Select Training Set

Problem Statement

You are given a dataset consisting of N items. Each item is a pair of a word and a boolean denoting whether the given word is a spam word or not.

We want to use this dataset for training our latest machine learning model. Thus, we want to choose a subset of this dataset as the training set. We want to make sure that there are no contradictions in our training set, i.e., there shouldn't be a word included in the training set that's marked both as spam and not-spam. For example, the items {"fck", 1} and {"fck", 0} can't both be in the training set because the first item says the word "fck" is spam, while the second says it is not, creating a contradiction.

Your task is to select the maximum number of items for the training set while ensuring no contradictions.

Note that the same pair {word, bool} can appear multiple times in the input. The training set can also contain the same pair multiple times.

Input

- The first line contains T, the number of test cases.
- The first line of each test case contains an integer N, the number of items in the dataset.
- The next N lines each contain a string w_i followed by a space and an integer s_i, where w_i denotes the word and s_i denotes whether it is a spam word (1 for spam, 0 for not spam).

Output

For each test case, output a single integer in a new line, corresponding to the maximum number of items that can be included in the training set.

Constraints

- $1 \leq T \leq 10$
- $1 \leq N \leq 25,000$
- $1 \leq |w_i| \leq 5$ for each valid i
- $0 \leq s_i \leq 1$ for each valid i
- $w_1, w_2, \ldots, w_N$ contain only lowercase English letters.

Examples

Input

```
3
3
abc 0
abc 1
efg 1
```

```
7
fck 1
fck 0
fck 1
body 0
body 0
body 0
ram 0
5
vv 1
vv 0
vv 0
vv 1
vv 1
```

Output

```
2
6
3
```

Explanation

Example case 1: You can include either of the first and the second items, but not both, to avoid a contradiction. The third item can also be included, giving a maximum of 2 items in the training set.

Example case 2: You can include all items except the second one, allowing a maximum of 6 items in the training set.

Example case 3: Only some combinations of the items avoid contradictions, giving a maximum of 3 items in the training set.