Monochrome Points

There are $2N$ points on a circle numbered from 1 through $2N$, in clockwise order. Each point is either white or black. There are N white points and N black points.

We will draw N line segments connecting these points so that the following conditions are satisfied.

- Each point is an end point of exactly one line segment.
- Each line segment connects a white point and a black point.

Among the N line segments, the number of pairs of line segments intersecting each other is called the **intersection number**. Write a program which, given the information of the colors of the points, calculates the maximum of the intersection number when we draw N line segments.

Inputs

Read the following data from the standard input.

N
S

Here S is a string of length $2N$ representing the colors of the points. Each character of S is either B or W, and the i-th character ($1 \le i \le 2N$) is the color of the i-th point. It is B if the point is black, and W if the point is white.

Outputs

Write one line to the standard output. The output should contain the maximum of the intersection number when we draw N line segments satisfying the conditions.

Constraints

- $1 \le N \le 200\,000$.
- S is a string of length $2N$ which consists of B and W. The character B appears N times in the string S, and the character W appears N times in the string S.

Subtasks

1. (4 points) $N \leq 8$.
2. (21 points) $N \leq 300$.
3. (10 points) $N \leq 2\,000$.
4. (65 points) No additional constraints.

Sample Input and Output

Sample Input 1	Sample Output 1
3 BBWWBW	2

If we draw line segments as in the figure on the left, then the intersection number is 2. On the other hand, if we draw line segments as in the figure on the right, then the intersection number is 3, but the conditions in the task statement are not satisfied.

Sample Input 2	Sample Output 2
5 BWBWBBWBWW	8

Sample Input 3	Sample Output 3
10 WBBBWBBWWBWWBWWBWBWB	41

Sample Input 4	Sample Output 4
16 WWWBWBBBBWWBWWBWWBBWWBBBWBBBWWBW	105