

Prime Gap

A **prime gap** is the difference between two successive prime numbers. The n -th prime gap, denoted $g(n)$ is the difference between the $(n+1)$ -th and the n -th prime numbers, i.e.

$$g(n) = p(n+1) - p(n)$$

The first 7 prime numbers are 2, 3, 5, 7, 11, 13, 17, and the first 6 prime gaps are 1, 2, 2, 4, 2, 4.

Shinya Yukimura is interested in prime gaps and he need some experimental data to verify his hypothesis. More specifically, given a closed interval $[a,b]$, Shinya wants to find the two adjacent primes p_1 and p_2 ($a \leq p_1 < p_2 \leq b$) such that the prime gap between p_1 and p_2 is minimized (i.e. $p_2 - p_1$ is the minimum). If there are multiple prime pairs that have the same prime gap, report the first pair. Shinya also wants to find the two adjacent primes p_3 and p_4 ($a \leq p_3 < p_4 \leq b$) that maximize the gap between p_3 and p_4 (choose the first pair if there are mote than one such pairs).

Please write a program to help Shinya.

Input

Two integer values a, b , with $a < b$. The difference between a and b will not exceed 1,000,000. $1 \leq a \leq b \leq 2,147,483,647$.

Output

If there are no adjacent primes in the interval $[a,b]$, output -1 followed by a newline.

Otherwise the output should be 4 integers: p_1, p_2, p_3, p_4 as mentioned above separated by a space.

Example 1

Input :

1 20

Output :

2 3 7 11

Example 2

Input :

13 16

Output :

-1

In the first example test case, the prime gap between 13 and 17 also has the largest value 4, but the pair (7,11) appears before (13,17), so we output 7 11 instead of 13 17.