Lab 6.2 – Implement an LinkedList in Java

Learning Goals

1) Develop your understanding of objects in Java.
2) Develop your understanding of the List and LinkedList functionality in Java.
3) Develop your ability to implement a linked list.

Your Task

Last time, we implemented BCAList as an ArrayList. Let's now implement the same interface using a linked list.

Create a non-public class "Node" in BCALinkedList. The Node class should have two fields:
   1. **data** of type Object
   2. **next** of type Node

BCALinkedList should have the following three private instance variables:
   1. **head** of type Node
   2. **tail** of type Node
   3. **listsize**

Implement all of the methods defined in BCAList. (It won't compile otherwise!)

Testing

Two classes have been provided for testing. Update them to use a BCALinkedList instead of a BCAArrayList.

1) **StateCapitalQuiz** demonstrates the flexibility to store any type of object in a list. Run the quiz and verify that it behaves as expected.
2) **bca.util.BCAListTest** provides a fairly exhaustive set of test cases to verify the accuracy of your implementation.