Robot + Bombs

Input file:	`standard input`
Output file:	`standard output`
Time limit:	1 second
Memory limit:	1024 megabytes

oolimry (famous duck and zookeeper) has built a robot to explore an infinite grid, initially starting on coordinates (0, 0).
However, he accidentally fixed the instructions of the robot to be a string S of length N.
S contains only the characters 'U', 'L' and 'R', representing upwards, leftwards and rightwards movements by **exactly** one grid space.
Notably, S **does not** contain a character for downward movement.

Now, the only way for oolimry to modify S is through using errorbombs!
oolimry may use as many errorbombs as he wishes, and one errorbomb will destroy exactly one character in the string S.
To maximise exploration, oolimry wants the robot to visit as many unique grid squares on the grid as possible.
Output the maximum number of unique grid squares visited!

Input

The first line of input contains one integer, N.
The second line of input contains one string of N characters, S.

Output

The first line of output should contain one integer, the maximum number of unique squares visited if oolimry uses errorbombs optimally.

Scoring

For all testcases, it is guaranteed that:

- $1 \leq N \leq 2 \times 10^5$
- S only contains the characters 'U', 'L', and 'R'.

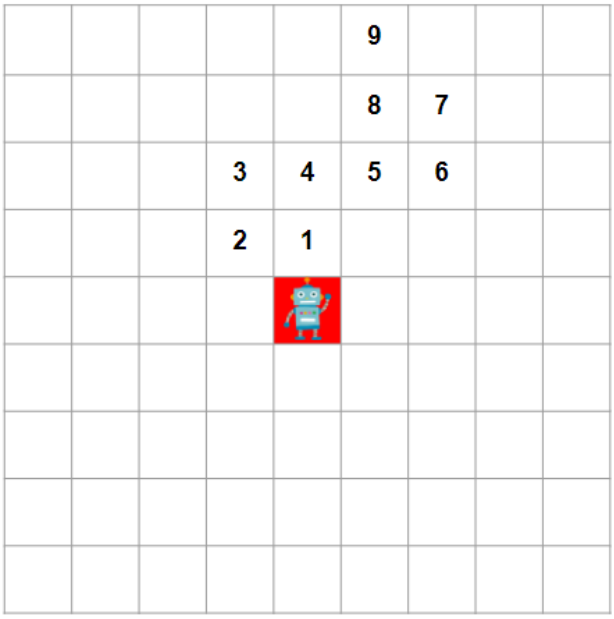
Subtask	Score	Additional constraints
1	2	$N = 1$
2	13	S does not contain 'L'
3	23	S does not contain 'U'
4	20	$N \leq 16$
5	42	No additional constraints
6	0	Sample test cases

Examples

standard input	standard output
4 RURU	5
6 LRRLRL	4
11 URLURRRULRU	10

Note

For Sample Testcase 3, you may refer to the diagram below:



Optimal instructions are URLURRRULRU
Robot illustration from Irasutoya :D

The original instructions are URLURRRULRU.
Using errorbombs on the second character and second-last character gives us the instructions of ULURRRULU, which results in the path taken by the robot in the picture.
This results in **10** unique grid squares being reached, including the initial start square.
Note that the grid is infinite, so only a small section of the grid is displayed in the picture.
Furthermore, multiple different ways of using errorbombs may result in the optimal answer.