Problem F

LCM Cardinality

Input: Standard Input
Output: Standard Output
Time Limit: 2 Seconds

A pair of numbers has a unique **LCM** but a single number can be the **LCM** of more than one possible pairs. For example **12** is the **LCM** of **(1, 12)**, **(2, 12)**, **(3,4)** etc. For a given positive integer **N,** the number of different integer pairs with **LCM** is equal to **N** can be called the **LCM** cardinality of that number **N**. In this problem your job is to find out the **LCM** cardinality of a number.

Input

The input file contains at most **101** lines of inputs. Each line contains an integer **N (0<N<=2*10^9)**. Input is terminated by a line containing a single zero. This line should not be processed.

Output

For each line of input except the last one produce one line of output. This line contains two integers **N** and **C**. Here **N** is the input number and **C** is its cardinality. These two numbers are separated by a single space.

Sample Input	Output for Sample Input
2 12 24 101101291 0	2 2 12 8 24 11 101101291 5

Problem setter: Shahriar Manzoor
Special Thanks: Derek Kisman