Problem G. Repetitive Elements

Input file:	`standard input`
Output file:	`standard output`
Time limit:	3 seconds
Memory limit:	1024 megabytes

The genome is a sequence with four nucleic acids, `A`, `T`, `C`, and `G`. Repetitive elements inside the genome are patterns of nucleic acids that occur in multiple copies throughout the genome without overlapping. For example, given a toy genome, $S =$ `TATCGATCGAG`, there are a couple of repeat elements where $R =$ `ATCG` is the longest repetitive element appearing in `TATCGATCGAG` and `TATCGATCGAG` instead of `ATCGA`, whose two appearing positions overlap. Your task is to identify the longest repetitive element R inside the given genome sequence, S.

Input

The first line contains an integer T, which represents the number of test cases. Each test case is a genome sequence, S.

Constraints

- $1 \leq T \leq 50$.
- S is the sequence of the alphabet $\Sigma =$ `{A, T, C, G}`.
- $15 \leq |S| \leq 100$.
- If there are multiple longest repetitive elements, please output the one appearing first (i.e., `CTT` instead of `ATG` in the fifth test case).

Output

Each test case outputs R, a string corresponding to the longest repetitive element for the given genome, S.

Examples

standard input	standard output
5 TATCGATCGAGTTGT TCCGCGAGCGAGTCTCTCCATT GTTTCATCATACGAGGCCCCATACGCGCTGG AGATGGGATCCTTATG GCCCTTAGGCATGGGATGTCGTTTCTTG	ATCG GCGA CATACG GAT CTT