Lab 3
CS 111C

Purpose

This lab will give you experience modifying a reference-based implementation of an ADT.

Lab

Modify the ListReferenceBased List class, pages 265-268 in the textbook, by adding methods corresponding to the following UML:

```
+replace(in oldValue:Object, in newValue:Object) : integer
// replaces each occurrence of oldValue in the list with newValue
// returns number of items replaced

+equals(in aList:List) : boolean {query}
// returns true if aList has the same values in the same order as the current list
// object; else returns false
```

You will also need the Node class, which is on page 251. Do **not** call any ListInterface methods from within the methods that you write. Here is one way to get a program that uses the package containing the Node class to successfully compile:

1) Make all of the constructors and methods of the Node class public.
2) Place the Node class in a directory named List, and put your class containing the main method in its parent directory.
3) Place the line
   ```
   import List.Node;
   ```
   at the beginning of your file that holds the class containing the main method.

Test your modified ListReferenceBased class by writing a driver program, with sample dialog displayed:

```
What you want to do?
1) Replace a value in a list of integers
2) Compare two lists of integers
3) Quit
Enter your choice: 1
Enter a list of integers:  10  14  10  13  25  10
Enter a value to be modified:  10
Enter replacement value:  2
Modified list:  2  14  2  13  25  2
Number of items replaced:  3
```

What you want to do?
1) Replace a value in a list of integers
2) Compare two lists of integers
3) Quit
Enter your choice: **1**
Enter a list of integers: **10 14 10 13 25 10**
Enter a value to be modified: **9**
Enter replacement value: **2**
Modified list: 10 14 10 13 25 10
Number of items replaced: 0

What you want to do?
1) Replace a value in a list of integers
2) Compare two lists of integers
3) Quit
Enter your choice: **2**
Enter first list to be compared: **10 14 10 13 25 10**
Enter second list to be compared: **10 14 10 13 25 10**
The two lists are equal.

What you want to do?
1) Replace a value in a list of integers
2) Compare two lists of integers
3) Quit
Enter your choice: **2**
Enter first list to be compared: **10 14 10 13 25 10**
Enter second list to be compared: **10 14 10 13 25**
The two lists are not equal.

What you want to do?
1) Replace a value in a list of integers
2) Compare two lists of integers
3) Quit
Enter your choice: **2**
Enter first list to be compared: **10 14 10 13 25 10**
Enter second list to be compared: **10 14 10 11 25 10**
The two lists are not equal.

What you want to do?
1) Replace a value in a list of integers
2) Compare two lists of integers
3) Quit
Enter your choice: **3**

To turn in: Submit your program listing, including all modified files, along with a capture of a program run, using the data shown in this handout, on Insight.