Lab 6 – Topological Sort

Download Graph.java and Main.java from Blackboard. Create a Java Project; put all downloaded Java files in the same package.

In this assignment, you are already given an algorithm for topological sorting.

1. Run the topological sorting algorithm on `Graph g1` defined in main. Note down the result somewhere. **[10 pts]**

2. For a topological sort to exist, the graph must not contain any cycles. Modify `topologicalSort()` method any way you like to handle such cases. The method now must print "A cycle detected!" in such a case. Test your code on `Graph g2`. **[30 pts]**

3. Current implementation of `topologicalSort()` uses queues. Implement a new `topologicalSortStack()` method so that the underlying data structure is now a stack. **[30 pts]**

4. Test this modified version with `Graph g1`. Is the result different from before? Does it mean your code is wrong? Explain in detail as a comment in your source code. **[30 pts]**

5. Submit your *Graph.java* and *Main.java* files through Blackboard.

Important note: Any copy will result in a disciplinary action.

HONOR CODE:
On my honor, as an Izmir University of Economics student, I affirm that I will not give or receive any unauthorized help on this exam, and that all work will be my own. The effort in the exam belongs completely to me.