

Problem Palindrome

Input file `palindrome.in`
Output file `palindrome.out`

Little Square found an array a consisting of N positive numbers formed of nonzero digits. He can replace any number from a with another number consisting of as many digits, all nonzero.

After making all the changes he wants, *Little Square* will form a new number M by writing the elements of the array a in order, without spaces. What is the minimum numbers of elements of the array a which need to be replaced by *Little Square* for the number M obtained to be a palindrome

Input data

The first line of the input file `palindrome.in` will contain an integer N , the size of the array a . The second line will contain N integers consisting only of nonzero digits representing the array a .

Attention! The numbers read from the input file may be too big for the `int` data type. It is recommended to use the `long long` data type.

Output data

The output file `palindrome.out` will contain only one integer, representing the minimum number of elements of the array a that need to be replaced.

Constraints

- $1 \leq N \leq 500\,000$
- $1 \leq a_i < 10^{18}$, for every $1 \leq i \leq N$
- A number is a palindrome if its first digit is equal to its last one, its second digit is equal is equal to the next to last digit and so on. Thus, numbers 4, 121, 14541 are palindromes, while numbers 21, 433, 1234312 are not palindromes.

Subtask 1 (10 points)

- $1 \leq a_i \leq 9$, for every $1 \leq i \leq N$

Subtask 2 (10 points)

- $1 \leq N \leq 16$

Subtask 3 (15 points)

- $1 \leq N \leq 32$

Subtask 4 (20 points)

- $1 \leq N \leq 1000$

Subtask 5 (10 points)

- M can become a palindrome by replacing at most 2 numbers.

Subtask 6 (35 points)

- No additional constraints.

Examples

palindrome.in	palindrome.out
6 13577 98 348 997 8 31	2
3 455 21 1347742112664	1

Explanation

In the first example, *Little Square* can replace the first number with 13879 and the third number with 448. The number M will become 1387998448997831 which is a palindrome. There is no solution with less than two replacements.

In the second example, *Little Square* can replace the third number with 1347743112554.