

3413 Reduced ID Numbers

T. Chur teaches various groups of students at university U. Every U-student has a unique Student Identification Number (SIN). A SIN s is an integer in the range $0 \leq s \leq MaxSIN$ with $MaxSIN = 10^6 - 1$. T. Chur finds this range of SINs too large for identification within her groups. For each group, she wants to find the smallest positive integer m , such that within the group all SINs reduced modulo m are unique.

Input

On the first line of the input is a single positive integer N , telling the number of test cases (groups) to follow. Each case starts with one line containing the integer G ($1 \leq G \leq 300$): the number of students in the group. The following G lines each contain one SIN. The SINs within a group are distinct, though not necessarily sorted.

Output

For each test case, output one line containing the smallest modulus m , such that all SINs reduced modulo m are distinct.

Sample Input

```
2
1
124866
3
124866
111111
987651
```

Sample Output

```
1
8
```