Uva10190

題目翻譯

Your goal in this problem is to divide a certain integer n by another integer m until n = 1, obtaining a sequence of numbers. Lets call a[i] each number of this sequence, and let's say it has k numbers (i.e. you must do k − 1 succesive divisions to reach n = 1). You can only have this sequence if the following restrictions are met:

此問題的目標是將某個整數n除以另一個整數m直到 n = 1，這方法將會獲得一個數字序列。
我們假設該序列的每個數字為a[i]，假設它有k個數字(即必須進行 k−1 個連續除法才能達到 n = 1)。

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• a[1] = n, a[i] = a[i − 1] ÷ m, for all 1 < i ≤ k

 • a[i] is divisible by m (that is, a[i] mod m = 0) for all 1 ≤ i < k

• a[1] > a[2] > a[3] > . . . > a[k]

根據以下限制，此序列必唯一：
1. a[1] = n, a[i] = a[i − 1] ÷ m, for all 1 < i ≤ k

2. a[i] 被 m 整除(a[i] mod m = 0) for all 1 ≤ i < k

3. a[1] > a[2] > a[3] > ... > a[k]

題目翻譯

For instance, if n = 125 and m = 5, you have 125, 25, 5 and 1 (you did 3 divisions: 125/5, 25/5 and 5/5).
So, k = 4, a[1] = 125, a[2] = 25, a[3] = 5 and a[4] = 1.

If n = 30 and m = 3, you have 30, 10, 3 and 1. But a[2] = 10, and 10 mod 3 = 1, so there is no sequence because it violates restriction 2. When the sequence doesn't exist we think it's not fun and, thus, very boring!

以下為舉例：
如果n = 125且m = 5，則根據上述過程會得到125、25、5、1(做了3次除法：125/5、25/5、5/5)。
因此，k = 4，a[1] = 125、a[2] = 25、a[3] = 5、a[4] = 1。

如果n = 30且m = 3，則根據上述過程會得到30、10、3、1。
但是a[2] = 10 且 10 mod 3 = 1，違反了限制2，所以此序列不存在。
如果序列不存在，我們認為這不好玩，因此非常"Boring!"

輸入與輸出

- Input ：The input will consist on an arbitrary number of lines. Each line will consist of two non-negative integers n, m which are both less than 2000000000. You must read until you reach the end of file.

- Output ：For each pair n, m you must print the correspondent sequence a (as defined above) in a single line, with each adjacent numbers of the sequence separated by a single space. In the case the sequence doesn't exist because it violates some restriction, just print the phrase 'Boring!' in a single line (without the quotes).

輸入：輸入包含多行。
每行有兩個非負整數n和m，
n和m皆小於2000000000。

輸出：對於每行，輸出序列a(如題目定義)，序列的每個相鄰數字之間用一個空格隔開。
如果序列不存在，則輸出"Boring!"

範例測資

輸入：

125 5

30 3

80 2

81 3

輸出：

125 25 5 1

Boring!

Boring!

81 27 9 3 1

第一筆測資

輸入：　　輸出：
125 5　　125 25 5 1

第二筆測資

輸入：　輸出：

30 3

Boring!

第三筆測資

輸入：　　輸出：

80 2

Boring!

第四筆測資

輸入：　　輸出：

81 3

81 27 9 3 1

程式碼

- Step 1:輸入測資

```
long long int in,base;
while(cin>>in>>base){
```

已宣告變數	//註解
in	目標數字
base	底數

程式碼

- Step 2:把答案放入 queue

已宣告變數	//註解
in	目標數字
base	底數
que	答案

```
queue<long long int> que;
que.push(in);
while(base!=0&&in%base==0){
    que.push(in/=base);
}
```

程式碼

- Step 3:輸出正解

已宣告變數	//註解
in	目標數字
base	底數
que	ans

```cpp
if(in<base&&in==1){
    do{
        cout<<que.front()<<" ";
        que.pop();
    }while(!que.empty());
    cout<<endl;
```

程式碼

- Step 3:輸出另解

```
18      }else{
19          cout<<"Boring!\n";
20      }
```

已宣告變數	//註解
in	目標數字
base	底數
que	ans

完整程式碼

```cpp
#include<iostream>
#include<queue>
using namespace std;
int main(){
    long long int in,base;
    while(cin>>in>>base){
        queue<long long int> que;
        que.push(in);
        while(base!=0&&in%base==0){
            que.push(in/=base);
        }
        if(in<base&&in==1){
            do{
                cout<<que.front()<<" ";
                que.pop();
            }while(!que.empty());
            cout<<endl;
        }else{
            cout<<"Boring!\n";
        }
    }
}
```

資料來源

- 英文題目：https://vjudge.net/problem/UVA-10190
- 中文翻譯：

  https://zerojudge.tw/ShowProblem?problemid=e566