Homework 7

Modify your graph to use generics
- Will have to update HW #5 and HW #6 tests

Implement Dijkstra’s algorithm
- Search algorithm that accounts for edge weights
- Note: This should not change your implementation of Graph. Dijkstra’s is performed on a Graph, not within a Graph.
Homework 7

The more well-connected two characters are, the lower the weight and the more likely that a path is taken through them

- The weight of an edge is equal to the inverse of how many comic books the two characters share
- Ex: If Amazing Amoeba and Zany Zebra appeared in 5 comic books together, the weight of their edge would be 1/5
Hw7 Important Notes!!!

**DO NOT** access data from hw6/src/data
- Copy over data files from hw6/src/data into hw7/src/data, and access data in hw7 from there instead
- Remember to do this! Or tests will fail when grading.

**DO NOT** modify ScriptFileTests.java
HW7 Test script Command

Notes

HW7 \texttt{LoadGraph} command is slightly different from HW6

\begin{itemize}
  \item After graph is loaded, there should be at most one directed edge from one node to another, with the edge label being the multiplicative inverse of the number of books shared
  \item Example: If 8 books are shared between two nodes, the edge label will be 1/8
  \item Since the edge relationship is symmetric, there would be another edge going the other direction with the same edge label
\end{itemize}
Graph Activity

List the Characters set, the Books->Characters map, and draw the graph using these characters and “books”.

Harry  HP1
Harry  HP2
Harry  HP3
Harry  HP4
Quirrel HP1
Scabbers HP1
Scabbers HP2
Voldemort HP4
Voldemort SharedAHead
Quirrel  SharedAHead
Graph Activity Answers

Characters
Harry, Quirrel, Scabbers

Books -> Characters
HP1 -> Harry, Quirrel, Scabbers
HP2 -> Harry, Scabbers,
HP3 -> Harry
HP4 -> Harry, Voldemort
SharedAHead -> Voldemort, Quirrel
Graph Activity Answers

Har → Vol: 1
Vol → Qui: 1
Qui → Har: 1
Har → Sca: 1/2
Sca → Har: 1
Vol → Sca: 1
Sca → Vol: 1