ANZAC 2014 - Round 1

Problem F: Digit Sum

When Grace was in third grade, her elementary school teacher assigned her the following problem:

> *What is the smallest possible sum of two numbers that together use the numerals 1, 2, 7, 8, and 9?*

Grace figured out that the answer to this problem is 207 (for example, as 78 + 129), but when the teacher assigned four pages of similar problems as homework, Grace got bored. It turns out that Grace was a rather advanced third grader, so she decided that it would be more fun to write a computer program to solve such problems. Surely you can do the same!

Input

Each problem is described on a single line. The line begins with an integer N, such that $2 \leq N \leq 14$, designating the number of numerals included in the problem. Following that are those N numerals. There will always be at least 2 numerals that are nonzero. The end of the input is designated by a line containing only the value 0.

Output

For each case, output a line with the minimum sum S that can be achieved. Please keep in mind that by standard convention, the numeral 0 cannot appear as the first digit of either summand.

Sample Input	Sample Output
5 1 2 7 8 9 6 3 4 2 2 2 2 9 0 1 2 3 4 0 1 2 3 0	207 447 11257