

// Rachel Friedman | February 27, 2020 | Data Structures 3130 | Assignment 3 | Main.java

```
import java.text.NumberFormat;
import java.util.*;
import java.io.File;
import java.io.FileNotFoundException;

public class Main {
    static double discount = 0;
    static boolean promotion = false;
    static int count = 0;
    LinkedList<Widget> widgets = new LinkedList<Widget>();

    public static void main(String[] args) {
        Main main = new Main();
        main.readData("data.csv");
        main.printList();
    }

    // -----READ DATA-----//
    public void readData(String filename) {
        int salesNumber = 1;
        try {
            Scanner data = new Scanner(new File(filename));
            while (data.hasNext()) {
                String[] line = data.nextLine().split(",");
                if (line[0].equals("R")) {
                    Widget w = new Widget(Integer.parseInt(line[1]), Double.parseDouble(line[2]));
                    widgets.add(w);
                    System.out.println();
                    w.display();
                } else if (line[0].equals("P")) {
                    activateDiscount(Double.parseDouble(line[1]));
                } else if (line[0].equals("S")) {
                    System.out.print("\nSales No " + salesNumber++);
                    System.out.println("| Order for " + Integer.parseInt(line[1]) + " widgets:");
                    sellWidgets(widgets, Integer.parseInt(line[1]), promotion);
                } else
                    System.out.println("Invalid card number");
            }
        } catch (FileNotFoundException e) {
            System.out.println("Missing file " + e.getMessage());
        } catch (NumberFormatException e) {
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        System.out.println("invalid number");
    } catch (Exception e) {
        System.out.println("An error has occurred " + e.getMessage());
    }
}

// -----SELL WIDGETS-----//
public void sellWidgets(LinkedList<Widget> widgets, int amount, boolean cardPromotion) {
    NumberFormat nf = NumberFormat.getCurrencyInstance();
    NumberFormat pf = NumberFormat.getPercentInstance();
    int originalAmount = amount; // if remains unchanged, order was completely unfulfilled
    double customerPrice = 0;
    int qty = 0; // to represent quantity in particular widget shipment
    double markup = .3;
    double cost = 0; // per widget shipment
    double total = 0; // represents total order

    Iterator<Widget> itr = widgets.listIterator();
    while (itr.hasNext() && amount > 0) {
        Widget w = itr.next();
        qty = w.getQuantity();
        customerPrice = (markup * w.getPrice()) + w.getPrice();
        if (qty >= amount) { // if shipment contains enough to fill order
            w.updateQuantity(qty - amount); // reduce shipment's inventory by this amount
            cost = amount * customerPrice;
            total = total + cost;
            System.out.println( amount + " widgets at " + nf.format(customerPrice) + " each
Sales: " + nf.format(cost));
            amount = amount - qty;
            if (amount == 0) {
                itr.remove();
            }
            break; // if sold all items, break out of iteration

        } else { // if there isn't enough, sell whatever is currently in stock, then adjust
the amount accordingly. Still iterating the list, but now with a new amount
            amount = amount - qty;
            cost = qty * customerPrice;
            total = total + cost;
            System.out.println(qty + " widgets at " + nf.format(customerPrice) + " each
Sales: " + nf.format(cost));
            itr.remove();
        }
    }
}
```

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    }
    if (amount == originalAmount) {
        System.out.println("Unfortunately, we are completely sold out at this time. ");
    } else {
        if (cardPromotion) {
            System.out.println("Promotional discount of " + pf.format(discount) + " has been
applied.");
            count++;
            total = total - (discount * total);
            if (count > 1)
                deactivateDiscount();
        }
        if (amount > 0) {
            System.out.println("Unfortunately, " + amount + " widgets are unavailable.");
        }
    }
    System.out.println("TOTAL SALES: " + nf.format(total));
}

// -----ACTIVATE DISCOUNT-----//
public static void activateDiscount(double value) {
    promotion = true;
    discount = value;
    count = 0;
    System.out.println("\n**Promotion has been activated for next two orders.**");
}

// -----DEACTIVATE DISCOUNT-----//
public static void deactivateDiscount() {
    promotion = false;
    discount = 0;
    count = 0;
}

// -----PRINT LIST-----//
public void printList() {
    Iterator<Widget> itr = widgets.listIterator();
    System.out.println("\n-----");
    System.out.println("Widgets still in stock:");
    while (itr.hasNext()) {
        Widget w = itr.next();
        w.display();
    }
}
}
} // Main
```