C - Biased Standings

Input: `standard input`
Output: `standard output`

Usually, results of competitions are based on the scores of participants. However, we are planning a change for the next year of IPSC. During the registration each team will be able to enter a single positive integer - their preferred place in the ranklist. We would take all these preferences into account, and at the end of the competition we will simply announce a ranklist that would please all of you.

But wait... How would that ranklist look like if it won't be possible to satisfy all the requests?

Suppose that we already have a ranklist. For each team, compute the distance between their preferred place and their place in the ranklist. The sum of these distances will be called the *badness* of this ranklist.

Given team names and their preferred placements find one ranklist with the minimal possible badness.

Input

The first line of the input file contains an integer T specifying the number of test cases. Each test case is preceded by a blank line.

Each test case looks as follows: The first line contains N: the number of teams participating in the competition. Each of the next N lines contains a team name (a string of letters and numbers) and its preferred place (an integer between 1 and N, inclusive). No two team names will be equal.

Output

For each of the test cases output a single line with a single integer: the badness of the best ranklist for the given teams.

Sample Input

```
2

7
noobz 1
llamas 2
Winn3rz 2
5thwheel 1
NotoricCoders 5
StrangeCase 7
WhoKnows 7
```

```
3
ThreeHeadedMonkey 1
MoscowSUx13 1
NeedForSuccess 1
```

Sample Output

```
5
3
```