Directed Acyclic Graph traveler

Rules:

1. Plagiarism is forbidden.
2. Write your program with C++.

Problem Definition:

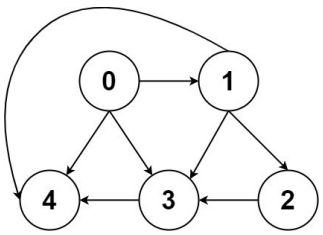
- ✓ You are given a Directed Acyclic Graph.
- ✓ The graph has a source node and several target nodes.
- ✓ Source node is the node with no fan-in edge.
- ✓ Target nodes are the nodes with no fan-out edge.
- ✓ You need to find all the possible paths from the source node to all the target nodes and sort the paths in order then to output.

I/O Format:

Example 1: Input:

```
5
0 4
0 3
0 1
1 3
1 2
1 4
2 3
3 4
4 -1
```

The graph be like:



Output:

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

Explanation:

✓ The first line specified the number of nodes.

1. Ex: number of nodes is 5 -> there are 5 nodes with id from 0 to 4.

✓ The following lines specified the graph's edges.

1. Ex: The second line: 0 4 means that there is an edge pointing from node 0 to node 4.

✓ The output shows all the paths from the source node to all the target nodes in the following sorting rules.

1. The paths need to be sorted from the short path to the long path.
2. The paths with the same length need to be sorted in the lexicographic order, namely, in the increasing numerical order.

✓ The target node has an edge pointing to the null node (-1), where the null node is not a real node in the graph.

Constraints:

✓ $2 \leq$ Number of graph nodes ≤ 15

✓ All the nodes are unique in the graph.