Lab 4: Circularly Referential Data

Software provided:

- Classes that represent a list of books with author information, where author information includes the list of books written by this author.

  File circularbooks.java

- Class hierarchy that represents a list of stations and train routes, with each route recording the stations on the route and each station recording the routes passing through it.

  File routes-stations.java

The goals are

- Learn to define data for a circularly referential class hierarchy

- Learn to design methods a circularly referential class hierarchy

- Quiz covers simple classes that represent lists of data

Details

- **Circularly referential data: Getting started**

  - Open the file circularbooks.java.
  - Draw by hand a class diagram that represents these classes.
  - Add two of your favorite books to the examples and to one of the lists in the examples and add tests that use your examples.

- **Defining circularly referential data.**

  - Open the file routes-stations.java
  - Add the Blue Line to the examples. Blue line services the following stations: Bowdoin, Center, State, and Wonderland.
  - Add the method that counts the number of routes in a list of routes.

- **Defining methods for circularly referential data.**

- Design the method that determines how many stations there are on some route.
- Design the method that determines whether a station is a transfer station (i. e. is served by more than one route).
- Design the method that counts the number of transfer stations on a route.
- Design methods to produce a list of all transfer stations on some route.
- Design a method that determines whether two stations are on the same route. **The method(s) must not traverse the routes.**