Absolute Permutation

HackerRank

We define P to be a permutation of the first n natural numbers in the range $[1, n]$. Let $pos[i]$ denote the value at position i in permutation P using 1-based indexing.

P is considered to be an *absolute permutation* if $|pos[i] - i| = k$ holds true for every $i \in [1, n]$.

Given n and k, print the lexicographically smallest absolute permutation P. If no absolute permutation exists, print `-1`.

Example
$n = 4$
$k = 2$

Create an array of elements from 1 to n, $pos = [1, 2, 3, 4]$. Using 1 based indexing, create a permutation where every $|pos[i] - i| = k$. It can be rearranged to $[3, 4, 1, 2]$ so that all of the absolute differences equal $k = 2$:

```
pos[i]  i   |pos[i] - i|
  3     1        2
  4     2        2
  1     3        2
  2     4        2
```

Function Description

Complete the *absolutePermutation* function in the editor below.

absolutePermutation has the following parameter(s):

- *int n:* the upper bound of natural numbers to consider, inclusive
- *int k:* the absolute difference between each element's value and its index

Returns

- *int[n]:* the lexicographically smallest permutation, or $[-1]$ if there is none

Input Format

The first line contains an integer t, the number of queries.
Each of the next t lines contains 2 space-separated integers, n and k.

Constraints

- $1 \leq t \leq 10$
- $1 \leq n \leq 10^5$
- $0 \leq k < n$

Sample Input

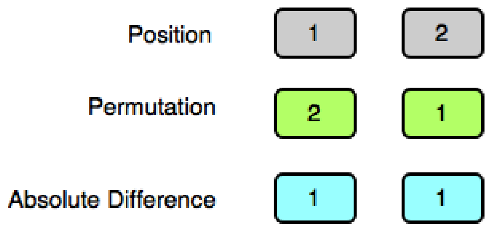
```
STDIN   Function
-----   --------
3       t = 3 (number of queries)
2 1     n = 2, k = 1
3 0     n = 3, k = 0
3 2     n = 3, k = 2
```

Sample Output

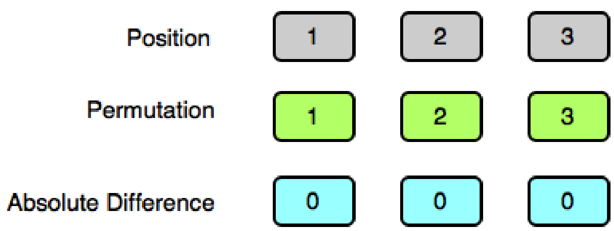
```
2 1
1 2 3
-1
```

Explanation

Test Case 0:



Test Case 1:



Test Case 2:
No absolute permutation exists, so we print `-1` on a new line.