Problem A. Hamiltonian k-vertex-connected Graph

Input file:	*standard input*
Output file:	*standard output*
Time limit:	1 second
Memory limit:	512 mebibytes

A graph (other than a complete graph) has connectivity k if k is the size of the smallest subset of vertices such that the graph becomes disconnected if you delete them.

A connected undirected graph G is called Hamiltonian if it has a Hamiltonian cycle: a cycle that visits each vertex exactly once (except for the vertex that is both the start and the end, which is visited twice).

Bobo would like to construct a Hamiltonian graph with n vertices which has connectivity k. Also, the number of edges in the graph should be minimum possible.

Input

The first line contains two integers n and k where n is the number of vertices in the graph ($3 \le n \le 100$, $1 \le k \le n - 2$).

Output

If there is no such graph, output -1 on a single line. Otherwise, output an integer m denoting the minimum number of edges. Then in each of the next m lines, output two integers x and y ($1 \le x, y \le n$, $x \ne y$) denoting an edge in the graph. In the following line, output a permutation of integers $1, 2, \ldots, n$ denoting a Hamiltonian cycle in the graph.

Example

standard input	standard output
4 2	4 1 2 2 3 3 4 4 1 1 2 3 4