

Problem A. Mutant Vaccine

Input file: standard input
Output file: standard output
Time limit: 2 seconds
Memory limit: 256 megabytes

Dr. Icy Peacie is working on a vaccine for Covid-19. One difficulty with vaccines is that viruses mutate, so there are many different strains circulating. Dr. Peacie wants the vaccine to target a part of the genetic sequence of the virus that all the strains have in common. Can you find the longest piece of RNA that occurs in all of the strains?

Input

The first line of input contains an integer N , the number of strains of the virus, with $1 \leq N \leq 100$. The next N lines each contain the genetic sequence of a strain of the virus, a string of the letters A, C, G, and T. Each string has length between 1 and 10 000.

Output

Output a single line containing the longest string that occurs as a substring of all of the strains. If there is more than one such longest string, output the one that occurs earliest in the first strain.

Examples

standard input	standard output
3 GACCAT CACAT ACCA	AC
4 ACG ACGT ACGT TTTT	
2 AGGAGAAG GAAGAGGA	AGGA