CMPUT 275 - Tangible Computing **Winter 2018**
Morning Problem: Mushrooms

Description

Beata lives in "linear land". The mushroom picking spots in this place are ordered along a line. We know how many mushrooms are at each spot of land. Beata wants to pick m mushrooms. She goes to a spot and begins to pick all the mushrooms at that spot. She then moves to the spot to the right and picks its mushrooms, and so on. That is, she keeps moving to the right one spot to pick more mushrooms until she acquires at least m mushrooms.

For each spot i, determine how many spots Beata will visit if she begins picking mushrooms at spot i and will go until she picks m mushrooms.

Input

The input has two lines, the first containing the critical number m, which is a nonnegative integer, the second containing the number of mushrooms at successive spots (nonnegative integers). Consecutive pairs of integers on the second line will be separated by a single space.

Bounds

- The first number m satisfies $0 \leq m \leq 10^6$.
- The number of spots is between 0 and 10^5.
- Each spot has between 0 and 100 mushrooms.

Output

For each spot, print the number of spots that have to be visited to the right of that spot (including the spot where one starts) so that the number of mushrooms at the visited spots reaches m. If visiting all remaining spots to the right is insufficient, then print 0 for this position.

If m is zero (i.e. Beata does not need to pick any mushrooms), just print 1 for each spot because Beata will still start at that spot.

Sample Input 1

```
4
0 1 2 1 3 4 0 1 0 1 0 1 1
```

Sample Output 1

```
4 3 3 2 2 1 7 6 0 0 0 0 0
```

Explanation: While at the first stop, Beata has to visit the next 3 spots to collect 4 mushrooms (visiting all these spots, she can pick exactly 4 mushrooms). So, together with the spot she started at, she has to visit 4 spots. Hence, the first number to print is 4.

For the second spot, she has to visit the same spots, but now she already starts on the second spot, so the output for this spot is 3. At the third spot, if she visits two additional spots to the right of this spot she can collect 6 mushrooms (but visiting one additional spot is insufficient). This goes on.

Now, at the end, when Beata starts from any of the last 5 spots, visiting all the spots to the right of the chosen spot is insufficient to collect 4 mushrooms. Thus, the output for these spots is zero.

Sample Input 2

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

Sample Output 2

```
1 1 1 1 1 1 1 1 1 1 1
```