

Problem SHREDDER: Shredder's Resurrection

After several fruitless attempts to eliminate the turtles, Shredder continued his research on creating a more effective mutating goo. April O'Neil by chance sifted out the secret that Shredder's plans are of a lot larger extent: Shredder is preparing to mutate his whole foot clan into mutants that only obey his orders. After informing the turtles, master Splinter remembers the existence of an ancient Japanese ninjutsu shrine with magic powers that are capable of stopping Shredder's ambitious plans. Leonardo, Donatello, Raphael, and Michelangelo along with their sensei Splinter and April – and of course packed with dozens of pizzas – travel to Japan to find this ancient artifact. After a multi-mile walk in deserted mountains they finally make it to a temple where they find a door with several circles and some plates with ancient Japanese text on it. From the descriptions on the walls, Donatello figures out that they have to arrange the plates in such an order that the last character of one word matches the first character of the following word – and in the end this chain of words has to form one or more rings of at least **two** words. (For example for the given plates “norinaga”, “aska” and “armaggon” there is a solution with the word-ring (...-armaggon)-norinaga-aska-armaggon(-norinaga-...)) Master Splinter is skeptic about Donatello's theory, so April starts to write a program to check if there even exists a solution that solves the puzzle with the given plates.

You're now in April O'Neil's position and write this checking-tool. Find a solution to the problem to get the shrine and to stop Shredder from defeating the turtles and seizing power to take over the control of New York and the rest of the world!

Input

The input starts with a line that gives the number of testcases. The first line of each testcase is a single integer number N that indicates the number of plates ($1 \leq N \leq 100,000$). Then exactly N lines follow, each containing a single word. Each word contains at least two and at most 1,000 lowercase characters, i.e., only letters a-z appear in the word. The same word may appear several times in the list.

Output

For each testcase, determine if you can order the given words (plates) into a chain so that the last letter of a word is the first letter of the following word. The chain has to end up in a circle. A testcase may contain several distinct word-rings.

If there exists such an ordering of words, your program should print the sentence "Solution exists.". Otherwise, output the sentence "No solution possible."

(Sample Input and Output are provided on the next page)

Sample Input 1

4
3
norinaga
armaggon
aska
5
leonardo
pimiko
bebop
oneil
orokunagi
6
granitor
sterns
dregg
raphael
sisyphus
leatherhead
3
aska
sterns
sisyphus

Sample Output 1

Solution exists.
No solution possible.
Solution exists.
No solution possible.