

## 6590 Digraphs

A *digraph* is a graph with orientation... oh, sorry, not this time. Let's stop being nerds for a minute and talk about languages (human languages, not PHP).

Digraphs are pairs of characters that represent one phoneme (sound). For example, "ch" in English (as in "church") is a single consonant sound. The languages of Central Europe are fond of digraphs: Hungarian "sz", Czech "ch" and Polish "rz" are fine examples of them.

Digraphs are very annoying for people who do not use them natively. We will make up a letter-puzzle specifically for those people. Given a list of digraphs, construct a biggest possible square of lower case English letters such that its rows and columns *do not* contain any of these digraphs. This means that no two consecutive letters (read from top to bottom or from left to right) can form a digraph.

### Input

The first line of input contains the number of test cases  $T$ . The descriptions of the test cases follow:

Each test case starts with an integer  $n$ ,  $0 \leq n \leq 676$ , denoting the number of forbidden digraphs. The  $n$  following lines contain the digraphs.

### Output

For each test case print a square of the largest possible size which does not contain any of the digraphs. If it is possible to construct a square of size  $20 \times 20$  or bigger, print only a  $20 \times 20$  square.

### Sample Input

```
2
20
aa
az
ba
bb
bc
bd
be
bn
bo
bp
bq
br
bs
bt
bu
bv
bw
bx
by
ca
2
```

