I. Move Between Numbers

time limit per test: 2 seconds
memory limit per test: 256 megabytes

You are given n magical numbers $a_1, a_2, ..., a_n$, such that the length of each of these numbers is 20 digits.

You can move from the i^{th} number to the j^{th} number, if the number of common digits between a_i and a_j is **exactly** 17 digits.

The number of common digits between two numbers x and y is computed is follow:

$$Common(x, y) = \sum_{i=0}^{9} min(countX_i, countY_i)$$

Where $countX_i$ is the frequency of the i^{th} digit in the number x, and $countY_i$ is the frequency of the i^{th} digit in the number y.

You are given two integers s and e, your task is to find the minimum numbers of moves you need to do, in order to finish at number a_e starting from number a_s.

Input

The first line contains an integer $T\,(1 \le T \le 250)$, where T is the number of test cases.

The first line of each test case contains three integers n, s, and $e\ (1 \le n \le 250)\ (1 \le s, e \le n)$, where n is the number of magical numbers, s is the index of the number to start from it, and e is the index of the number to finish at it.

Then n lines follow, giving the magical numbers. All numbers consisting of digits, and with length of 20 digits. Leading zeros are allowed.

Output

For each test case, print a single line containing the minimum numbers of moves you need to do, in order to finish at number a_e starting from number a_s. If there is no answer, print -1.

Example

input Copy

```
1
5 1 5
11111911111191111911
11181111111111818111
11811718171171181111
11111116161111611181
11751717818314111118
```

output Copy

```
3
```

Note

In the first test case, you can move from a_1 to a_2, from a_2 to a_3, and from a_3 to a_5. So, the minimum number of moves is 3 moves.

2017 JUST Programming Contest 3.0

Finished

Practice

→ About Contest

ACM at JUST

Contest website

→ Virtual participation

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: GNU G++20 13.2 (64 bit, win

Choose file: Choose File No file chosen

Submit

→ Last submissions

Submission	Time	Verdict
300766650	Jan/12/2025 23:33	Accepted

→ Contest materials

- Announcement (en)
- Statements (en)