Minimum Spanning Tree

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 Input 1

```
4 4
0 1 1
1 2 2
1 3 3
2 3 0
2 1
0 1 100
3 0
0 0
```

Sample Output 1

```
3
0 1
1 2
2 3
100
0 1
Impossible
```