

CSC-360 Assignment 7

Total Points: 30

Download the code provided on Blackboard (*LinkedListCodeFromLiang.zip*) and unzip it. In *MyLinkedList.java* complete the implementations of the following methods --

In the *MyLinkedList* class:

```
boolean contains(E e)
E get(int index)
int indexOf(E e)
int lastIndexOf(E e)
E set(int index, E d)
```

The methods *contains*, *indexOf*, and *lastIndexOf* should compare elements to *e* by using the *equals* method. You may need to handle null values as a special case. For instance, the call *e.equals(...)* will throw a *NullPointerException* if *e* is null.

Pseudocode for the *MyLinkedList contains(E e)* method:

```
if e is null
    loop through the list looking for a node whose element is null
else
    loop through the list looking for a node such that
    e.equals the node's element
```

set should throw an *IndexOutOfBoundsException* if *index < 0* or *index >= size()*. When *set* does not throw an exception, it should return the element that was previously at the given index.

Testing your solution:

A test program, *TestMyLinkedListForHW.java*, is available on Blackboard. Use this test program to test your code. The output for the test program will be as follows:

```
[Alabama, Arkansas, Arizona, Arkansas, California]
contains Arizona: true
contains Alaska: false
get(2): Arizona
index of Arkansas: 1
last index of Arkansas: 3
set(2, null): Arizona
get(2): null
contains null: true
index of null: 2
last index of null: 2
Caught exception -- Good.
Caught exception -- Good.
Caught exception -- Good.
Caught exception -- Good.

[Jake, James, 1, Jane, Jill, 2, Joel, 3, 4, John, Jonathan]
Jake James 1 Jane Jill 2 Joel 3 4 John Jonathan
-----Required tests completed.-----
```

Of course, you are welcome to run additional tests on your solution.

What to turn in:

Rename the modified *MyLinkedList.java* class to ***NKUID_MyLinkedList.java***, and submit only that file on Blackboard.