

D. Diverse Garland

time limit per test: 1 second, memory limit per test: 256 megabytes
input: standard input, output: standard output

<https://codeforces.com/problemset/problem/1108/D>

You have a garland consisting of n lamps. Each lamp is colored red, green or blue. The color of the i -th lamp is s_i ('R', 'G' and 'B' — colors of lamps in the garland).

You have to recolor some lamps in this garland (recoloring a lamp means changing its initial color to another) in such a way that the obtained garland is **diverse**.

A garland is called **diverse** if any two adjacent (consecutive) lamps (i. e. such lamps that the distance between their positions is 1) have distinct colors.

In other words, if the obtained garland is t then for each i from 1 to $n-1$ the condition $t_i \neq t_{i+1}$ should be satisfied.

Among all ways to recolor the initial garland to make it **diverse** you have to choose one with the **minimum** number of recolored lamps. If there are multiple optimal solutions, print **any** of them.

Input

The first line of the input contains one integer n ($1 \leq n \leq 2 \cdot 10^5$) — the number of lamps.

The second line of the input contains the string S consisting of n characters 'R', 'G' and 'B' — colors of lamps in the garland.

Output

In the first line of the output print one integer r — the **minimum** number of recolors needed to obtain a **diverse** garland from the given one.

In the second line of the output print one string t of length n — a **diverse** garland obtained from the initial one with **minimum** number of recolors. If there are multiple optimal solutions, print **any** of them.

Examples

input

```
9  
RBGRRBRGG
```

output

```
2  
RBGRGBRGR
```

input

```
8  
BBBGBRRR
```

output

```
2  
BRBGBRGR
```

input

13

BBRRRRGGGGRR

Copy

6

BGRBRBGBBGRG