

Homework 1, CSCI 430/530. Fall 2024.

This is an individual assignment.

Due date: Thursday Sep 4

Implement the following in Java:

1. Create a data type `Person` with three string fields: `firstName`, `lastname` and `id`. The field `id` is unique to each person. Add accessor methods, a constructor with three parameters, and the `toString()` method.
2. Create a class `MyMain` for the main program. Within the `main()` program, instantiate a linked list (use the Java `LinkedList` class) . Add the following functions(methods) (static methods within the class `MyMain`) that the main program will invoke:
 - `store(<input stream>, <linked list>)` that reads the data for several persons from the input stream and stores the data in the linked list.
 - `display(<output stream>, <linked list>)` that writes the data for all person objects in the linked list, on the output stream, one per line.
 - `find(string sid, <linked list>)` that returns the index of the person object in the linked list, that has the same `id` value as `sid` (return -1 if no such person exists). This can be done as a simple search that goes sequentially through all the objects in the linked list.
 - Create a data file with data for a few person objects.
 - In the main method, call the `store()` and `display()` methods to read the data and display it. Invoke the find method a few times. Compile and test your code.
3. Construct a different version of the above program as follows:
 - (1) create a data type `PersonList` that uses the Java `LinkedList`, and supports the operations from Question 2.
 - (2) instantiate the `PersonList` object in the main program and invoke its methods (as per the appropriate syntax), so that program produces the same output.

Reflection. Based on the in-class discussions we have had in the past few days, which of the two versions (Question 2 or Question 3), in your opinion, represents a more process-centered approach? Which one represents a more data-centered approach? What additional features,

in your opinion, if added to the `LinkedList` class, could make it easier to develop the program for Question 3?

Justify all your claims.

Submission: create folders `Hw1Q2` and `Hw1Q3` in your Github repository for this assignment.

Reflection: In the D2L dropbox, upload a word file with all your answers to questions.