Problem A. Bootfall

Input file:	`bootfall.in`
Output file:	`bootfall.out`
Time limit:	1 second
Memory limit:	256 megabytes

Tima and his N friends love to play *Bootfall*. *Bootfall* — is a sport game for $N+1$ players. Each player has a strength, which can be represented as a positive integer number. Game consists of $N+1$ rounds, in each round one of the players will record the round on video and rest of N players divides into two teams, such that each player will be assigned to one of the teams and both teams are non-empty. Strength of the team is sum of the strengths of all players in team. Also, each player will be recorder in **exactly one** round.

Round called *draw* if exists division into two teams with **equal** strength, also whole game called *friendly* if **all rounds** are *draw*. Each of N friends are already informed Tima about their strength, and now Tima can assign himself any valid value of strength.

Tima know the strengths of all N players and he will choose some value, such that game can be *friendly*. Help him to find all possible strength.

Input

First line of input contains one positive integer number N ($1 \le N \le 500$) — the number of friends of Tima. Second line of input contains N positive integer numbers $a_1, a_2, \ldots, a_N$ ($1 \le a_i \le 500$; $1 \le i \le N$) separated with space, a_i — strength of i-th person.

Output

First line of output must contain one integer number K — number of possible strength for Tima. If there is no possible strength for Tima, then print only "0" (without quotes), otherwise on second line of output print K positive integer numbers separated by space — all possible strength values for Tima in **increasing** order.

Scoring

This problem consists of six subtasks:

1. $1 \le N \le 12$, $1 \le a_i \le 200$, for all $1 \le i \le N$. Score 6 points.
2. $1 \le N \le 30$, $1 \le a_i \le 20$, for all $1 \le i \le N$. Score 7 points.
3. $1 \le N \le 100$, $1 \le a_i \le 100$, for all $1 \le i \le N$. Score 15 points.
4. $1 \le N \le 270$, $1 \le a_i \le 270$, for all $1 \le i \le N$. Score 16 points.
5. $1 \le N \le 350$, $1 \le a_i \le 350$, for all $1 \le i \le N$. Score 21 points.
6. $1 \le N \le 500$, $1 \le a_i \le 500$, for all $1 \le i \le N$. Score 35 points.

Each subtask will be scored if only if the solution successfully passes all of the previous subtasks.

Examples

bootfall.in	bootfall.out
4 1 3 1 5	1 3
6 3 5 7 11 9 13	4 1 3 17 19
3 2 2 2	0
4 200 200 200 200	2 200 600

Note

Notes to first sample test.
Let us show, that if Tima selects strength 3 then the game can be *friendly*.
— When Tima will record game, to make round *draw* other gamers may be divided as follows : $(1, 3, 1)$ in the first team, and (5) in second.
— When friend 1 will record game, others may be divided as follows: $(1, 5)$ in the first team, $(3, 3)$ in the second.
— When friend 2 will record game, others may be divided as follows: $(1, 1, 3)$ in the first team, (5) in the second.
— When friend 3 will record game, others may be divided as follows: $(3, 3)$ in the first team, $(1, 5)$ in the second.
— When friend 4 will record game, others may be divided as follows: $(1, 3)$ in the first team, $(1, 3)$ in the second.
If Tima selects strength not equal to 3, then the game cannot be *friendly*.