Problem F
00 → 1

Time Limit: 2 seconds

For any binary string T, define $f(T)$ as follows.
You may apply the following three operations on T any number of times (possibly zero), in any order:

Operation 1: Swap two adjacent characters.

Operation 2: Choose a contiguous substring "00" and replace it with "1".

Operation 3: Choose a contiguous substring "11" and replace it with "0".

Let $f(T)$ be the minimum number of operations required to make the string T equal to either "0", "1", or "01". If it is impossible to transform T into any of these strings, we define $f(T) = 0$.

You are given a binary string $S_1S_2 \dots S_N$.

Compute $\left(\sum_{1 \le l \le r \le N} f(S_l S_{l+1} \dots S_r) \right) \bmod 998244353$.

Input

The input consists of a single test case of the following format.

N
$S_1S_2 \dots S_N$

The first line contains an integer N ($1 \le N \le 10^6$), the length of the string.
The second line contains a binary string $S_1S_2 \dots S_N$. Each character S_i ($1 \le i \le N$) is either '0' or '1'.

Output

Print the answer.

Sample Input 1	Sample Output 1
4 0100	10

Sample Input 2	Sample Output 2
10 1110001100	152