

Admissible Map

Time limit: 3 seconds
Memory limit: 512 megabytes

A *map* is a matrix consisting of symbols from the set of ‘U’, ‘L’, ‘D’, and ‘R’.

A *map graph* of a map matrix a is a directed graph with $n \cdot m$ vertices numbered as (i, j) ($1 \leq i \leq n; 1 \leq j \leq m$), where n is the number of rows in the matrix, m is the number of columns in the matrix. The graph has $n \cdot m$ directed edges $(i, j) \rightarrow (i + di_{a_{i,j}}, j + dj_{a_{i,j}})$, where $(di_U, dj_U) = (-1, 0)$; $(di_L, dj_L) = (0, -1)$; $(di_D, dj_D) = (1, 0)$; $(di_R, dj_R) = (0, 1)$. A map graph is *valid* when all edges point to valid vertices in the graph.

An *admissible map* is a map such that its map graph is valid and consists of a set of cycles.

A *description* of a map a is a concatenation of all rows of the map — a string $a_{1,1}a_{1,2} \dots a_{1,m}a_{2,1} \dots a_{n,m}$.

You are given a string s . Your task is to find how many substrings of this string can constitute a description of some admissible map.

A *substring* of a string $s_1s_2 \dots s_l$ of length l is defined by a pair of indices p and q ($1 \leq p \leq q \leq l$) and is equal to $s_p s_{p+1} \dots s_q$. Two substrings of s are considered different when the pair of their indices (p, q) differs, even if they represent the same resulting string.

Input

In the only input line, there is a string s , consisting of at least one and at most 20 000 symbols ‘U’, ‘L’, ‘D’, or ‘R’.

Output

Output one integer — the number of substrings of s that constitute a description of some admissible map.

Examples

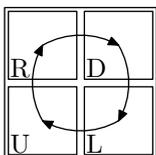
| standard input | standard output |
|----------------|-----------------|
| RDUL | 2 |
| RDRU | 0 |
| RLRLRL | 6 |

Note

In the first example, there are two substrings that can constitute a description of an admissible map — “RDUL” as a matrix of size 2×2 (pic. 1) and “DU” as a matrix of size 2×1 (pic. 2).

In the second example, no substring can constitute a description of an admissible map. E. g. if we try to look at the string “RDRU” as a matrix of size 2×2 , we can find out that the resulting graph is not a set of cycles (pic. 3).

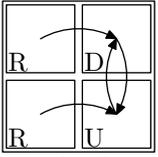
In the third example, three substrings “RL”, two substrings “RLRL” and one substring “RLRLRL” can constitute an admissible map, some of them in multiple ways. E. g. here are two illustrations of substring “RLRLRL” as matrices of size 3×2 (pic. 4) and 1×6 (pic. 5).



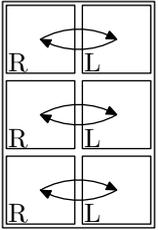
pic. 1



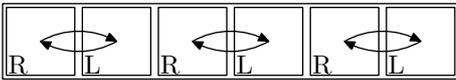
pic. 2



pic. 3



pic. 4



pic. 5