Chapter 9 includes a MagazineRack program that holds an unordered list of magazines. The program only includes an add method. We would like to modify the program to keep the magazines in the list ordered lexicographically by title. Follow the following steps to create the new program. A partial solution is provided below.

1. Modify the Magazine class to implement the Comparable interface.

2. The MagazineList class currently provides an add method to add a magazine to the list. Modify the MagazineList class to include methods to delete and insert magazines. The insert method should call the compareTo method that you defined in the Magazine class, which will decide whether one magazine title comes before another alphabetically.

3. Modify the driver class to use the insertion and deletion operations. Print the list of magazines.

/ / \*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// Magazine.java Author: Lewis/Loftus/Cocking Solution to PP 9.2

// Represents a single magazine.

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

public class Magazine implements Comparable

{

private String title;

//-----------------------------------------------------------------

// Sets up the new magazine with its title.

//-----------------------------------------------------------------

public Magazine (String newTitle)

{

title = newTitle;

}

//-----------------------------------------------------------------

// Returns this magazine as a string.

//-----------------------------------------------------------------

public String toString ()

{

return title;

}

//-----------------------------------------------------------------

// Implementation of the Comparable class method

//-----------------------------------------------------------------

public int compareTo(Object obj)

{

**// Code not provided**

}

}

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// MagazineList.java Author: Lewis/Loftus/Cocking Solution to PP 9.2

// Represents a collection of magazines.

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

public class MagazineList

{

private MagazineNode list;

//----------------------------------------------------------------

// Sets up an initially empty list of magazines.

//----------------------------------------------------------------

public MagazineList()

{

list = null;

}

//----------------------------------------------------------------

// Creates a new MagazineNode object and inserts it in lexicographical

// order in the linked list. If magazine already in list, do not insert.

//----------------------------------------------------------------

public void insert (Magazine mag)

{

MagazineNode node = new MagazineNode (mag);

MagazineNode current;

MagazineNode previous = null;

boolean done = false;

if (list == null)

**// Code not provided**

else

{

current = list;

while (!done)

{ **// Code not provided. Iterate through the linked list**

**// and insert the Magazine in the proper place. If it**

**// is already in the list, do nothing.**

}

}

}

//----------------------------------------------------------------

// If the Magazine mag is in the list, removes it from the list.

// Returns true if the deletion was successful, false otherwise.

//----------------------------------------------------------------

public boolean delete (Magazine mag)

{

MagazineNode current = list;

MagazineNode previous = null;

if (current == null)

return false; **// What does this do??**

while (current.next != null)

{

**// Code not provided**

}

return false;

}

//----------------------------------------------------------------

// Returns this list of magazines as a string.

//----------------------------------------------------------------

public String toString ()

{

String result = "";

MagazineNode current = list;

while (current != null)

{

result += current.magazine + "\n";

current = current.next;

}

return result;

}

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// An inner class that represents a node in the magazine list.

// The public variables are accessed by the MagazineList class.

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

private class MagazineNode

{

public Magazine magazine;

public MagazineNode next;

//--------------------------------------------------------------

// Sets up the node

//--------------------------------------------------------------

public MagazineNode (Magazine mag)

{

magazine = mag;

next = null;

}

}

}

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

// MagazineRack.java Author: Lewis/Loftus/Cocking Solution to PP 9.2

// Driver to exercise the MagazineList collection.

//\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*

public class MagazineRack

{

//----------------------------------------------------------------

// Creates a MagazineList object, inserts and deletes several magazines

// to the list, then prints it.

//----------------------------------------------------------------

public static void main (String[] args)

{

MagazineList rack = new MagazineList();

rack.insert (new Magazine("Time"));

rack.insert (new Magazine("Woodworking Today"));

rack.insert (new Magazine("Communications of the ACM"));

rack.insert (new Magazine("House and Garden"));

rack.insert (new Magazine("GQ"));

rack.delete (new Magazine("House and Garden"));

rack.delete (new Magazine("Communications of the ACM"));

rack.insert (new Magazine("Woodworking Today"));

rack.insert (new Magazine("Fine Cooking"));

rack.delete (new Magazine("Not in list"));

System.out.println (rack);

}

}