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 p1 and p2 (a <= p1 < p2 <= b) such that the prime gap between p1 and p2 is minimized (i.e. p2-p1 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 p3 and p4 (a <= p3 < p4 <= b) that maximize the gap between p3 and p4 (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 <= a <= b <= 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: p1,p2,p3,p4 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.