Coin Change (coinchange)

When in-presence university was still a thing, Marco loved going to the canteen for lunch. Since the price of the meal was constantly changing, he ended up with tons of coins in his wallet! Thus, he decided to go to a *coin changer*, a professional that can optimize the space used by your money.

Figure 1: Marco trusting the coin changer.

When you visit a coin changer, he first takes all of your money, and then he gives you back the same amount of money, but composing it with the least total amount of pieces. Coin changers handle all existing sizes of euros: 1, 2, 5, 10, 20 and 50 *cents* (hundreds of an euro) and 1, 2, 5, 10, 20, 50, 100, 200 and 500 euros. Marco is skeptical about the honesty of those exchanges, hence he wants to be prepared before visiting. Help him compute the number and type of pieces that an honest coin changer should give him back!

☞ Among the attachments of this task you may find a template file `coinchange.*` with a sample incomplete implementation.

Input

The first line contains 15 integers V_i, the number of pieces from 1 cent to 500 euros.

Output

You need to write a single line with 15 integers: the number of pieces S_i returned by the coin changer, by type from 1 cent to 500 euro. The output should be such that $\sum_{i=0}^{14} S_i$ is minimized.

Constraints

- $0 \leq V_i \leq 10^9$ for each $i = 0 \dots 14$.

Scoring

Your program will be tested against several test cases grouped in subtasks. In order to obtain the score of a subtask, your program needs to correctly solve all of its test cases.

– **Subtask 1** (0 points) Examples.

– **Subtask 2** (18 points) The coin changer will give you only 500 euro pieces.

– **Subtask 3** (31 points) $V_i \leq 10^3$.

– **Subtask 4** (22 points) $V_i = 0$ for $i = 0 \dots 5$ (no cents, only whole euros).

– **Subtask 5** (29 points) No additional limitations.

Examples

input	output
100 10 50 10 0 13 11 10 1 10 100 1000 200 1 1	0 0 0 0 1 0 0 1 1 0 2 0 1 1 145
10 20 0 0 0 1 199 10 16 0 15 0 0 2 1	0 0 0 0 0 0 0 0 0 0 0 0 0 0 3

Explanation

In the **first sample case** Marco gives to the coin changer:

$$100 \times 0.01€ = 1.00€$$
$$10 \times 0.02€ = 0.20€$$
$$50 \times 0.05€ = 2.50€$$
$$10 \times 0.10€ = 1.00€$$
$$0 \times 0.20€ = 0.00€$$
$$13 \times 0.50€ = 6.50€$$

$$11 \times 1.00€ = 11.00€$$
$$10 \times 2.00€ = 20.00€$$
$$1 \times 5.00€ = 5.00€$$
$$10 \times 10.00€ = 100.00€$$
$$100 \times 20.00€ = 2000.00€$$
$$100 \times 20.00€ = 2\,000.00€$$
$$1000 \times 50.00€ = 50\,000.00€$$
$$200 \times 100.00€ = 20\,000.00€$$
$$1 \times 200.00€ = 200.00€$$
$$1 \times 500.00€ = 500.00€$$

The total of 74 847.20€ can then be optimally distributed in 145 pieces of 500€, 2 of 20€ and one of 200€, 100€, 5€, 2€ and 0.20€.

In the **second sample case** the total amount of money is 1500.00€, which is equivalent to 3 pieces of 500€.