

String Construction

Amanda has a string of lowercase letters that she wants to copy to a new string. She can perform the following operations with the given costs. She can perform them any number of times to construct a new string p :

- Append a character to the end of string p at a cost of **1** dollar.
- Choose any **substring** of p and append it to the end of p at no charge.

Given n strings $s[i]$, find and print the *minimum* cost of copying each $s[i]$ to $p[i]$ on a new line.

For example, given a string $s = \text{abcabc}$, it can be copied for **3** dollars. Start by copying a , b and c individually at a cost of **1** dollar per character. String $p = \text{abc}$ at this time. Copy $p[0 : 2]$ to the end of p at no cost to complete the copy.

Function Description

Complete the `stringConstruction` function in the editor below. It should return the minimum cost of copying a string.

`stringConstruction` has the following parameter(s):

- s : a string

Input Format

The first line contains a single integer n , the number of strings.
Each of the next n lines contains a single string, $s[i]$.

Constraints

- $1 \leq n \leq 5$
- $1 \leq |s[i]| \leq 10^5$

Subtasks

- $1 \leq |s[i]| \leq 10^3$ for 45% of the maximum score.

Output Format

For each string $s[i]$ print the minimum cost of constructing a new string $p[i]$ on a new line.

Sample Input

```
2
abcd
abab
```

Sample Output

Explanation

Query 0: We start with $s = \text{"abcd"}$ and $p = \text{""}.$

1. Append character '**a**' to p at a cost of **1** dollar, $p = \text{"a"}.$
2. Append character '**b**' to p at a cost of **1** dollar, $p = \text{"ab"}.$
3. Append character '**c**' to p at a cost of **1** dollar, $p = \text{"abc"}.$
4. Append character '**d**' to p at a cost of **1** dollar, $p = \text{"abcd"}.$

Because the total cost of all operations is $1 + 1 + 1 + 1 = 4$ dollars, we print **4** on a new line.

Query 1: We start with $s = \text{"abab"}$ and $p = \text{""}.$

1. Append character '**a**' to p at a cost of **1** dollar, $p = \text{"a"}.$
2. Append character '**b**' to p at a cost of **1** dollar, $p = \text{"ab"}.$
3. Append substring "**ab**" to p at no cost, $p = \text{"abab"}.$

Because the total cost of all operations is $1 + 1 = 2$ dollars, we print **2** on a new line.

Note

A substring of a string S is another string S' that occurs "in" S ([Wikipedia](#)). For example, the substrings of the string " abc " are " a ", " b ", " c ", " ab ", " bc ", and " abc ".