us | Support | Careers | Terms Of Service | Privacy Policy |