

Base Is Damn Easy

You are given a number say N , you have to say minimum base B , on which this is a valid number. For example 10 is valid number in decimal (base 10) representation as well as in binary (base 2). For number 10, your answer should be 2, as this is minimum base.

Note:

Definition of Base: Base is the number of unique [digits](#), including zero, used to represent numbers in a [positional numeral system](#). For example, for the [decimal](#) system (the most common system in use today) the base is ten, because it uses the ten digits from 0 through 9.

Input

Input description...

First line begins with TC giving number of test cases. For each test case, first line begins with L, giving the length of number, then L lines follows - N_i , denoting the each digit of number in array format.

Note: there will be no leading zeros i.e. $N(0)$ will not be 0.

Constraints:

$$1 \leq TC \leq 5$$

$$2 \leq L \leq 9$$

$$0 \leq N_i \leq 9$$

Output

For each case of input, print one line of output denoting the minimum base(B) representation for that number.

Example

Input:

1

2

1

0

Output:

