ETH Zurich
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HS 2015
Exercise Sheet 1

ACM Programming Challenges Lab

Exercise 1 – *Coolest Number*

Paul wants to find the coolest number. For a given positive number n he defines its coolness as:

$$c(n) := |\{\pi \in S_{10} | \langle \pi(0), \pi(1), \pi(2), \pi(3), \pi(4) \rangle / \langle \pi(5), \pi(6), \pi(7), \pi(8), \pi(9) \rangle = n\}|,$$

where S_{10} is the set of all permutations of $\{0, 1, 2, 3, 4, 5, 6, 7, 8, 9\}$ and $\langle x_0, \ldots, x_k \rangle$ is the base-10 number with digits $x_0, \ldots, x_k$ (possibly having a leading zero).

For a given set of numbers, the coolest number is the minimum one among the numbers with the maximal coolness.

Input The first line of the input contains the number of test cases $t \leq 400$. Every test case consists of two lines: a line containing the size of the set $1 \leq k \leq 10$, and a line containing the k numbers $n_1, \ldots, n_k$ with $1 \leq n_i \leq 80$.

Output For every test case you should output a line containing the coolest number among $n_1, \ldots, n_k$ and its coolness.

Sample Input

```
2
1
55
3
12 14 17
```

Sample Output

```
55 0
17 27
```