ListGraph Completion
Due: Day of lab at 11:59PM

1 ListGraph Completion Specification

1.1 Lab Instructions

- This is an *individual* lab.

- Make sure to read through all of the specifications so your submission is complete.

- Follow all the submission steps in the Setup document by the lab deadline.

1.2 Lab Link

The skeleton code for the lab is available at `https://classroom.github.com/a/HHZyUzxW`.

1.3 Implementation

This lab introduces a `ListGraph` class to implement a graph. The class is the same as we described in class, with a few additional query methods.

I have provided the textbook code in the **edu.wit.cs.comp2000** package. You will complete three additional methods – `getLightestEdge`, `isSink`, and `isSimplicial`. Descriptions of the methods' expected behaviors are included in the comments.

Lightest edge: An edge in a graph with the smallest weight. If there is a tie, returning any of the lightest edges is valid.

Sink: A vertex that is not a source of any edges.

Simplicial vertex: A vertex whose neighbors all have edges to each other. A neighbor doesn't need to have an edge to itself to qualify. If a vertex has 0 or 1 neighbors, it is simplicial by default.

1.4 Testing

In addition to the Graph code, JUnit tests are provided in the **edu.wit.cs.comp2000.tests** package. You can run these tests to see if the `ListGraph` implementation is performing correctly. The tests that I have provided check that the required operations are behaving as expected.
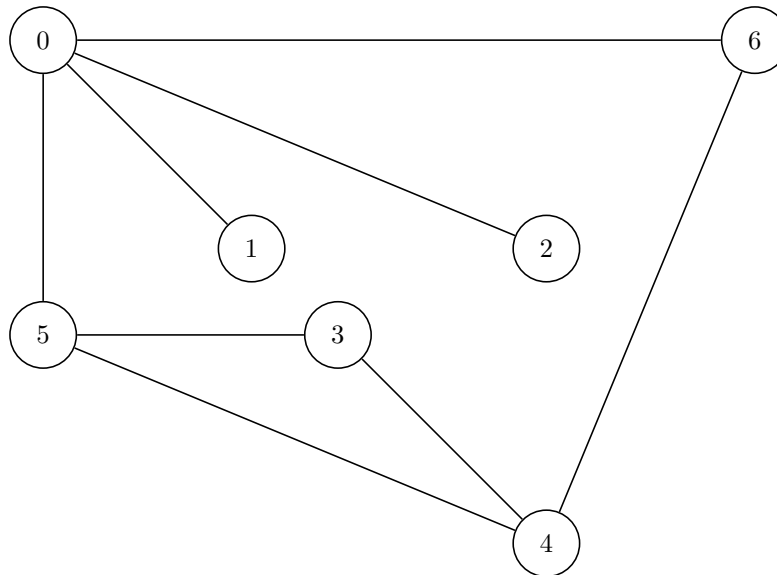
For this lab, you do not need to write or modify any tests.

1.5 Supplied Graphs

Some graphs are supplied in the `graphs` directory. Below are some visualizations of them.
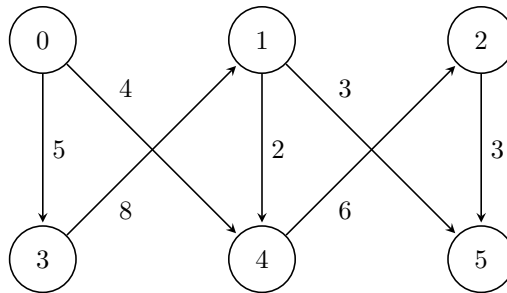
`smallw_dir.txt`: Vertex 5 is a sink and edge $(1, 4)$ has the lightest weight.

`smallu_undir.txt`: Vertices 1, 2, and 3 are simplicial.

2 Double Check:

- Have you implemented the three ListGraph methods?

- Have you committed/pushed your code?

3 Grading

Each of the 3 **TODO** sections is worth $\frac{1}{3}$ of the lab grade.

Grades and any comments for the lab will be posted to your project on github. Grades will also be posted to Brightspace, eventually.