```java
import java.io.File;
import java.io.FileNotFoundException;
import java.text.NumberFormat;
import java.util.ArrayList;
import java.util.Scanner;

public class Main {

	final double[] prices = { 2, 7, 8.5 };
	double[] amounts = { 0, 0, 0 };
	NumberFormat nf = NumberFormat.getCurrencyInstance();
	ArrayList<Warehouse> warehouses = new ArrayList<Warehouse>();
	String searchResult = "";

	public static void main(String[] args) {
		Main m = new Main();
		m.setupWarehouses();
		m.readFile("asst2_data.csv");
	}

////////////////////////////*READFILE*//////////////////////////////
	public void readFile(String filename) {
		int count = 0;
		try {
			Scanner data = new Scanner(new File(filename));
			while (data.hasNextLine()) {
				count++;
				System.out.print("INPUTTING CARD " + count + ":");
				String[] line = data.nextLine().split(",");
				String city = line[1];
				Warehouse w = warehouses.get(getWarehouse(city));
				if (line[0].equals("s")) {
					System.out.print(" SHIPMENT\n");
					System.out.print(
							"CARD ENTRY " + line[1] + ": Items=[" + line[2] + ", " + line[3] + ", " + line[4]
+ "]");
					System.out.print("\nCURRENT " + w);
					for (int i = 0; i < 3; i++) {
						int amount = Integer.parseInt(line[i + 2]);
						w.setItem(i, w.getItem(i) + amount);
					}
					System.out.println("\nUPDATED " + w + "\n");
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                        }
                        else if (line[0].contentEquals("o")) {
                              System.out.print(" ORDER\n");
                              System.out.print(
                                          "CARD ENTRY "+line[1]+": Items=[" + line[2]+", "+line[3]+", " + line[4] + "]");
                              int itemsShort;
                              double surcharge = 0;
                              double total = 0;
                              System.out.println("\nCURRENT " + w);
                              for (int i = 0; i < 3; i++) {
                                    itemsShort = w.getItem(i) - Integer.parseInt(line[i + 2]);
                                    if (itemsShort < 0) {
                                          amounts[i] = 0;
                                          if (searchWarehouse(w, i, Math.abs(itemsShort))) {
                                                surcharge = .1 * prices[i] * Math.abs(itemsShort);
                                                amounts[i] = Integer.parseInt(line[i + 2]) * prices[i] + surcharge;
                                          }
                                    }
                                    else {
                                          amounts[i] = Integer.parseInt(line[i + 2]) * prices[i];
                                          w.setItem(i, w.getItem(i) - Integer.parseInt(line[i + 2]));
                                    }
                                    total += amounts[i];
                              }
                              System.out.println("UPDATED " + w + "\n");
                              System.out.println("*** CUSTOMER INVOICE ****** ");
                              System.out.printf("%-13s%-10s%-10s%-10s", "City", "Amount1", "Amount2", "Amount3");
                              System.out.println();
                              System.out.format("%-13s", w.getwarehouseCity() + "    ");

                              for (int i = 0; i < 3; i++) {
                                    System.out.printf("%-10s", nf.format(amounts[i]) + " ");
                              }
                              System.out.println("\nPRICE OF ORDER: " + nf.format(total) + "\n");
                        }
                  }
                  data.close();
            }
            catch (FileNotFoundException e) {
                  System.out.println(e.getMessage());
            }
      }
```

```
85  ////////////////SEARCH WAREHOUSES*****************************
86          public boolean searchWarehouse(Warehouse w1, int itemNumber, int itemsShort) {
87                  searchResult = "";
88                  int amount = itemsShort;
89                  int max = w1.getItem(itemNumber);
90                  int pos = getWarehouse(w1.getwarehouseCity());
91
92                  for (Warehouse w : warehouses) {
93                          amount = w.getItem(itemNumber);
94                          if (amount > max && amount >= itemsShort) {
95                                  max = amount;
96                                  pos = getWarehouse(w.getwarehouseCity());
97                          }
98                  }
99                  if (pos == getWarehouse(w1.getwarehouseCity())) {
100                         searchResult = "\t* Insufficient items of Item " + (itemNumber + 1) + " in stock. Order unfulfilled";
101                         System.out.println(searchResult);
102                         return false;
103                 }
104                 else {
105                         w1.setItem(itemNumber, 0);
106                         Warehouse w = warehouses.get(pos);
107                         w.setItem(itemNumber, w.getItem(itemNumber) - itemsShort);
108                         searchResult = ("\t* Shipped " + itemsShort + " of Item" + (itemNumber + 1) + " from "
109                                         + w.getwarehouseCity() + " to " + w1.getwarehouseCity());
110                         // searchResult += (".\n\t Now remaining in " + w.getwarehouseCity() + ": " +
111                         // w.getItem(itemNumber));
112                         searchResult += "\n\t  An additional ten percent has been charged for this item.";
113                         System.out.println(searchResult);
114                         return true;
115                 }
116         }
117
118 ////////////////////*MAP WAREHOUSE TO NUMBER*//////////////////////////////
119         public static int getWarehouse(String city) {
120                 if (city.contentEquals("New York"))
121                         return 0;
122                 if (city.contentEquals("Miami"))
123                         return 1;
124                 if (city.contentEquals("Los Angeles"))
125                         return 2;
126                 if (city.contentEquals("Houston"))
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127                     return 3;
128               if (city.contentEquals("Chicago"))
129                     return 4;
130               else
131                     return -1;
132         }
133
134   ////////////////////*SET UP WAREHOUSES*//////////////////////////////
135         public void setupWarehouses() {
136               String[] cities = { "New York", "Miami", "Los Angeles", "Houston", "Chicago" };
137               for (String s : cities) {
138                     Warehouse w = new Warehouse(s);
139                     warehouses.add(w);
140               }
141         }
142   }
143
```