E • UNIMODAL PALINDROMIC DECOMPOSITIONS

Problem

A sequence of positive integers is *Palindromic* if it reads the same forward and backward. For example:

```
23 11 15 1 37 37 1 15 11 23

1 1 2 3 4 7 7 10 7 7 4 3 2 1 1
```

A *Palindromic* sequence is *Unimodal Palindromic* if the values do not decrease up to the middle value and then (since the sequence is palindromic) do not increase from the middle to the end For example, the first example sequence above is **NOT** *Unimodal Palindromic* while the second example is.

A *Unimodal Palindromic* sequence is a *Unimodal Palindromic Decomposition* of an integer ***N***, if the sum of the integers in the sequence is ***N***. For example, all of the *Unimodal Palindromic Decompositions* of the first few integers are given below:

```
1:    (1)
2:    (2), (1 1)
3:    (3), (1 1 1)
4:    (4), (1 2 1), (2 2), (1 1 1 1)
5:    (5), (1 3 1), (1 1 1 1 1)
6:    (6), (1 4 1), (2 2 2), (1 1 2 1 1), (3 3),
            (1 2 2 1), (      1 1 1 1 1 1)
7:    (7), (1 5 1), (2 3 2), (1 1 3 1 1), (1 1 1 1 1 1 1)
8:    (8), (1 6 1), (2 4 2), (1 1 4 1 1), (1 2 2 2 1),
            (1 1 1 2 1 1 1), (      4 4), (1 3 3 1), (2 2 2 2),
            (1 1 2 2 1 1), (1 1 1 1 1 1 1 1)
```

Write a program, which computes the number of *Unimodal Palindromic Decompositions* of an integer.

Input

Input consists of a sequence of positive integers, one per line ending with a `0` (zero) indicating the end.

Output

For each input value except the last, the output is a line containing the input value followed by a space, then the number of *Unimodal Palindromic Decompositions* of the input value. See the example on the next page.

Example

Input	Output
2 3 4 5 6 7 8 10 23 24 131 213 92 0	2 2 3 2 4 4 5 3 6 7 7 5 8 11 10 17 23 104 24 199 131 5010688 213 1055852590 92 331143