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1263. Substrings

Time Limit: 1.0 Seconds Memory Limit: 65536K
Total Runs: 4758 Accepted Runs: 1455

You are given a number of case-sensitive strings of alphabetic characters, find the largest string X, such that either X, or its inverse can be found as a substring of any of the given strings.

Input

The first line of the input file contains a single integer t ($1 \leq t \leq 10$), the number of test cases, followed by the input data for each test case. The first line of each test case contains a single integer n ($1 \leq n \leq 100$), the number of given strings, followed by n lines, each representing one string of minimum length 1 and maximum length 100. There is no extra white space before and after a string.

Output

There should be one line per test case containing the length of the largest string found.

Sample Input

```
2
3
ABCD
BCDFF
BRCD
2
rose
orchid
```

Sample Output

```
2
2
```

Source: Iran 2002 - Tehran Preliminary

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