

Program Name: **BCS – IT**  
Course Code: **CSC 1510**  
Course Name: **Programming Fundamentals**  
Assignment: **Fourth – Individual Project (Short Semester)**  
Date of Submission: **13th June, 2020**

**Submitted By: Submitted To:**

Student Name: **Keshav Bhandari** Faculty Name: **Prakash Chandra**

IUKL ID: Department: BCS - IT

Semester: Second

Intake: September, 2019**JAVA PROJECT ON PHARMACY MANAGEMENT SYSTEM**

**About:**

Pharmacy management system is an information system for the pharmacy.

The project should have following functionalities:

- - Maintain the medicine inventory in a file.

-- Display the complete inventory information.

-- Search the inventory based on a unique medicine ID.

- - Notify when:

a) the stock of any medicine is below given threshold.

b) Medicine is expired.

- - Maintain date wise sales record in a file.

- - Generate detailed billing for a customer in file format.

The generated bill should be named after the given customer name.

- - Show an infographic view of sales in the form of graphs and charts.

NOTE: The inventory file and sales file should have properly defined file headings.

**Main.java**

import javax.swing.\*;  
import java.util.Scanner;  
  
public class Main {  
 public static void main(String[] args) throws Exception {  
 Inventory inventory = new Inventory();  
  
 // To add new products into the inventory  
 System.out.println("Do you want to add a product? (Y/N)");  
 Scanner sc = new Scanner(System.in);  
 String response = sc.nextLine();  
 if (response.toUpperCase().equals("Y")) {  
 inventory.addToInventory();  
 }  
  
 // To display the all details of inventory  
 System.out.println("Do you want to display the inventory? (Y/N)");  
 if (sc.nextLine().toUpperCase().equals("Y")) {  
 Display\_inventory.displayInventory();  
 }  
  
 // To search the medicine  
 System.out.println("Do you want to search a product? (Y/N)");  
 if (sc.nextLine().toUpperCase().equals("Y")) {  
 Display\_inventory displaySearch = new Display\_inventory();  
 displaySearch.search();  
 }  
  
 // To buy the medicine and to maintain the stock into the Pharmacy  
 Sales sales = new Sales();  
 System.out.println("Do you want to buy products? (Y/N)");  
 if (sc.nextLine().toUpperCase().equals("Y")) {  
 sales.buyProducts();  
 }  
 // To check the expired date of products and to check the stock below threshold  
 Notification notification = new Notification();  
 notification.CompareDate();  
 notification.CompareStock();  
  
 // To generate sales record for the user  
 sales.generateSalesRecord();  
 sales.generateBill();  
  
 /\* To generate bar chart \*/  
 GraphCharts example = new GraphCharts("Bar Chart");  
 example.setSize(1000, 500);  
 example.setLocationRelativeTo(null);  
 example.setDefaultCloseOperation(WindowConstants.EXIT\_ON\_CLOSE);  
 example.setVisible(true);  
 }  
}

**Inventory.java**

import java.io.File;  
import java.io.FileNotFoundException;  
import java.io.FileWriter;  
import java.io.IOException;  
import java.util.ArrayList;  
import java.util.Scanner;  
  
// All about the inveentory in this section about maintenance of Pharmacy Management System   
public class Inventory {  
 static ArrayList<String> *MedicineID* = new ArrayList<>();  
 static ArrayList<String> *ProductName* = new ArrayList<>();  
 static ArrayList<String> *Stock* = new ArrayList<>();  
 static ArrayList<String> *Price* = new ArrayList<>();  
 static ArrayList<String> *ExpiryDate* = new ArrayList<>();  
 static File *Inventoryfile*;  
  
 // TO read the inventory  
 public static void readFile() throws FileNotFoundException {  
 *Inventoryfile* = new File("Medicine\_Inventory.csv");  
 Scanner inputFile = new Scanner(*Inventoryfile*);  
 while (inputFile.hasNext()) {  
 String line = inputFile.nextLine();  
 String[] arr = line.split(",");  
 *MedicineID*.add(arr[0]);  
 *ProductName*.add(arr[1]);  
 *Stock*.add(arr[2]);  
 *Price*.add(arr[3]);  
 *ExpiryDate*.add(arr[4]);  
 }  
 }  
  
 // It helps to add medicine into the inventory  
 public void addToInventory() throws IOException {  
  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.println("Enter the no of Products to add to the inventory:");  
 int noOfProducts = sc.nextInt();  
 String[] addedData = new String[noOfProducts];  
 System.*out*.println("Enter the MedicineID,ProductName,Stock,Price,ExpiryDate:");  
 for (int i = 0; i < noOfProducts; i++) {  
 addedData[i] = sc.next();  
 }  
 Inventory.*readFile*();  
 FileWriter out = new FileWriter(*Inventoryfile*);  
  
 int cnt = 0;  
 for (String i : *MedicineID*) {  
  
 out.write(i + "," + *ProductName*.get(cnt) + "," + *Stock*.get(cnt) + "," + *Price*.get(cnt) + ","  
 + *ExpiryDate*.get(cnt) + "\n");  
 cnt++;  
 }  
 for (int i = 0; i < noOfProducts; i++) {  
 out.write(addedData[i] + "\n");  
 }  
 out.close();  
 }  
  
}

**Display\_inventory.java**

import java.io.File;  
import java.io.FileNotFoundException;  
import java.util.ArrayList;  
import java.util.Scanner;  
  
public class Display\_inventory {  
 static ArrayList<String> *MedicineID* = new ArrayList<>();  
 static ArrayList<String> *ProductName* = new ArrayList<>();  
 static ArrayList<String> *Stock* = new ArrayList<>();  
 static ArrayList<String> *Price* = new ArrayList<>();  
 static ArrayList<String> *ExpiryDate* = new ArrayList<>();  
  
 // reads the inventory file  
 public static void readFile() throws FileNotFoundException {  
 File Inventoryfile = new File("Medicine\_Inventory.csv");  
 Scanner inputFile = new Scanner(Inventoryfile);  
 while (inputFile.hasNext()) {  
 String line = inputFile.nextLine();  
 String[] arr = line.split(",");  
 *MedicineID*.add(arr[0]);  
 *ProductName*.add(arr[1]);  
 *Stock*.add(arr[2]);  
 *Price*.add(arr[3]);  
 *ExpiryDate*.add(arr[4]);  
 }  
 }  
  
 // Displaying the inventory  
 public static void displayInventory() throws FileNotFoundException {  
 Display\_inventory.*readFile*();  
 System.*out*.println("\t\t\t\tHere are the details of medicine in the Pharmacy:");  
 System.*out*.println("==========================================================================");  
 int cnt = 0;  
 for (String i : *MedicineID*) {  
  
 System.*out*.println(i + ((i.length() > 5) ? "\t\t" : "\t\t\t") + *ProductName*.get(cnt)  
 + ((*ProductName*.get(cnt).length() < 8) ? "\t\t\t" : "\t\t") + *Stock*.get(cnt)  
 + ((*Stock*.get(cnt).length() > 8) ? "\t" : "\t\t\t\t\t") + *Price*.get(cnt)  
 + ((*ExpiryDate*.get(cnt).contains("ExpiryDate")) ? "\t\t" : "\t\t\t") + *ExpiryDate*.get(cnt));  
 cnt++;  
 }  
 System.*out*.println("==========================================================================");  
 }  
  
 // Search the medicine with Unique ID  
 public void search() {  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.println("=================Searching Here=================");  
 System.*out*.println("Enter the MedicineID of the medicine you want to search:");  
 String MED\_ID = sc.nextLine();  
  
 int cnt = 0;  
 int check = 0;  
 for (String i : *MedicineID*) {  
 if (i.equals(MED\_ID)) {  
 System.*out*.println("Medicine ID:\t\t" + i + "\nProduct Name:\t" + *ProductName*.get(cnt)  
 + "\nStock amount:\t" + *Stock*.get(cnt) + "\nPrice:\t\t\t" + *Price*.get(cnt) + "\nExpiry Date:\t"  
 + *ExpiryDate*.get(cnt));  
 check \*= 0;  
 break;  
 } else {  
 check += 1;  
 }  
 cnt++;  
 }  
  
 if (check > 0) {  
 System.*out*.println("Sorry, we don't have that item!!");  
 }  
 }  
  
 public static ArrayList<String> getMedicineID() {  
 return *MedicineID*;  
 }  
  
 public static ArrayList<String> getProductName() {  
 return *ProductName*;  
 }  
  
 public static ArrayList<String> getStock() {  
 return *Stock*;  
 }  
  
 public static ArrayList<String> getPrice() {  
 return *Price*;  
 }  
  
 public static ArrayList<String> getExpiryDate() {  
 return *ExpiryDate*;  
 }  
}

**Notification.java**

import java.io.File;  
import java.io.FileNotFoundException;  
import java.text.\*;  
import java.util.ArrayList;  
import java.util.Date;  
import java.util.Scanner;  
  
public class Notification {  
 ArrayList<String> Stock = new ArrayList<>();  
 ArrayList<String> ExpiryDate = new ArrayList<>();  
 static int *lineCountInventory*, *thresholdForStock*;  
 static ArrayList<String> *ProductName* = new ArrayList<>();  
  
 public void readFile() throws FileNotFoundException {  
 File Inventory\_file = new File("Medicine\_Inventory.csv");  
 Scanner inputFile = new Scanner(Inventory\_file);  
 while (inputFile.hasNext()) {  
 String line = inputFile.nextLine();  
 *lineCountInventory*++;  
 String[] arr = line.split(",");  
 *ProductName*.add(arr[1]);  
 Stock.add(arr[2]);  
 if (arr[2].contains("limit")) {  
 String[] array = arr[2].split("=");  
 *thresholdForStock* = Integer.*parseInt*(array[1].substring(0, array[1].length() - 1));  
 }  
 ExpiryDate.add(arr[4]);  
 }  
 }  
  
 public void CompareDate() throws Exception {  
 readFile();  
 int check = 0;  
 String pattern = "yyyy/MM/dd";  
 SimpleDateFormat simpleDateFormat = new SimpleDateFormat(pattern);  
 String date = simpleDateFormat.format(new Date());  
 Date currentDate = simpleDateFormat.parse(date);  
 Date[] dates = new Date[*lineCountInventory* - 1];  
 for (int i = 1; i < *lineCountInventory*; i++) {  
 dates[i - 1] = simpleDateFormat.parse(ExpiryDate.get(i));  
 }  
 System.*out*.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Checking the Expiry Date\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* ");  
  
 for (int i = 1; i < *lineCountInventory*; i++) {  
 if (dates[i - 1].compareTo(currentDate) < 0) {  
 System.*out*.println(*ProductName*.get(i) + " is expired!!");  
 check++;  
 }  
 }  
 if (check == 0) {  
 System.*out*.println("None are expried");  
 }  
  
 }  
  
 public void CompareStock() {  
 int check = 0;  
 System.*out*.println("\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*Checking Stock Availability\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\*\* ");  
 for (int i = 1; i < *lineCountInventory*; i++) {  
 if (Integer.*parseInt*(Stock.get(i)) < *thresholdForStock*) {  
 System.*out*.println(*ProductName*.get(i) + " to be added!!");  
 check++;  
 }  
 }  
 if (check == 0) {  
 System.*out*.println("Stock is fine.");  
 }  
 }  
  
}

**Sales.java**

import java.io.File;  
import java.io.FileWriter;  
import java.io.IOException;  
import java.util.ArrayList;  
import java.util.Scanner;  
  
// It is all about sales....................  
public class Sales {  
 static ArrayList<String> *MedicineID* = new ArrayList<>();  
 static ArrayList<String> *ProductName* = new ArrayList<>();  
 static ArrayList<String> *Stock* = new ArrayList<>();  
 static ArrayList<String> *Price* = new ArrayList<>();  
 static ArrayList<String> *ExpiryDate* = new ArrayList<>();  
 static String *CustName*, *TodayDate*;  
 static int *TotalSales*, *noOfProducts*;  
 static String[] *nameOfProduct*;  
 static int[] *amount*, *individualPrice*;  
  
 public String readFile() throws IOException {  
 File Sales = new File("Sales.csv");  
 Scanner inputFile = new Scanner(Sales);  
 String saveFile = "";  
 while (inputFile.hasNext()) {  
 saveFile += inputFile.nextLine() + "\n";  
 }  
 return saveFile;  
 }  
  
 public void readInventoryData() {  
 *MedicineID* = Display\_inventory.*getMedicineID*();  
 *ProductName* = Display\_inventory.*getProductName*();  
 *Stock* = Display\_inventory.*getStock*();  
 *Price* = Display\_inventory.*getPrice*();  
 *ExpiryDate* = Display\_inventory.*getExpiryDate*();  
 }  
  
 public void buyProducts() throws IOException {  
 readInventoryData();  
 Scanner sc = new Scanner(System.*in*);  
 System.*out*.println("Enter your name:");  
 *CustName* = sc.next();  
 System.*out*.println("Enter today's date:");  
 *TodayDate* = sc.next();  
 System.*out*.println("Enter the number of products to buy:");  
 *noOfProducts* = sc.nextInt();  
 *nameOfProduct* = new String[*noOfProducts*];  
 *amount* = new int[*noOfProducts*];  
 *individualPrice* = new int[*noOfProducts*];  
 for (int i = 0; i < *noOfProducts*; i++) {  
 System.*out*.println("Enter the name of product " + (i + 1) + ":");  
 *nameOfProduct*[i] = sc.next();  
 }  
 int cnt = 0;  
 int checkForStock = 0;  
  
 for (String i : *ProductName*) {  
 int stock;  
 for (int j = 0; j < *noOfProducts*; j++) {  
 if (i.equalsIgnoreCase(*nameOfProduct*[j])) {  
 System.*out*.println("Enter the amount of medicine you want for " + i + ":");  
 *amount*[j] = sc.nextInt();  
 stock = Integer.*parseInt*(*Stock*.get(cnt));  
 stock -= *amount*[j];  
 *individualPrice*[j] = Integer.*parseInt*(*Price*.get(cnt));  
 *TotalSales* += *amount*[j] \* *individualPrice*[j];  
 if (stock > 0) {  
  
 *Stock*.set(cnt, "" + stock);  
 checkForStock \*= 0;  
 } else {  
 checkForStock += 1;  
  
 }  
  
 }  
  
 }  
 cnt++;  
 }  
  
 if ((checkForStock > 0)) {  
 System.*out*.println("Out of the stock for this product!!");  
 } else {  
 System.*out*.println("Go for buying!!");  
 }  
  
 cnt = 0;  
 FileWriter out = new FileWriter("Medicine\_Inventory.csv");  
 for (String i : *MedicineID*) {  
  
 out.write(i + "," + *ProductName*.get(cnt) + "," + *Stock*.get(cnt) + "," + *Price*.get(cnt) + ","  
 + *ExpiryDate*.get(cnt) + "\n");  
 cnt++;  
 }  
  
 out.close();  
 }  
  
 public void generateBill() throws IOException {  
 FileWriter out = new FileWriter("Bills of "+*CustName*);  
 out.write("Name:" + *CustName* + "\nDate:" + *TodayDate* + "\n====================BILL==================");  
 out.write("\nNo. ProductName\tQuantity\tPrice\tTotal\n");  
 for (int i = 0; i < *noOfProducts*; i++) {  
 out.write((i + 1) + " " + *nameOfProduct*[i] + ((*nameOfProduct*[i].length() > 7) ? "\t" : "\t\t") + *amount*[i]  
 + "\t\t\t" + *individualPrice*[i] + "\t\t" + (*amount*[i] \* *individualPrice*[i]) + "\n");  
 }  
 out.write("\n=========================================");  
 out.write("\nGrand Total\t\t\t\t\t" + *TotalSales*);  
 out.close();  
  
 }  
  
 public void generateSalesRecord() throws IOException {  
 File sales = new File("Sales.csv");  
 String saveFile = readFile();  
 FileWriter out = new FileWriter(sales);  
 out.write(saveFile);  
 out.write(*TodayDate* + "," + *CustName* + "," + *TotalSales*);  
 out.close();  
  
 }  
  
}

**GraphCharts.java**

import javax.swing.\*;  
  
import org.jfree.chart.ChartFactory;  
import org.jfree.chart.ChartPanel;  
import org.jfree.chart.JFreeChart;  
import org.jfree.chart.plot.PlotOrientation;  
import org.jfree.data.category.CategoryDataset;  
import org.jfree.data.category.DefaultCategoryDataset;  
  
import java.io.File;  
import java.io.FileNotFoundException;  
import java.util.Scanner;  
  
public class GraphCharts extends JFrame {  
 static int *noOfSalesData*;  
  
 public GraphCharts(String appTitle) throws FileNotFoundException {  
 super(appTitle);  
  
 // Create Dataset  
 CategoryDataset dataset = createDataset();  
  
 // Create chart  
 JFreeChart chart = ChartFactory.*createBarChart*("Sales Record ", // Chart Title  
 "Fields", // Category axis  
 "Sales in Rs", // Value axis  
 dataset, PlotOrientation.*VERTICAL*, true, true, false);  
  
 ChartPanel panel = new ChartPanel(chart);  
 setContentPane(panel);  
 }  
  
 public String[][] scanningData\_Sales() throws FileNotFoundException {  
 File Sales = new File("Sales.csv");  
 Scanner inputFile = new Scanner(Sales);  
 Scanner input = new Scanner(Sales);  
 while (inputFile.hasNext()) {  
 inputFile.nextLine();  
 *noOfSalesData*++;  
 }  
 String[][] SalesData = new String[*noOfSalesData* - 1][3];  
  
 for (int i = 0; i < *noOfSalesData*; i++) {  
 String line = input.nextLine();  
 String[] arr = line.split(",");  
 if (i == 0)  
 continue;  
  
 for (int j = 0; j < 3; j++) {  
 SalesData[i - 1][j] = arr[j];  
  
 }  
 }  
  
 inputFile.close();  
 input.close();  
 return SalesData;  
 }  
  
 private CategoryDataset createDataset() throws FileNotFoundException {  
 String[][] data = scanningData\_Sales();  
 DefaultCategoryDataset dataset = new DefaultCategoryDataset();  
  
 for (String[] salesDatum : data) {  
 dataset.addValue(Double.*parseDouble*(salesDatum[2]), "Sales", (salesDatum[1] + ":" + salesDatum[0]));  
 }  
  
 return dataset;  
 }  
  
}

**Output are:**











