

Problem B. Minimum Spanning Tree

Time limit 2000 ms
Mem limit 1048576 kB
OS Linux

Input

The input consists of several test cases. Each test case starts with a line with two non-negative integers, $1 \leq n \leq 20\,000$ and $0 \leq m \leq 30\,000$, separated by a single space, where n is the numbers of nodes in the graph and m is the number of edges. Nodes are numbered from 0 to $n - 1$. Then follow m lines, each line consisting of three (space-separated) integers u , v and w indicating that there is an edge between u and v in the graph with weight $-20\,000 \leq w \leq 20\,000$. Edges are undirected.

Input will be terminated by a line containing 0 0, this line should *not* be processed.

Output

For every test case, if there is no minimum spanning tree, then output the word Impossible on a line of its own. If there is a minimum spanning tree, then you first output a single line with the cost of a minimum spanning tree. On the following lines you output the edges of a minimum spanning tree. Each edge is represented on a separate line as a pair of numbers, x and y (the endpoints of the edge) separated by a space. The edges should be output so that $x < y$ and should be listed in the lexicographic order on pairs of integers.

If there is more than one minimum spanning tree for a given graph, then any one of them will do.

Sample 1

Input	Output
4 4 0 1 1 1 2 2 1 3 3 2 3 0 2 1 0 1 100 3 0 0 0	3 0 1 1 2 2 3 100 0 1 Impossible