

Problem Statement for **Alternate Removals**

Problem Statement:

Simonsi and her twin sister Philphi are playing a game. At the beginning of the game, they are given a word. Then, starting with Simonsi, they take alternate turns, and on each turn, the player erases one letter from the word. That letter must be at a position greater than or equal to the position of the letter erased on the previous turn (on the first turn, the player can erase any letter). Letter positions are numbered consecutively from left to right and are renumbered from scratch after each turn. For example, if the word is "zorst" and a player erases the letter 'o', the word would become "zrst", and on the next turn, the other player could only erase the letters 'r', 's' or 't'.

When a player erases the last letter, the game ends. If the word at the end of the game is lexicographically greater than the word at the beginning, Simonsi wins. Otherwise, Philphi wins. You are given a String word, which is the word given at the beginning of the game. Assuming that Philphi and Simonsi both play optimally, return "Philphi" if Philphi will win or "Simonsi" if Simonsi will win (all quotes for clarity).

Notes:

A string X is defined as smaller than a string Y if and only if X is a prefix of Y or X has a smaller character than Y at the first position where they differ.

Input:

The first line inputs N where N is the number of test cases.
Further each of the N lines contain a word.

Output:

N lines, printing Simonsi or Philphi as per the winner.

Constraints:

word will contain between 1 and 50 characters, inclusive.
Each character in word will be a lowercase letter ('a'-'z').
N will range from 1 to 10.
Compilation time: 10 seconds,
Execution time: 5 seconds.
Memory usage: 256 MB.

Examples:

Input:

1
zorst

Output:

Simonsi

Comments:

1. Simonsi starts by erasing the letter 'o', leaving "zrst".
2. It doesn't matter what Philphi erases on her turn. The possible outcomes of this turn are "zst", "zrt", "zrs". In the last outcome, Philphi deletes the last letter and ends the game, but loses.
3. If Philphi doesn't end the game, then Simonsi will end it by erasing the last letter. The possible outcomes are "zs", and "zr", all of which are lexicographically greater than "zorst".

Input:

2

program

abcd

OutPut:

Philphi

Simonsi