

## 11076 Add Again

Summation of sequence of integers is always a common problem in Computer Science. Rather than computing blindly, some intelligent techniques make the task simpler. Here you have to find the summation of a sequence of integers. The sequence is an interesting one and it is the all possible permutations of a given set of digits. For example, if the digits are  $\langle 1\ 2\ 3 \rangle$ , then six possible permutations are  $\langle 123 \rangle$ ,  $\langle 132 \rangle$ ,  $\langle 213 \rangle$ ,  $\langle 231 \rangle$ ,  $\langle 312 \rangle$ ,  $\langle 321 \rangle$  and the sum of them is 1332.

### Input

Each input set will start with a positive integer  $N$  ( $1 \leq N \leq 12$ ). The next line will contain  $N$  decimal digits. Input will be terminated by  $N = 0$ . There will be at most 20000 test set.

### Output

For each test set, there should be a one line output containing the summation. The value will fit in 64-bit unsigned integer.

### Sample Input

```
3
1 2 3
3
1 1 2
0
```

### Sample Output

```
1332
444
```