

Subset 1

Given a set A with N elements.

The first non-empty subset of A corresponds to the bit representation of 1 .

The 2nd non-empty subset of A corresponds to the bit representation of 2

...

The Mth non-empty subset of A corresponds to the bit representation of M

For example:

{1} {2} {3}

1 => 0 0 1 => {} {} {3}

2 => 0 1 0 => {} {2} {}

...

(See output for more details)

Input

The first line is N ($1 \leq N \leq 20$)

The next line contains N distinct double a elements of the set. ($1 \leq a \leq 100$)

Output

The first line is M, the number of non-empty subsets

The next m lines are the subsets.

Example

Input:

```
3
1 2 3
```

Output:

```
7
3
2
2 3
1
1 3
1 2
1 2 3
```

