Go Stone Puzzle
Problem ID: gostonepuzzle

There are $N + 2$ cells arranged in a row. Let cell i denote the i-th cell from the left.

There is one stone placed in each of the cells from cell 1 to cell N. For each $1 \leq i \leq N$, the stone in cell i is white if S_i is `W`, and black if S_i is `B`. Cells $N + 1$ and $N + 2$ are empty.

You can perform the following operation any number of times (possibly zero):

- Choose a pair of adjacent cells that both contain stones, and move these two stones to the empty two cells while preserving their order. More precisely, choose an integer x such that $1 \leq x \leq N + 1$ and both cells x and $x + 1$ contain stones. Let k and $k + 1$ be the empty two cells. Move the stones from cells x and $x + 1$ to cells k and $k + 1$, respectively.

Determine if it is possible to achieve the target state, T, and if so, find the minimum number of operations required. Each of the cells from cell 1 to cell N contains one stone, and for each $1 \leq i \leq N$, the stone in cell i is white if T_i is `W`, and black if T_i is `B`.

Input

The first line of input contains N ($2 \leq N \leq 14$). The second line of input contains the string S of length N consisting of characters `W` and `B`, representing the initial state of the stones. The third line of input contains the string T of length N consisting of characters `W` and `B`, representing the target state of the stones.

Output

If it is possible to achieve the desired state, print the minimum number of operations required. If it is impossible, print -1.

Sample Input 1

```
6
BWBWBW
WWWBBB
```

Sample Output 1

```
4
```

Sample Input 2

```
6
BBBBBB
WWWWWW
```

Sample Output 2

```
-1
```

Sample Input 3

```
14
BBBWBWWWBBWWBW
WBWWBBWWWBWBBB
```

Sample Output 3

```
7
```