

DMOPC '17 Contest 4 P5 - Revised IOI

The IOI has decided to change its format! Now, it will be composed of N true or false questions about the socioeconomic factors affecting occupations in computer science. Shortly after the contest, Team Canada's four members are checking their answers with each other. Their answers will be represented as four strings of length N composed of **T**s and **F**s. The score of a member is the number of correct answers minus the number of wrong answers (no blanks are allowed). The score of a team is the sum of the squares of the members' scores.

For example, if $N = 5$ and Team Canada's members answered **TFFTF**, **TTFTT**, **FTTTF**, and **TFFFF**, and the answer key were **TTTTT**, then the members' scores would be $-1, 3, 1, -2$ and the team's score would be $(-1)^2 + (3)^2 + (1)^2 + (-2)^2 = 15$.

The contestants have not yet been marked as you have stolen the answer key! You plan to *adjust* the answer key. What answer key will maximize Team Canada's score?

If there are multiple valid answer keys, any of them will be accepted.

Constraints

$$1 \leq N \leq 10^6$$

Input Specification

The first line of input will contain a single integer N . The next four lines of input will each contain a string of length N composed of **T**s and **F**s representing the answers of each of Team Canada's members.

Output Specification

Output a single string of length N composed of **T**s and **F**s. This string should represent an answer key which maximizes Team Canada's score.

Sample Input 1

```
5
TFFTF
TTFTT
FTTTF
TFFFF
```

Sample Output 1

TFFFF

Sample Input 2

8
TTTTTTTT
TTTTTTTT
TTTTTTTT
FFFFFFFF

Sample Output 2

FFFFFFFF