

Lab 6: Graphs

Objective

To write code to compute the in-degree of every vertex and to print out the vertices visited in a depth-first traversal starting at Vertex 0, for an adjacency-list implementation of a directed graph.

In-Degrees and a Depth-First Traversal

Get a copy of `GraphAL.java` (an adjacency-list implementation). Get a copy of the graph file `graph.txt` which lists the number of vertices (5) and edges between them. Write the body of the method printIndegrees, which prints out the in-degree of each vertex in the graph. Also, write the body of the method recursiveTraversal, which performs a recursive depth-first traversal of the graph starting at the vertex given by parameter `currVertex`, printing out a vertex when the traversal visits it.

The steps of a recursive depth-first traversal at `currVertex`:

- Visit `currVertex`;
- for each vertex `i` that is adjacent to `currVertex` (i.e., such that there is an edge from `currVertex` to `i`)
- if vertex `i` has not yet been visited do a recursive depth-first traversal at `i`

The intent is to see which vertices can be reached if you start at vertex 0, and what order you would visit them in.