Keypad

The HSPC problem solutions are stored in the Association for Computing Machinery's club room, also known as the Fishbowl. Gary, one of the problem setters, has locked himself out of the Fishbowl and needs your help in retrieving the solutions. The Fishbowl's door has a keypad that takes a 4-digit PIN to unlock. Its keypad is designed in such a way that there is no enter key, so the door unlocks after some random, unpredictable time once the correct four-digit PIN has been entered. The door does not care how many wrong digits come before and after the PIN, just that it is entered at some point in time.

You want to tell Gary the correct code, and luckily you have data from those who were able to access the Fishbowl in the previous days. You have access to the sequences of numbers that other people have put in to unlock the door successfully, but in order to make sure they were not being watched, they might have entered digits after the correct PIN, but Gary doesn't want to spend time entering long sequences. Your job is to give Gary the possible 4-digit PINs that could unlock the door and he will try all of them and find the correct PIN by elimination.

Example

If these two sequences are known to both open the door....
3934020956333
10956
... then you can correctly deduce that 0956 is the only possible 4-digit code.

Input

The first line will contain an integer **T (1 <= T <= 100)**, the number of test cases.
Each test case consists of:
An integer **N (1 <= N <= 100)**, the number of previously entered sequences that unlocked the door.
The next **N** lines will contain a sequence, one per line. A sequence will have length constrained as **4 <= length <= 100**, and will contain only numbers 0 - 9.
It is guaranteed that each test case will have at least one valid solution.

Output

With a new line between the test cases (do not put an extra new line after the last test case), output each possible valid PIN in sorted order, one per line.

Sample Input	**Sample Output**
2 2 3934020956333 10956 3 1111222233334444 222348571111 28934222321111	0956 1111 2223