
Problem A. Life in Innopolis

Input file: standard input
Output file: standard output
Time limit: 1 second
Memory limit: 512 megabytes

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Is there life in Innopolis?

Life in Innopolis could have been brought by space body. That's a conclusion made by a scientist after examining the consistency of water taken from this area: strange DNA structure interested him. Research would take years...

To speed up the process of research, he turned to you. Let's represent DNA as a string s , consisting of four uppercase letters, one for each nucleotide: "A", "C", "G" and "T". Scientist has only one question: for how many positions i suffix starting at position i is lexicographically less than suffix starting at position $i + 1$.

Suffix is a sequence of consecutive characters, ending with the last character of the string. String itself is also its suffix. For example, ACGC, CGC, GC, and C are all suffixes of string ACGC.

String a is lexicographically less than string b , if there is such k that first k characters of a and b coincide and $a_{k+1} < b_{k+1}$, or if a is shorter than b and $a_i = b_i$ for all $i \leq |a|$. For example, "A" < "G", "AAG" < "AAT", "AGC" < "AGCA".

Input

Input contains a single string s , consisting of uppercase letters of Latin alphabet: "A", "C", "G" and "T". String length doesn't exceed 3 000 000.

Output

Output a single integer — number of positions i such that suffix starting at i is lexicographically less than suffix starting at position $i + 1$.

Scoring

Subtask	Points	Constraints	Scoring	Required subtasks
1	42	$1 \leq s \leq 1000$	subtask	—
2	37	$1 \leq s \leq 200\,000$	subtask	1
3	21	$1 \leq s \leq 3\,000\,000$	subtask	1 and 2

Feedback

On request outcome for each test of every subtask is shown.

Examples

standard input	standard output
ACGACA	3
AATTAA	2

Explanations

There are three such positions in the first example:

1. $i = 1$: "ACGACA" < "CGACA"
2. $i = 2$: "CGACA" < "GACA"
3. $i = 4$: "ACA" < "CA"

And only two positions in the second one:

1. $i = 1$: "AATTAA" < "ATTAA"
2. $i = 2$: "ATTAA" < "TTAA"