# Problem

Chef has the binary representation $S$ of a number $X$ with him. He can modify the number by applying the following operation **exactly once**:

- Make $X := X \oplus \lfloor \frac{X}{2^Y} \rfloor$, where $(1 \leq Y \leq |S|)$ and $\oplus$ denotes the bitwise XOR operation.

Chef wants to **minimize** the value of $X$ after performing the operation. Help Chef in determining the value of $Y$ which will minimize the value of $X$ after the operation.

## Input Format

- The first line of input will contain a single integer $T$, denoting the number of test cases.
- Each test case consists of two lines of inputs:
  - The first line contains the length of the binary string $S$.
  - The second line contains the binary string $S$.

## Output Format

For each test case, output on a new line, the value of $Y$ which will minimize the value of $X$ after the operation.

## Constraints

- $1 \leq T \leq 5 \cdot 10^4$
- $1 \leq |S| \leq 10^5$
- The sum of $|S|$ over all test cases won't exceed $5 \cdot 10^5$.
- $S$ contains the characters $0$ and $1$ only.

## Sample 1:

| Input | Output |
|---|---|
| 4<br>2<br>10<br>2<br>11<br>3<br>101<br>3<br>110 | 2<br>1<br>2<br>1 |

## Explanation:

**Test case 1:** Since $S = 10$ is the binary representation of $2$, the current value of $X = 2$. On choosing $Y = 2$, $X$ becomes $2 \oplus \lfloor \frac{2}{2^2} \rfloor = 2$. We can show that this is the minimum value of $X$ we can achieve after one operation.

**Test case 2:** Since $S = 11$ is the binary representation of $3$, the current value of $X = 3$. On choosing $Y = 1$, $X$ becomes $3 \oplus \lfloor \frac{3}{2^1} \rfloor = 2$. We can show that this is the minimum value of $X$ we can achieve after one operation.

**Test case 3:** Since $S = 101$ is the binary representation of $5$, the current value of $X = 5$. On choosing $Y = 2$, $X$ becomes $5 \oplus \lfloor \frac{5}{2^2} \rfloor = 4$. We can show that this is the minimum value of $X$ we can achieve after one operation.

**Test case 4:** Since $S = 110$ is the binary representation of $6$, the current value of $X = 6$. On choosing $Y = 1$, $X$ becomes $6 \oplus \lfloor \frac{6}{2^1} \rfloor = 5$. We can show that this is the minimum value of $X$ we can achieve after one operation.