ZSoft Corp. is a software company in GaoKe Hall. And the workers in the hall are very hard-working. But the elevator in that hall always drives them crazy. Why? Because there is only one elevator in GaoKe Hall, while there are hundreds of companies in it. Every morning, people must waste a lot of time waiting for the elevator.

Hal, a smart guy in ZSoft, wants to change this situation. He wants to find a way to make the elevator work more effectively. But it's not an easy job.

There are 31 floors in GaoKe Hall. It takes 4 seconds for the elevator to raise one floor. It means: It costs $(31 - 1) \times 4 = 120$ seconds if the elevator goes from the 1-st floor to the 31-st floor without stop. And the elevator stops 10 second once. So, if the elevator stops at each floor, it will cost $30 \times 4 + 29 \times 10 = 410$ seconds (It is not necessary to calculate the stopping time at 31-st floor). In another way, it takes 20 seconds for the workers to go up or down one floor. It takes $30 \times 20 = 600$ seconds for them to walk from the 1-st floor to the 31-st floor. Obviously, it is not a good idea. So some people choose to use the elevator to get a floor which is the nearest to their office.

After thinking over for a long time, Hal finally found a way to improve this situation. He told the elevator man his idea: First, the elevator man asks the people which floors they want to go. He will then design a stopping plan which minimize the time the last person need to arrive the floor where his office locates. For example, if the elevator is required to stop at the 4-th, 5-th and 10-th floor, the stopping plan would be: the elevator stops at 4-th and 10-th floor. Because the elevator will arrive 4-th floor at $3 \times 4 = 12$ second, then it will stop 10 seconds, then it will arrive 10-th floor at $3 \times 4 + 10 + 6 \times 4 = 46$ second. People who want to go 4-th floor will reach their office at 12 second, people who want to go to 5-th floor will reach at $12 + 20 = 32$ second and people who want to go to 10-th floor will reach at 46 second. Therefore it takes 46 seconds for the last person to reach his office. It is a good deal for all people.

Now, you are supposed to write a program to help the elevator man to design the stopping plan, which minimize the time the last person needs to arrive at his floor.

Input

The input consists of several testcases. Each testcase is in a single line as the following:

$$n\ f_1\ f_2\ \ldots\ f_n$$

It means, there are totally n floors at which the elevator need to stop, and $n = 0$ means no testcases any more. $f_1\ f_2\ \ldots\ f_n$ are the floors at which the elevator is to be stopped ($n \leq 30$, $2 \leq f_1 < f_2 < \ldots < f_n \leq 31$). Every number is separated by a single space.

Output

For each testcase, output the time the last reading person needs in the first line and the stopping floors in the second line. Please note that there is a summary of the floors at the head of the second line. There may be several solutions, any appropriate one is accepted. No extra spaces are allowed.

Sample Input

```
3 4 5 10
1 2
0
```

Sample Output

```
46
2 4 10
4
1 2
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