

ECOO '17 R3 P2 - Family Trees

Time limit: 13.0s **Memory limit:** 256M

Family trees are trees that show relationships between family members. They begin with a root ancestor and show that ancestor's children, then every child's children, and so on. For example, Bob, the root ancestor, can have two daughters Alice and Eve. Alice can then have two children Jenna and Brian, and Eve can have one daughter Sarah. To help find people in the tree, we give each family member a family ID, formatted as a series of integers separated by dots (e.g. `0.1`, `0.2.3`, `0.5.1.7` and so on).

A family ID is either:

- `0`, which represents the root ancestor.
- `X.y`, where `X` is a valid family ID, and where this ID represents the y^{th} child of X .

For the example above, the family IDs are:

```
Bob:      0
  Alice   0.1
    Jenna 0.1.1
    Brian 0.1.2
  Eve     0.2
    Sarah 0.2.1
```

Family IDs can give you an idea of how big a family is. For example, if you know that someone has the ID `0.2.3`, then you know there are family members with IDs `0`, `0.1`, `0.2`, `0.2.1`, and `0.2.2`. Given a list of family IDs, figure out the smallest possible size of the family.

Input Specification

The input will contain 10 test cases. Each test case starts with an integer N ($1 \leq N \leq 10^5$). The next N lines each contain a family ID.

For 50% of cases, $N \leq 100$, and the total input size will not exceed 2000 characters.

Output Specification

For each test case, your program should output the minimum size of the family, modulo 1 000 000 007 or $10^9 + 7$. *

Sample Input

```
1
0.2.3
3
0
0.2.1
0.1.1
```

Sample Output

```
6
5
```

Note: Only 2 cases are shown in this sample.

Footnotes

* This means that if the size of the family is 999 999 999 999 you should output 999 993 006, the remainder after dividing 999 999 999 999 by 1 000 000 007.

Educational Computing Organization of Ontario - statements, test data and other materials can be found at ecocs.org