# I Incognito



Spies use attributes to disguise themselves to make sure that they are not recognized. For example, when putting on sunglasses, a spy suddenly looks completely different and cannot be recognized anymore. Every combination of attributes gives a different appearance, but not all combinations are possible. For example, a hat and a turban are both headgear and cannot be used at the same time. Given the list of available attributes, compute how many distinct disguises can be made.

## Input

On the first line one positive number: the number of test cases, at most 100. After that per test case:

- one line with an integer $n$ ($0 \leq n \leq 30$): the number of available attributes.
- $n$ lines with two space-separated strings: the name and the category of the attribute.

All strings consist of at least 1 and at most 20 lowercase letters. Within a test case all names are distinct.

## Output

Per test case:

- one line with an integer: the number of possible distinct disguises that can be made with the given attributes, such that at most one attribute from each category is used.

## Sample in- and output

| Input | Output |
|---|---|
| 2<br>3<br>hat headgear<br>sunglasses eyewear<br>turban headgear<br>3<br>mask face<br>sunglasses face<br>makeup face | 5<br>3 |

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