Name: _____

CSCE 146 Program1 (Ch3-5) Java Program: Doubly Linked List

Setup

1. Existing interfaces or abstract classes will not be implemented for this assignment
2. Use of Ch3 code on Blackboard can be helpful but this assignment does not require generics

Homework

1. **Doubly Linked List.** Create a Doubly Linked List with the following:
    a. Used linked objects (nodes) to create your list
        i. Each node will have a successor link and previous link and a element variable
    b. Have an index for each element in the list (not for head or tail), index is from 0 to size - 1
    c. The first node will be the head, the last will be the tail, both will have an element of null
        i. Head's previous will always be null, tail's successor will always be null
    d. Your elements will be integers
    e. An empty list will be of size 0, head's successor and tail previous point to null in this case
    f. Size 1 means head and tail are linked to the same node that contains the only element in the list
2. **List Methods.** Your list should have the following methods (handle out of bound index inputs):
    a. List() //default constructor, size=0, all head & tail links point to null
    b. add(int index, int element) //move elements at index+ up 1, add element at index, increase size (see slide 5)
    c. get(int index) //return element at index (see slide 6)
    d. indexOf(int target) //returns index of first occurrence of target in list or -1 if not found
    e. lastIndexOf(int target) //returns index of last occurrence of target in list or -1 if not found
    f. remove (int index) //remove element but also reduce size and remove gap, keep order
    g. set (int index, int newElement) //change element at index to newElement
3. **User Interface.** Provide way to access all the methods above (such as scanner)

Be sure to:

1. Use proper and clear comments and variable names
    a. Include the following information at the top of your code:
    Name: *Your Name*
    Assignment: Program1
    Class: CSCE 146
    Semester: Spring 2014
    School: USC Sumter

Turn in: demonstrate your program to the instructor

Grading:

Function:	
Objectives met of part 1	30%
Objectives met of part 2	35%
Objectives met of part 3	15%
Organization: readable code and clear documentation	10%
Interface: user experience (clear direction) and handling of invalid input	10%