



HOME TOP CATALOG CONTESTS GYM PROBLEMSET GROUPS RATING EDU API CALENDAR HELP

PROBLEMS SUBMIT CODE MY SUBMISSIONS STATUS HACKS ROOM STANDINGS CUSTOM INVOCATION

C. Increasing Sequence with Fixed OR

time limit per test: 2 seconds memory limit per test: 512 megabytes input: standard input output: standard output

You are given a positive integer n. Find the **longest** sequence of positive integers $a=[a_1,a_2,\ldots,a_k]$ that satisfies the following conditions, and print the sequence:

- $a_i \leq n$ for all $1 \leq i \leq k$.
- a is strictly increasing. That is, $a_i>a_{i-1}$ for all $2\leq i\leq k$.
- $a_i \mid a_{i-1} = n$ for all $2 \le i \le k$, where \mid denotes the bitwise OR operation.

Input

Each test contains multiple test cases. The first line contains the number of test cases t ($1 \le t \le 1000$). Description of the test cases follows.

The only line of each test case contains one integer n ($1 \le n \le 10^{18}$).

It's guaranteed that the sum of lengths of the longest valid sequences does not exceed $5 \cdot 10^5$.

Output

For each testcase, print two lines. In the first line, print the length of your constructed sequence, k. In the second line, print k positive integers, denoting the sequence. If there are multiple longest sequences, you can print any of them.

Example

```
input

4
1
3
14
23

output

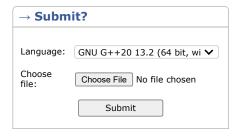
1
1
1
3
4
4 10 12 14
5
7 18 21 22 23
```

Сору

Codeforces Round 958 (Div. 2) Finished Practice

→ Virtual participation Virtual contest is a way to take part in past contest, as close as possible to participation on time. It is supported only ICPC mode for virtual contests. If you've seen these problems, a virtual contest is not for you solve these problems in the archive. If you just want to solve some problem from a contest, a virtual contest is not for you solve this problem in the archive. Never use someone else's code, read the tutorials or communicate with other person during a virtual contest. Start virtual contest

→ Clone Contest to Mashup ∨ You can clone this contest to a mashup. Clone Contest



→ Last submissions		
Submission	Time	Verdict
270834287	Jul/16/2024 11:16	Accepted



→ Contest materials			
Announcement (en)	×		
• Tutorial (en)	×		

Codeforces (c) Copyright 2010-2024 Mike Mirzayanov
The only programming contests Web 2.0 platform
Server time: Jul/16/2024 14:18:57^{UTC+6} (f1).
Desktop version, switch to mobile version.

Privacy Policy



