

D. Ehab the Xorcist

time limit per test: 1 second
 memory limit per test: 256 megabytes
 input: standard input
 output: standard output

Given 2 integers u and v , find the shortest array such that bitwise-xor of its elements is u , and the sum of its elements is v .

Input

The only line contains 2 integers u and v ($0 \leq u, v \leq 10^{18}$).

Output

If there's no array that satisfies the condition, print "-1". Otherwise:

The first line should contain one integer, n , representing the length of the desired array. The next line should contain n **positive** integers, the array itself. If there are multiple possible answers, print any.

Examples

input	Copy
2 4	
output	Copy
2 3 1	
input	Copy
1 3	
output	Copy
3 1 1 1	
input	Copy
8 5	
output	Copy
-1	
input	Copy
0 0	
output	Copy
0	

Note

In the first sample, $3 \oplus 1 = 2$ and $3 + 1 = 4$. There is no valid array of smaller length.

Notice that in the fourth sample the array is empty.

Codeforces Round #628 (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

→ Practice

You are registered for practice. You can solve problems unofficially. Results can be found in the contest status and in the bottom of standings.

→ Clone Contest to Mashup

You can clone this contest to a mashup.

Clone Contest

→ Submit?

Language: PyPy 3.6 (7.2.0)

Choose file: [Browse...](#) No file selected.

Be careful: there is 50 points penalty for submission which fails the pretests or resubmission (except failure on the first test, denial of judgement or similar verdicts). "Passed pretests" submission verdict doesn't guarantee that the solution is absolutely correct and it will pass system tests.

Submit

→ Problem tags

[bitmasks](#) [constructive algorithms](#) [greedy](#)
[number theory](#)

No tag edit access

→ Contest materials

- Announcement (en)
- Tutorial (en)

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