Problem L

Palindromic Parentheses

Construct a parentheses sequence consisting of N characters such that it is **balanced** and the length of its **longest palindromic subsequence (LPS)** is exactly K. Determine whether such a construction is possible. If there are several possible sequences, construct any of them.

A parentheses sequence consists of only character `(` and `)`. A parentheses sequence is **balanced** if each character `(` has a corresponding character `)` and the pairs of parentheses are properly nested. For example, `()`, `(())`, `(())()`, and `((())())` are balanced. However, `)(`, `((`, and `))` are not balanced.

A sequence is **palindromic** if it reads the same backwards as forwards. For example, `((`, `))(`, and `((()((` are palindromic. However, `()`, `)(`, and `(())` are not palindromic.

A **subsequence** can be derived from another sequence by removing zero or more characters without changing the order of the remaining characters. For example, `(`, `)))`, `())(`, and `(())()` are subsequence of `(())()`. However, `)((` and `((()))` are not subsequence of `(())()`.

The **longest palindromic subsequence (LPS)** of a sequence is a subsequence with the maximum number of characters, derived from that sequence and it is palindromic. For example, the LPS of sequence `(())()` is `())(`, which can be obtained by removing the second and sixth characters. Therefore, the length of the LPS of `(())()` is 4.

Input

Input consists of two integers N K ($2 \leq N \leq 2000; 1 \leq K \leq N$). N is an even number.

Output

If there is no such parentheses sequence such that it is balanced and the length of its LPS is exactly K, then output `-1`.

Otherwise, output a string of N characters, representing the parentheses sequence. If there are several possible answers, output any of them.

Sample Input #1

```
6 4
```

Sample Output #1

```
(())()
```

Sample Input #2

```
6 3
```

Sample Output #2

```
(()())
```

Explanation for the sample input/output #2

The LPS of `(()())` is either `(((` by removing all `)` characters, or `)))` by removing all `(` characters.

The output `((()))` also satisfies the requirements.

Sample Input #3

```
4 1
```

Sample Output #3

```
-1
```

Explanation for the sample input/output #3

The only possible balanced parentheses sequences are `(())` and `()()`. The length of the LPS of `(())` and `()()` are 2 and 3, respectively.

Sample Input #4

```
14 11
```

Sample Output #4

```
()((())()())()
```

Explanation for the sample input/output #4

The LPS of `()((())()())()` is `)())()())()`, which can be obtained by removing the first, fourth, and fifth characters.