CSCI 230 Homework 2
Spring 2017

Collaboration: None
Due Date: 9:30 am Jan 27
Total Points: 100
The following Java interfaces/classes are provided in one zip file attached to this Dropbox assignment:

- *SinglyLinkedList.java*
- *List.java*
- *Node.java*

For this assignment **only** the *SinglyLinkedList* class will be modified by you. Specifically, you may only modify the methods listed in Part 1, and **under no circumstances** are you allowed to remove, add, or modify any other line of code in this class.
Furthermore, **under no circumstances** are you allowed to modify or create a new *List* interface or a new *Node* class. You must use these two files, *List.java* and *Node.java* as provided.
Lastly, you may **not modify or remove** the package statement, csci230.hwk2. If a solution is submitted with a different package structure, it will not be graded. No exceptions.

1 Part 1

In the *SinglyLinkedList* class fully implement the five methods listed below:

```
public Node<AnyType> getNode(int index) throws IndexOutOfBoundsException
public void setNode(int index, Node<AnyType> t) throws IndexOutOfBoundsException
public void addNode(int index, Node<AnyType> t) throws IndexOutOfBoundsException
public Node<AnyType> removeNode(int index) throws IndexOutOfBoundsException
public void clear()
```

In each of the five methods listed above there is a TODO comment — this is where you will add your code. Note that the functionality of each of the above methods is identical to the similarly named method in the *List* interface defined in the Java API. You may use this fact to assist you in testing.

2 Part 2

The *SinglyLinkedList* class provided to you has a main method. In the main method add test cases that demonstrate that you have **thoroughly** evaluated the operational correctness of the methods you implemented in Part 1. To receive full credit, these test cases must be included.

3 Submission

Create a zip file that only includes the completed *SinglyLinkedList.java* file, *with no folders*. The name of the zip file must be your last name *in lower case*. For example, ritchie.zip would be correct if the original co-developer of UNIX (Dennis Ritchie) submitted the assignment. Only assignments submitted in the correct format will be accepted (no exceptions). Submit the zip file to the Dropbox on OAKS for this assignment by the due date. You may resubmit the zip file as many times as you like. Only the newest submission will be graded.
Per the syllabus, late assignments will not be accepted — no exceptions. Do not email the grader or me your assignment after the due date — it will not be accepted.

4 Grading Rubric

For programs that at least compile and run, the following rubric will be used:

SinglyLinkedList Compiles	10 points
SinglyLinkedList Runs	5 points
Thoroughness of your test cases	5 points
Instructor test cases (8 cases 10 points each)	80 points
TOTAL	100 points

For programs that don't compile you could lose 10 to 100 points depending on the number and severity of the syntax errors. For programs that compile but either don't run or posses runtime errors, you could lose 15 to 90 points, depending on the number and severity of the runtime errors. Your test cases are only worth 5 points; however, if you don't thoroughly test your code, you will likely lose many of the 80 points on the instructor test cases. In short:

- make sure your code compiles and runs
- follow the directions in this handout
- **test your code**