LinkedList.java

```java
/**
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 * Assignment# 3
 * Linked Lists
 * CISC 3130
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 **/


import java.util.*;
import java.io.*;
class Node {
    char col1;
    int col2;
    double price;
    Node next=null;
    public Node(char col1, int col2, double price) {
        this.col1=col1;
        this.col2=col2;
        this.price=price;
    }
    public Node(char col1, int col2) {
        this.col1=col1;
        this.col2=col2;
    }
}
public class LinkedList {
    Node head=null;
    Node tail=null;
    void addNode(char col1, int col2, double price) {
        Node newNode=new Node(col1, col2, price);
        if(head==null) {
            head=newNode;
            tail=newNode;
        }
        else {
            tail.next=newNode;
            tail=newNode;
        }
    }
    void addNode(char col1, int col2) {
        Node newNode=new Node(col1, col2);
        if(head==null) {
            head=newNode;
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                tail=newNode;
        }
        else {
            tail.next=newNode;
            tail=newNode;
        }
    }

    void readFile() {

        try {
            Scanner master = new Scanner(new File("src/data.txt"));
            while(master.hasNextLine()) {
                String line=master.nextLine();
                String[] arr=line.split("\\s+");
                if(arr.length==3) {
                    char col1=arr[0].charAt(0);
                    int col2=Integer.valueOf(arr[1]);
                    double price=Double.parseDouble(arr[2]);
                    addNode(col1, col2, price);
                }
                else if(arr.length==2) {
                    char col1=arr[0].charAt(0);
                    int col2=Integer.valueOf(arr[1]);
                    addNode(col1, col2);
                }
            }
        }
        catch(FileNotFoundException e) {
            System.out.println( "file not found. Exiting the program.");
        }
    }
    void lookup() {
        Node curr=head, sale=head;
        int Customers=0;
        double Discount=0;
        while(curr!=null) {
            if(curr.col1=='R') {
                double totalPrice=curr.col2*curr.price;
                System.out.println(curr.col2 + " widgets received at " +
curr.price + " each.");
                System.out.println("Total Received: $" + totalPrice);
            }
            else if(curr.col1=='P') {
                System.out.println("Next 2 customers will receive " +
curr.col2 + "% discount.");
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                Customers=2;
                Discount=curr.col2;
            }
            else {
                Node temp=sale;
                int Widgets=0;
                while(temp!=curr && Widgets<=curr.col2) {
                    if(temp.col1=='R') {
                        Widgets+=temp.col2;
                    }
                    temp=temp.next;
                }
                if(Widgets>=curr.col2) {
                    Widgets=curr.col2;
                }
                System.out.println(Widgets + " Widgets sold");
                double Price=0;
                temp=sale;
                while(temp!=curr && Widgets>0) {
                    if(temp.col1=='R') {
                        double newamount=temp.price*1.3;
                        if(temp.col2<=Widgets) {
                            System.out.println(temp.col2 + " at " + newamount
+ " each\tprice:$" + newamount*temp.col2);
                            Price+=newamount*temp.col2;
                            Widgets-=temp.col2;
                            temp.col2=0;
                            temp=temp.next;
                        }
                        else {
                            System.out.println(Widgets + " at " + newamount +
" each\tprice:$" + newamount*Widgets);
                            Price+=newamount*Widgets;
                            temp.col2 -=Widgets;
                            Widgets=0;
                        }
                    }
                    else {
                        temp=temp.next;
                    }
                }
                sale=temp;
                System.out.println("\t\tTotal price:$" + Price);
                if(Customers>0) {
                    System.out.println("\t\tDiscount:$" + Price*(Discount/
100));
                    Customers--;
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                }
                System.out.println("\tTotal price after Dicount:$" +
Price*(1-Discount/100));
            }
            curr=curr.next;
            System.out.println();
        }
    }
    public static void main(String[] args) {
        LinkedList l=new LinkedList();
        l.readFile();
        l.lookup();
    }
}
```

data.txt
R 150 1.00
R 130 2.00
S 145
R 50 2.50
S 75
S 180
R 50 4.00
R 30 5.00
R 40 5.50
P 30
S 50
S 30
R 50 6.00
R 265 10.00
S 60
P 50
S 100
S 70
S 175
R 40 14.00
R 75 15.00
S 110
R 30 16.00
R 40 18.00

```
OUTPUT:

150 widgets received at 1.0 each.
Total Received: $150.0

130 widgets received at 2.0 each.
Total Received: $260.0

145 Widgets sold
145 at 1.3 each   price:$188.5
          Total price:$188.5
          Total price after Dicount:$188.5

50 widgets received at 2.5 each.
Total Received: $125.0

75 Widgets sold
5 at 1.3 each     price:$6.5
70 at 2.6 each    price:$182.0
          Total price:$188.5
          Total price after Dicount:$188.5

110 Widgets sold
60 at 2.6 each    price:$156.0
50 at 3.25 each   price:$162.5
          Total price:$318.5
          Total price after Dicount:$318.5

50 widgets received at 4.0 each.
Total Received: $200.0

30 widgets received at 5.0 each.
Total Received: $150.0

40 widgets received at 5.5 each.
Total Received: $220.0

Next 2 customers will receive 30% discount.

50 Widgets sold
50 at 5.2 each    price:$260.0
          Total price:$260.0
          Discount:$78.0
          Total price after Dicount:$182.0
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30 Widgets sold
30 at 6.5 each     price:$195.0
           Total price:$195.0
           Discount:$58.5
           Total price after Dicount:$136.5


50 widgets received at 6.0 each.
Total Received: $300.0

265 widgets received at 10.0 each.
Total Received: $2650.0


60 Widgets sold
40 at 7.15 each    price:$286.0
20 at 7.800000000000001 each  price:$156.0
           Total price:$442.0
           Total price after Dicount:$309.4


Next 2 customers will receive 50% discount.

100 Widgets sold
30 at 7.800000000000001 each  price:$234.00000000000003
70 at 13.0 each    price:$910.0
           Total price:$1144.0
           Discount:$572.0
           Total price after Dicount:$572.0


70 Widgets sold
70 at 13.0 each    price:$910.0
           Total price:$910.0
           Discount:$455.0
           Total price after Dicount:$455.0


125 Widgets sold
125 at 13.0 each   price:$1625.0
           Total price:$1625.0
           Total price after Dicount:$812.5


40 widgets received at 14.0 each.
Total Received: $560.0

75 widgets received at 15.0 each.
Total Received: $1125.0


110 Widgets sold
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40 at 18.2 each    price:$728.0
70 at 19.5 each    price:$1365.0
            Total price:$2093.0
            Total price after Dicount:$1046.5


30 widgets received at 16.0 each.
Total Received: $480.0

40 widgets received at 18.0 each.
Total Received: $720.0
```