

## CSE 2320 Lab Assignment 4

Due May 8, 2015 (Friday)

### Goal:

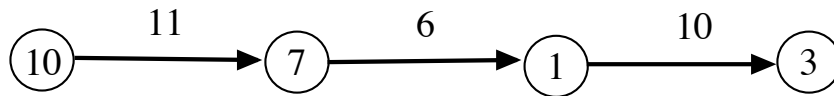
Understanding of the use of depth-first search to determine a topological sort for a directed graph.

### Requirements:

1. Write a C program to determine a **longest path** in a positively weighted, directed acyclic graph. If the input graph is not acyclic, then you should provide an error message. The first line of the input will be the number of vertices  $V$ . Each of the remaining lines will provide the tail, head, and distance for one edge. Vertices will be numbered in the range  $0 \dots V-1$ . The last line of the input will be  $-1 \ -1 \ -1$ . The only required output is a list of vertices in a longest path, its length, and the distance of each edge along the path. This may appear as:

Max length is 27 for path: 10 (11) 7 (6) 1 (10) 3

for the path:



You may output other tables and tracing from the depth-first search.

2. Submit your C source file on Blackboard by 3:15 p.m. on May 8, 2015 (Friday).

### Getting Started:

1. Your program should run in  $\Theta(V + E)$  time.
2. C source files for ordinary depth-first search on an unweighted, directed graph are available on the course web page. You may modify this code (or other code whose origin is identified in your comments) to complete this assignment.