Problem A: Big Fish

Filename: `a`

Time Limit: `6 seconds`

There are many fish in the sea. Unfortunately, the smallest fish is always in danger of being eaten by a bigger fish. Luckily, for the smallest fish, in order for another fish to eat it, the larger fish must weigh **strictly more than twice** its weight. So, for example, if the smallest fish is 457 grams, then the smallest fish that can eat it is 915 grams. (For the purposes of this problem we assume that all fish weigh an integer number of grams.)

The rule of the sea is that the smallest fish is always the one to get eaten. It will always get eaten by the smallest fish that is able to eat it. When a fish eats another fish, its new weight is the sum of the two fish's weights. This process continues iteratively, until there is no fish that can eat the smallest fish.

Let's consider a small example. If the sea begins with fish with weights 200, 100, 50, and 250, then the first fish that gets eaten is the one that is 50 grams, which gets eaten by the fish weighing 200 grams. This results in fish of weights 250, 100 and 250 respectively. Finally, one of the fish with weight 250 (it doesn't matter which) will eat the fish with weight 100 and the final weight of the fish that remain will be 250 and 350.

Problem

Given the initial weights of fish in the sea, determine the weights of each fish that survives the process described above.

Input

The first line of input contains a single positive integer, **c**, representing the number of input cases to consider.

The first line of each input case contains one positive integer, **n**, representing the number of fish originally in the sea for that case.

The next ***n*** lines will contain one integer each, ***f***, representing the weight of a fish for that input case.

Output

For each input case, first output a single integer, ***k***, representing the number of fish that survive the eating process. Follow this with ***k*** lines, with the weight of the surviving fish, in sorted order.

Input Bounds

- $1 \le \mathbf{c} \le 5$
- $1 \le \mathbf{n} \le 200{,}000$
- $1 \le \mathbf{f} \le 10^9$

Samples

Input	Output
2 4 200 100 50 250 6 20 30 1 2 15 18	2 250 350 4 18 18 20 30