

## Homework 04

### 1 General Instructions

Homework should be submitted to Desire2Learn, as either a plain-text file or a PDF file. For parts of homework that are writing code you may wish to type your answers into an Eclipse projects so that you can test them, then copy and paste them into the document you are submitting.

Homework will be graded for completion – whether or not it looks like you have tried to answer all of the questions to the best of your ability – rather than correctness. In fact, you won't get much feedback about your homework submissions at all. Instead, I will be posting a solution after the due date. You are strongly encouraged to compare that solution to your own work, and ask questions in person if you do not understand any parts of the solution.

The purpose of homework is to help you figure out how well you understand the concepts that you can expect to see on the exams.

### 2 Assignment

For the purposes of this assignment, `IntSingleNode` is our `IntNode`

1. Suppose that you are writing some kind of collection class named `LinkedListMystery` based on a linked list of integers, using `IntSingleNode`. What fields are absolutely essential in `LinkedListMystery`? Write the full declarations of each.
2. Draw a picture of a `LinkedListMystery` containing the numbers 1, 5, 4, and 2 (in that order), using the fields that you specified in Question 1.
3. Write a constructor for the `LinkedListMystery` class that creates exactly the list described above (1, 5, 4, 2). (I don't know why you would want a new object to have those elements, but that's irrelevant.) Don't use any other methods that you might imagine `LinkedListMystery` would have, but build the list manually.
4. Draw a picture of a `LinkedListMystery` containing the numbers 1, 3, 5, and 7, in that order. Show on the picture how the number 6 could be inserted between 5 and 7, highlighting which links need to change.
5. Write a method for the `LinkedListMystery` class that inserts a new element after the first copy of some other element. If there are no copies of the other element, it should make no changes.

### 3 Submitting Your Work

If your document is not already plain-text or PDF, convert it to one of those formats. Then upload it to D2L under this assignment.