

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS STANDINGS CUSTOM INVOCATION

G. They Are Everywhere

time limit per test: 2 seconds ⓘ
memory limit per test: 256 megabytes

Sergei B., the young coach of Pokemons, has found the big house which consists of n flats ordered in a row from left to right. It is possible to enter each flat from the street. It is possible to go out from each flat. Also, each flat is connected with the flat to the left and the flat to the right. Flat number 1 is only connected with the flat number 2 and the flat number n is only connected with the flat number $n - 1$.

There is exactly one Pokemon of some type in each of these flats. Sergei B. asked residents of the house to let him enter their flats in order to catch Pokemons. After consulting the residents of the house decided to let Sergei B. enter one flat from the street, visit several flats and then go out from some flat. But they won't let him visit the same flat more than once.

Sergei B. was very pleased, and now he wants to visit as few flats as possible in order to collect Pokemons of all types that appear in this house. Your task is to help him and determine this minimum number of flats he has to visit.

Input

The first line contains the integer n ($1 \leq n \leq 100\,000$) — the number of flats in the house.

The second line contains the row s with the length n , it consists of uppercase and lowercase letters of English alphabet, the i -th letter equals the type of Pokemon, which is in the flat number i .

Output

Print the minimum number of flats which Sergei B. should visit in order to catch Pokemons of all types which there are in the house.

Examples

input	Copy
3 AaA	
output	Copy
2	

input	Copy
7 bcAAcbc	
output	Copy
3	

input	Copy
6 aaBCCe	
output	Copy
5	

Note

In the first test Sergei B. can begin, for example, from the flat number 1 and end in the flat number 2.


In the second test Sergei B. can begin, for example, from the flat number 4 and end in the flat number 6.

In the third test Sergei B. must begin from the flat number 2 and end in the flat number 6.

ICPC Assiut University Training - Juniors Phase 1 Sheets-2022

Public

Participant



→ **Group Contests** ▾

- Juniors Phase 1 Practice #5 (Bitmask, Bitset, Bits)


- Juniors Phase 1 Practice #4 (Binary search , Two pointers)

- Juniors Phase 1 Practice #3 (STL 2)
- Juniors Phase 1 Practice #2 (STL 1)
- Juniors Phase 1 Practice #1 (Prefix sum , Frequency Array)

Juniors Phase 1 Practice #4 (Binary search , Two pointers)

Finished

Practice



→ **About Time Scaling** ▾

This contest uses time limits scaling policy (depending on a programming language). The system automatically adjusts time limits by the following multipliers for some languages. Despite scaling (adjustment), the time limit cannot be more than 30 seconds. Read the details by the [link](#).

→ **Virtual participation** ▾

Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you - solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you - solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest.

Start virtual contest

→ **Submit?**

Language: GNU G++20 13.2 (64 bit, win ▾)

Choose file:

Choose File

 No file chosen

Submit

→ **Last submissions**

Submission	Time	Verdict
312326590	Mar/25/2025 16:34	Accepted
312326398	Mar/25/2025 16:33	Wrong answer on test 7