Worksheet 9: Lists

In this worksheet you will implement a link-based version of the **List** interface. For this implementation, you should use the pseudo code provided in the lecture.

Do all the questions below (Q1 is worth 70%, Q2 is worth 30%). Submit 2 files: *LinkedList.java* and *LinkedListQueue.java* (which contains the answer to Q3).

1. Download the class called **LinkedList** that implements the **List** interface provided. Implement the 5 missing methods (10% per method). For the remaining 10%, override the toString() method to provide a string based representation of the state of the vector (use the toString() method on the **LinkedStack** and **LinkedQueue** classes as inspiration). Try to make the output meet the following format:

   [3] : “A”, “P”, “E”

   Where this represents a list that contains 3 values A, P, and E, which were inserted in that order.

   HINT: Implement this method before you implement the 5 missing List methods and use it to check that each method implementation is working correctly.

2. Develop an implementation of the Queue interface called **LinkedListQueue** that uses your List implementation (20%) include a main method that tests your implementation by performing the following operations:

   Enqueue(10), Enqueue(5), Dequeue(), Enqueue(15), Enqueue(3), Dequeue(), Enqueue(7), Dequeue(), Enqueue(20).

   Print out the state of the queue after each operation.

   Add a loop at the end that clears the queue and calculates the total value of the numbers were left in the queue at the end of the above sequence of operations.