Outline

Saturday, November 10, 2018 12:56 PM

- Directed Graph
  - Unweighted, directed graph from scratch following IGraph.java
    - Add
    - Connect
    - Clear
    - Contains
    - Disconnect
    - IsConnected
    - Neighbors
    - Remove
    - ShortestPath
    - Size
    - Vertices
    - ConnectedGraph
  - Graph themselves must not touch file system (do this in app)
  - Demonstrate successful construction by overriding toString() method
    - Identify all the vertices in the graph and the connections between them in a readable format
    - The specifics of the formatting remain up to each team, but at a minimum it must sufficiently express the graph's structure

- App (driver program)
  1) Default mode
     - Hard-coded csv filename (if none provided in runtime)
  2) Command line file path mode
     - Csv file path supplied as the program argument
  - the application needs to open these files, so if they don't exist or the system can't open them, then the application must terminate and inform the user of the program's proper use
    - Example: *Error: Unable to open filename. Verify the file exists, is accessible, and meets the syntax requirements.*
  3) Declare and initialize a Directed Graph object of type IGraph
  4) Reads in the input file and builds a graph matching the layout expectations. As it encounters a new vertex name, it shall instantiate the vertex and place it in the graph. New vertex names may appear as a single entry in a line, but they may also appear for the first time in a connection
  5) Displays Information about the Graph (e.g., vertices, connections, degree of each vertex) by printing it to the screen using the object's toString() method
  6) Allows the user to select the starting and ending vertices in the graph and computes the shortest path between them. The application shall Display both the distance for the route as well as the vertices or edges visited along the route
  7) Able to terminate without error (duh)

- CSV (comma-separated value) file format
  - Only one entry (i.e. Vertex or Edge) appears on each line in the file
  - Entry may represent either a vertex name or an edge connection
  - Vertex names appear as single items on the line (one cell on line)
  - Edge connections include three parts: Source, Destination

- Edge and Vertex names appear as strings
- Edges and Vertex Names may appear interlaced