



## Superior Substring

Max. Marks: 100

You are given a string  $S$  of length  $N$ . If a string contains at least one character whose frequency is greater than or equal to the half of the length of the string, then the string is called superior.

You are required to find the length of the longest superior substring available in the given string  $S$ .

**Note:** Here half is considered under integer division i.e.  $9/2 = 4$ ,  $3/2 = 1$  etc.

### Input format

- First line: Integer  $T$  that represents the total number of test cases
- For each test case:
  - First line: Integer  $N$  that represents the length of the string  $S$
  - Next line: String  $S$  of the length  $N$

### Output format

For each test case, print the length of the longest superior substring in a new line.

### Constraints

$$1 \leq T \leq 10$$

$$1 \leq N \leq 10^5$$

The string  $S$  contains only lowercase English alphabets.

#### SAMPLE INPUT

```
2
5
abcde
14
ababbbacbcacca
```

#### SAMPLE OUTPUT

```
3
13
```

### Explanation

Sample test case 2: We can select the substring starting from index 1 to 13, here the frequency of  $b$  is 6 which is greater than or equal to  $13/2 = 6$ .

Note that, there can be multiple possible substrings.

**Time Limit:** 2.0 sec(s) for each input file.

**Memory Limit:** 256 MB

**Source Limit:** 1024 KB

**Marking Scheme:** Marks are awarded if any testcase passes.

**Allowed Languages:** Bash, C, C++, C++14, Clojure, C#, D, Erlang, F#, Go, Groovy, Haskell, Java, Java 8, JavaScript(Rhino), JavaScript(Node.js), Julia, Kotlin, Lisp, Lisp (SBCL), Lua, Objective-C, OCaml, Octave, Pascal, Perl, PHP, Python, Python 3, Racket, Ruby, Rust, Scala, Swift, Swift-4.1, Visual Basic

### RECENT SUBMISSIONS



DEVELOPERS	RESULT	LANGUAGE
RAJA ADABALA		C
Kaza Rohith Kuma...		C
Sobila Sai Kris...		C
Vinod Babu		C
Sai Tejaswi Pall...		C
Gowrav Krishna B...		C
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### CODE EDITOR

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Bash (GNU bash, version 4.3)



```
1 # Sample bash code
2
```

1:1

📍 Press Ctrl/Command+Spacebar for autocomplete suggestions (accuracy dependent on connection stability).

📄 Provide custom input

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💡 Tip: You can submit any number of times you want. Your best submission is considered for computing total score.

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