IO Operations, Serialization and Exception Handling Lab Exercise

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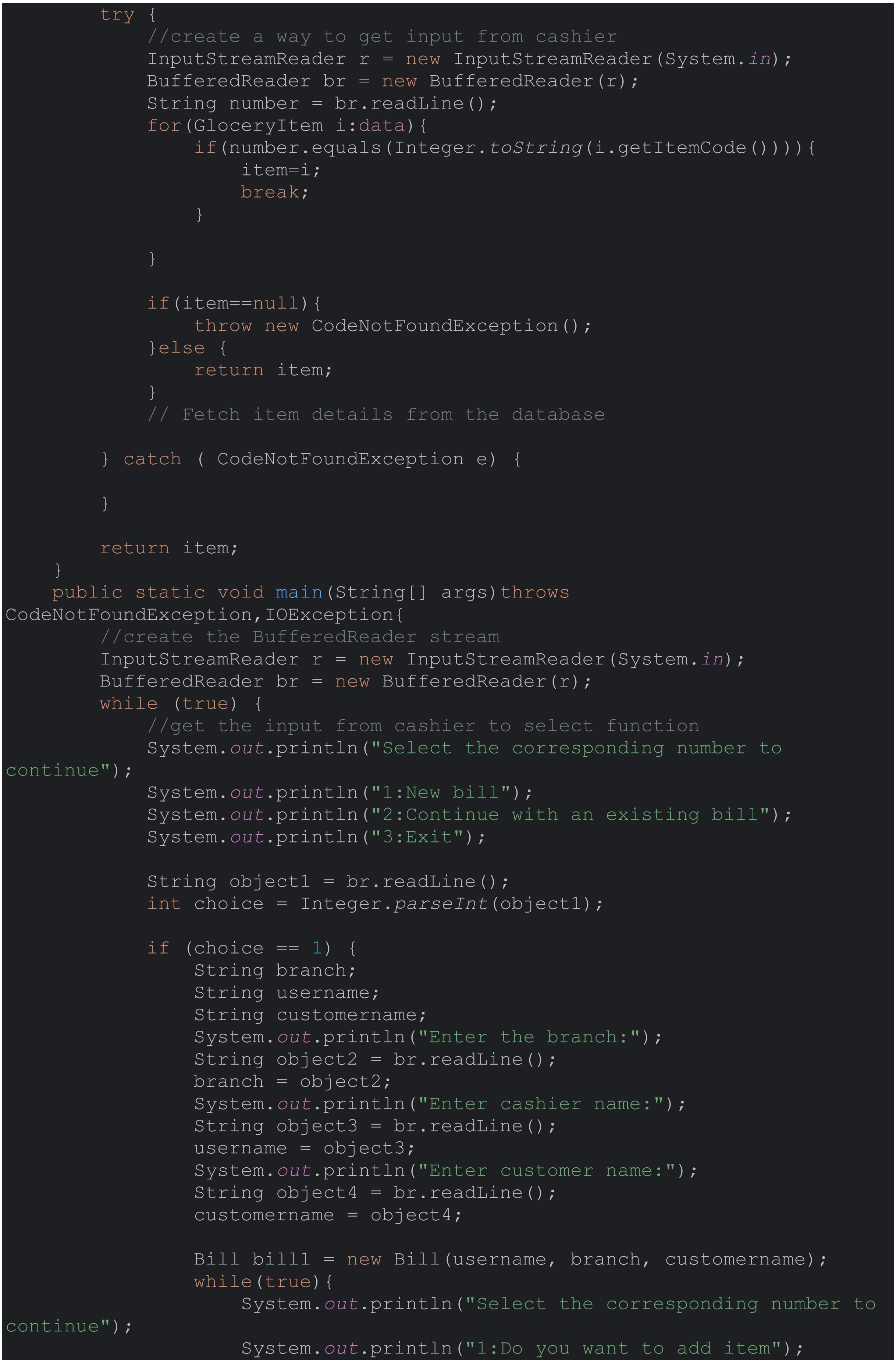
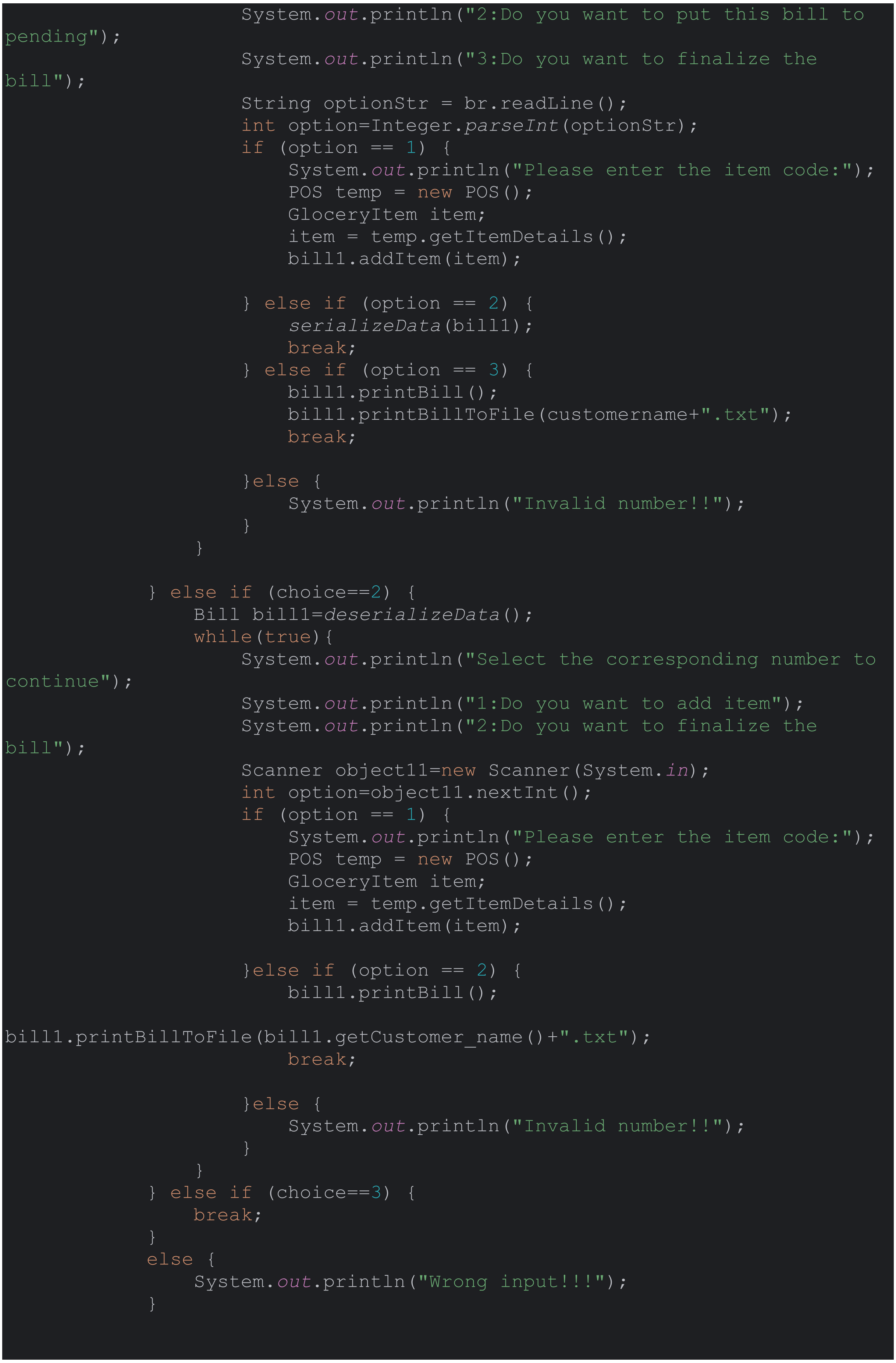
Main Class (POS Class)

```
import java.io.*;
import java.util.ArrayList;
import java.util.Scanner;

public class POS {
    //Simulated the database
    ArrayList<GloceryItem> data=new ArrayList();
    //serialize the bill

    public static void serializeData(Bill bill) {
        try (ObjectOutputStream myFile = new ObjectOutputStream(new
FileOutputStream("bill_file.ser"))) {
            myFile.writeObject(bill);

        } catch (IOException e) {
            e.printStackTrace();
        }
    }
    //create a method to get pending bill
    public static Bill deserializeData() {
        try (ObjectInputStream serializeFile = new ObjectInputStream(new
FileInputStream("bill_file.ser"))) {
            Object temp = serializeFile.readObject();
            if (temp != null && temp instanceof Bill) {
                return (Bill) temp;
            } else {

            }
        } catch (FileNotFoundException i) {

        } catch (IOException | ClassNotFoundException e) {
            e.printStackTrace();
        }
        return null;
    }

    //get item if it is in the data base
    public GloceryItem getItemDetails() throws CodeNotFoundException,
IOException {
        //feching data from data base
        data.add(GloceryItem.Books());
        data.add(GloceryItem.ChocolateCreamBiscuit());
        data.add(GloceryItem.CreamCreaker());
        data.add(GloceryItem.PolytheneBags());
        GloceryItem item=null;
```



```
        try {
            //create a way to get input from cashier
            InputStreamReader r = new InputStreamReader(System.in);
            BufferedReader br = new BufferedReader(r);
            String number = br.readLine();
            for(GloceryItem i:data){
                if(number.equals(Integer.toString(i.getItemCode()))){
                    item=i;
                    break;
                }

            }

            if(item==null){
                throw new CodeNotFoundException();
            }else {
                return item;
            }
            // Fetch item details from the database

        } catch ( CodeNotFoundException e) {

        }

        return item;
    }
    public static void main(String[] args)throws
CodeNotFoundException,IOException{
        //create the BufferedReader stream
        InputStreamReader r = new InputStreamReader(System.in);
        BufferedReader br = new BufferedReader(r);
        while (true) {
            //get the input from cashier to select function
            System.out.println("Select the corresponding number to
continue");
            System.out.println("1:New bill");
            System.out.println("2:Continue with an existing bill");
            System.out.println("3:Exit");

            String object1 = br.readLine();
            int choice = Integer.parseInt(object1);

            if (choice == 1) {
                String branch;
                String username;
                String customername;
                System.out.println("Enter the branch:");
                String object2 = br.readLine();
                branch = object2;
                System.out.println("Enter cashier name:");
                String object3 = br.readLine();
                username = object3;
                System.out.println("Enter customer name:");
                String object4 = br.readLine();
                customername = object4;

                Bill bill1 = new Bill(username, branch, customername);
                while(true){
                    System.out.println("Select the corresponding number to
continue");
                    System.out.println("1:Do you want to add item");
```

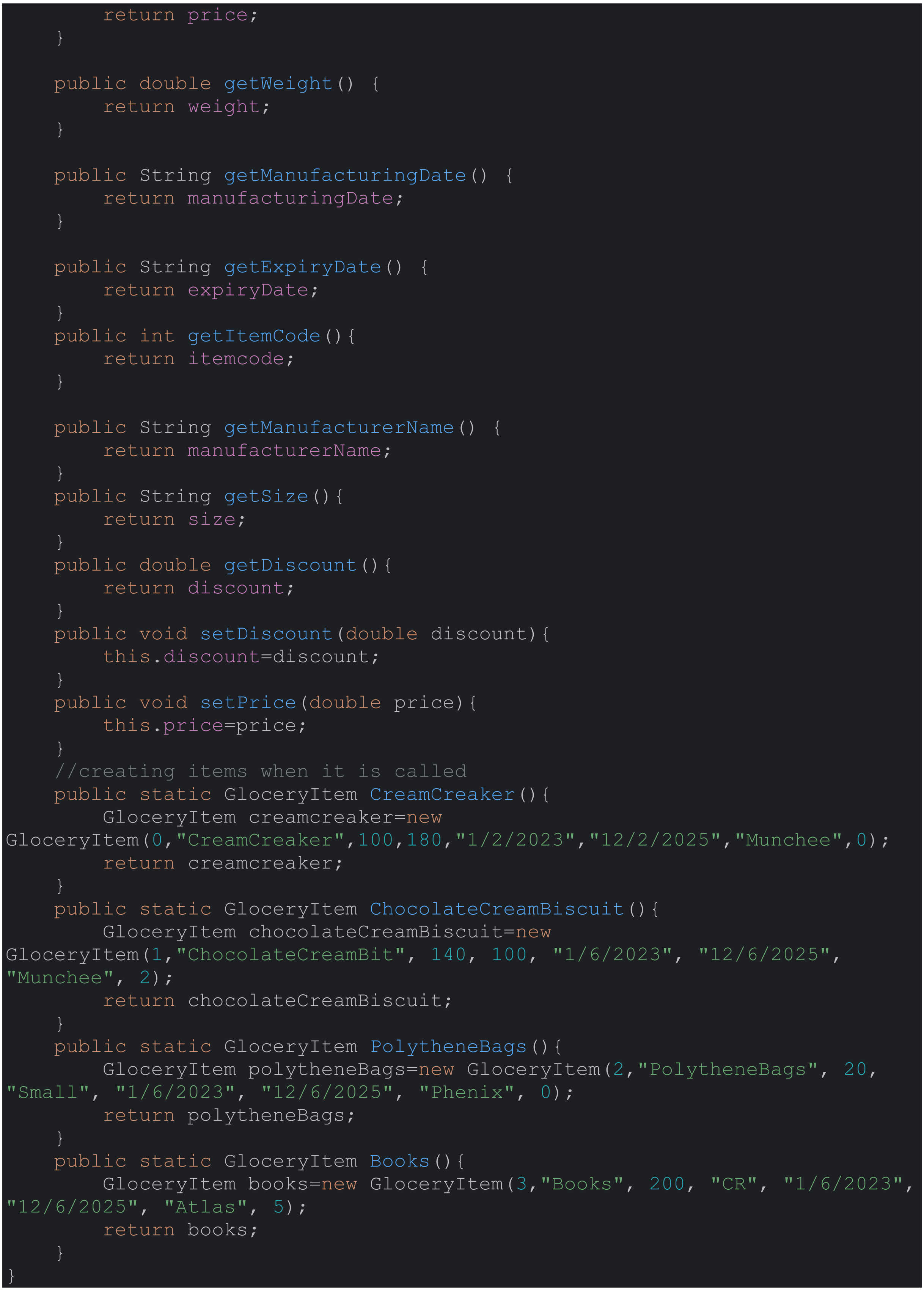


```
                    System.out.println("2:Do you want to put this bill to
pending");
                    System.out.println("3:Do you want to finalize the
bill");
                    String optionStr = br.readLine();
                    int option=Integer.parseInt(optionStr);
                    if (option == 1) {
                        System.out.println("Please enter the item code:");
                        POS temp = new POS();
                        GloceryItem item;
                        item = temp.getItemDetails();
                        bill1.addItem(item);

                    } else if (option == 2) {
                        serializeData(bill1);
                        break;
                    } else if (option == 3) {
                        bill1.printBill();
                        bill1.printBillToFile(customername+".txt");
                        break;

                    }else {
                        System.out.println("Invalid number!!");
                    }
                }

            } else if (choice==2) {
                Bill bill1=deserializeData();
                while(true){
                    System.out.println("Select the corresponding number to
continue");
                    System.out.println("1:Do you want to add item");
                    System.out.println("2:Do you want to finalize the
bill");
                    Scanner object11=new Scanner(System.in);
                    int option=object11.nextInt();
                    if (option == 1) {
                        System.out.println("Please enter the item code:");
                        POS temp = new POS();
                        GloceryItem item;
                        item = temp.getItemDetails();
                        bill1.addItem(item);

                    }else if (option == 2) {
                        bill1.printBill();

bill1.printBillToFile(bill1.getCustomer_name()+".txt");
                        break;

                    }else {
                        System.out.println("Invalid number!!");
                    }
                }
            } else if (choice==3) {
                break;
            }
            else {
                System.out.println("Wrong input!!!");
            }
```

```
        }
        br.close();
        r.close();
    }


}
```

GloceryItem Class

```
import java.io.Serializable;


class GloceryItem implements Serializable {
    private int itemcode;
    private String itemName;
    private double price;
    private double weight;
    private String size;
    private String manufacturingDate;
    private String expiryDate;
    private String manufacturerName;
    private double discount;

    // Constructor
    public GloceryItem(int itemcode,String itemName, double price, double
weight, String manufacturingDate, String expiryDate, String
manufacturerName,double discount) {
        this.itemName = itemName;
        this.price = price;
        this.weight = weight;
        this.manufacturingDate = manufacturingDate;
        this.expiryDate = expiryDate;
        this.manufacturerName = manufacturerName;
        this.itemcode=itemcode;
        this.discount=discount;
    }
    public GloceryItem(int itemcode,String itemName,double price,String
size, String manufacturingDate,String expiryDate,String
manufacturerName,double discount ){
        this.itemcode=itemcode;
        this.itemName=itemName;
        this.price=price;
        this.size=size;
        this.manufacturingDate=manufacturingDate;
        this.expiryDate=expiryDate;
        this.manufacturerName=manufacturerName;
        this.discount=discount;
    }

    // Getters
    public String getItemName() {
        return itemName;
    }

    public double getPrice() {
```



```
        return price;
    }

    public double getWeight() {
        return weight;
    }

    public String getManufacturingDate() {
        return manufacturingDate;
    }

    public String getExpiryDate() {
        return expiryDate;
    }
    public int getItemCode(){
        return itemcode;
    }

    public String getManufacturerName() {
        return manufacturerName;
    }
    public String getSize(){
        return size;
    }
    public double getDiscount(){
        return discount;
    }
    public void setDiscount(double discount){
        this.discount=discount;
    }
    public void setPrice(double price){
        this.price=price;
    }
    //creating items when it is called
    public static GloceryItem CreamCreaker(){
        GloceryItem creamcreaker=new
GloceryItem(0,"CreamCreaker",100,180,"1/2/2023","12/2/2025","Munchee",0);
        return creamcreaker;
    }
    public static GloceryItem ChocolateCreamBiscuit(){
        GloceryItem chocolateCreamBiscuit=new
GloceryItem(1,"ChocolateCreamBit", 140, 100, "1/6/2023", "12/6/2025",
"Munchee", 2);
        return chocolateCreamBiscuit;
    }
    public static GloceryItem PolytheneBags(){
        GloceryItem polytheneBags=new GloceryItem(2,"PolytheneBags", 20,
"Small", "1/6/2023", "12/6/2025", "Phenix", 0);
        return polytheneBags;
    }
    public static GloceryItem Books(){
        GloceryItem books=new GloceryItem(3,"Books", 200, "CR", "1/6/2023",
"12/6/2025", "Atlas", 5);
        return books;
    }
}
```

Bill Class

```java
import java.io.Serializable;
import java.util.ArrayList;
import java.time.LocalDateTime;
import java.io.BufferedWriter;
import java.io.FileWriter;
import java.io.IOException;
// create the bill using this function
public class Bill implements Serializable {
    private String cashiers_name;
    private String branch;
    private String  customer_name;
    //arraylist use to store the buying goods
    public ArrayList<GloceryItem> item_list = new ArrayList<GloceryItem>();

    // Constructor for build a bill.
    public  Bill(String cashiers_name, String branch, String customer_name)
{
        this.cashiers_name = cashiers_name;
        this.branch = branch;
        this.customer_name = customer_name;
    }
    //getters
    public String getCustomer_name(){
        return customer_name;
    }
    //add new goods
    public void addItem(GloceryItem item){
        item_list.add(item);
    }

    public double totalPrice(){
        int len = item_list.size();
        double total_price=0;
        for (int i=0; i<len ; i++){
            GloceryItem temp = item_list.get(i);
            total_price = total_price+ (temp.getPrice()-
(temp.getDiscount()* temp.getPrice())*0.01);
        }
        return total_price;
    }
    public double totalDiscount(){
        int len = item_list.size();
        double total_discount=0;
        for (int i=0; i<len ; i++){
            GloceryItem temp = item_list.get(i);
            total_discount = total_discount+ (temp.getDiscount()*
temp.getPrice())*0.01;
        }
        return total_discount;
    }
    //print the bill to console
    public  void printBill(){
        System.out.println("<<< WELCOME TO SUPER SAVING SUPERMARKET >>>");
        System.out.println("customer name is "+customer_name);
        System.out.println("branch is "+branch);
        System.out.println("cashiers name is "+cashiers_name);
        int len = item_list.size();
        System.out.println("NO" + ">>>Unit Price" + ">>>Discount" +
">>>Net Price");
        for ( int i = 0 ; i<len ;i++){
            GloceryItem temp = item_list.get(i);
            System.out.println(i+"  "+temp.getPrice()+" -
"+temp.getDiscount()+" =  "+(temp.getPrice()-(temp.getDiscount()*
temp.getPrice())*0.01));
        }
        System.out.println("Your total discount is:"+totalDiscount());
        System.out.println("Your total bill is:"+totalPrice());
        LocalDateTime currentDateTime = LocalDateTime.now();
        System.out.println("Date And Time: " + currentDateTime);
        System.out.println("Thank You");
    }
    //this function use to write the into a file.
    public void printBillToFile(String filename) {
        try (FileWriter fw = new FileWriter(filename);
             BufferedWriter bw = new BufferedWriter(fw)) {
            // Write the bill details to the file
            bw.write("<<< WELCOME TO SUPER SAVING SUPERMARKET >>>\n");
            bw.write("Cashier: " + cashiers_name + "\n");
            bw.write("Branch: " + branch + "\n");
            bw.write("Customer: " + customer_name + "\n");
            bw.write("NO >>>UnitPrice >>>Discount >>>Net Price\n");
            for (int i = 0; i < item_list.size(); i++) {
                GloceryItem temp = item_list.get(i);
                bw.write(i+"  "+temp.getPrice()+" - "+temp.getDiscount()+"
=  "+(temp.getPrice()-(temp.getDiscount()* temp.getPrice())*0.01) + "\n");
            }
            bw.write("Your total discount is: " + totalDiscount() + "\n");
            bw.write("Your total bill is: " + totalPrice() + "\n");
            LocalDateTime currentDateTime = LocalDateTime.now();
            bw.write("Date And Time: " + currentDateTime + "\n");
            bw.write("Thank You\n");

            System.out.println("Bill printed to file successfully.");

        } catch (IOException e) {
            e.printStackTrace();
        }
    }

}
```

CodeNotFoundException Class

```
public class CodeNotFoundException extends Exception{
    //customize the exception
    public CodeNotFoundException(){
        System.out.println("There isn't code in DataBase!!! ");
    }
}
```