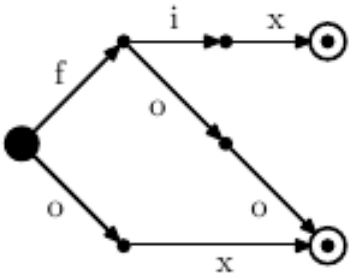
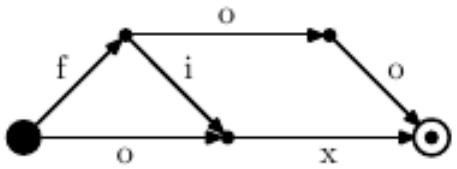
4054 Language Recognition

Deterministic Final-State Automaton (DFA) is a directed multigraph whose vertices are called *states* and edges are called *transitions*. Each DFA transition is labeled with a single letter. Moreover, for each state s and each letter l there is at most one transition that leaves s and is labeled with l. DFA has a single *starting* state and a subset of *final states*. DFA defines a language of all words that can be constructed by writing down the letters on a path from the starting state to some final state.

Given a language with a finite set of words it is always possible to construct a DFA that defines this language. The picture on the left shows such DFA for the language cosisting of three words: `fix`, `foo`, `ox`. However, this DFA has 7 states, which is not optimal. The DFA on the right defines the same language with just 5 states.





Your task is to find the minimum number of states in a DFA that defines the given language.

Input

Input consists of several datasets. The first line of each dataset contains a single integer number n ($1 \le n \le 5000$) — the number of words in the language. It is followed by n lines with a word on each line. Each word consists of 1 to 30 lowercase Latin letters from '`a`' to '`z`'. All words in the input file are different.

Output

For each dataset, write to the output file a single integer number — the minimal number of states in a DFA that defines the language from the input file.

Sample Input

```
3
fix
foo
ox
4
a
ab
ac
ad
```

Sample Output

```
5
3
```