

3767 Disputes

Disputes between two warring parties over possession of properties are often settled amicably with the intervention of a third party. You are required to write a program on behalf of a consultancy firm that settles disputes amicably over possession of properties between two warring parties.

The dispute between two warring parties A and B, is over a set of n profit making industrial units (PMIU) that currently make profits P_1, P_2, \dots, P_n . Assume that n is an even number less than 20. Each profit is a distinct integer representing rounded profit in crores of rupees. A profit identifies a PMIU and determines its valuation. For a subset of PMIU, the product of all profits from PMIU in the subset determines the total valuation of the subset. The two warring parties have agreed to accept a solution that divides the set of n PMIU into two disjoint subsets satisfying the following conditions:

1. The total number of PMIU in each subset is $n/2$.
2. The total valuation of each subset is the same.
3. The subset with higher total sum of profits is allocated to A.

Write a program that determines the subset of PMIU to be allocated to A, assuming that there exists a unique solution to the problem.

As a simple example consider 6 PMIU with profits 2, 4, 5, 12, 15 and 18. The subset of PMIU allocated to A is {2, 12, 15}.

Input

The input may contain multiple test cases.

For each test case there is a single input line. The line gives a set of distinct integers representing profits of PMIU.

The input terminates with a line containing '0' as input.

Output

For each test case there is only one output line. The line prints the subset of PMIU allocated to A in ascending order of profits.

Sample Input

```
8 12 10 15
2 4 5 12 15 18
0
```

Sample Output

```
8 15
2 12 15
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