Institute of Technology, Nirma University

E-Token System and Automatic Bill Generation for a Grocery Store

Innovative Assignment

Object Oriented Programming

(2CS302)

Details:

Roll No: 19BCE154

Name: Mahek Parekh

Program Definition:

- This program helps in taking order from the customers and giving them waiting number (E-Token) and estimated waiting time so that they can come after that time and collect their grocery.
- This program also helps the shopkeeper in making the bill of the items purchased.
- Hence, this program saves time of both customer and the shopkeeper and it also prevents mass gathering at the grocery shop hence the program is very useful in these time of COVID-19.

Project detail description including functionalities:

- First the shopkeeper is asked that at maximum how many orders he/she want to store at one time.
- Then it is asked whether you are customer giving the order or the shopkeeper accepting it.
- If it is said that you are customer, your name, number of items to purchase and the name of the items to purchase is taken and you are given waiting number and estimated waiting time to collect the grocery.
- If it is said that you are shopkeeper, then you are shown names of the customer and their order one by one and you are asked to enter the price of each item and then the bill is generated in the name of the customer in the separate file.
- The process can be repeated as many number of time we want.
- We have used concepts such as File Handling, Exception Handling, Classes, Methods, etc. of Object Oriented Programming.

Java Program Files:

Name of File: customer.java

File Purpose: It contains methods such as details (to store details and order of the customer), calctot (to specify the price of each item and calculate the total), and generateinvoice (to generate the bill of the customer in the separate file).

Java File Code:

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

class customer
{
    String name;
    int noofitems,waitnumber,total;
    String [] items;
    int [] price;



    customer(int num)
    {
        waitnumber=num;
        total=0;
    }



    void details()     //takes details from the customer such as name
and order details
    {
        Scanner scan1=new Scanner(System.in);
        System.out.print("Enter your name: ");
        name=scan1.nextLine();
        System.out.print("How any items do you want to buy? ");
        while(true)
        {
            try  //try-catch block to validate the value of number of
items greater than 1
            {
                noofitems=scan1.nextInt();
                if(noofitems<=0)
                {
                    throw new Exception("Enter valid value greater than
0.");
                }
            }
            catch(Exception e)
            {
                System.out.println(e.getMessage());
                continue;
            }
            break;
        }
```

```
        scan1.nextLine();
        items=new String [noofitems];
        price=new int [noofitems];
        for(int i=0;i<noofitems;i++)
        {
            System.out.print("Item Number "+(i+1)+": ");
            items[i]=scan1.nextLine();
        }
        System.out.println("Your waiting number is "+(waitnumber+1)+".
You can come to collect your grocery after "+((waitnumber+1)*5)+"
minutes.");
    }


    void calctot()          //to take the price of every item from the
shopkeeper and do total
    {
        Scanner scan2=new Scanner(System.in);
        System.out.println("Name: "+name);
        System.out.println("What is the cost of every item:\n");
        for(int i=0;i<noofitems;i++)
        {
            System.out.print(items[i]+"\t");
            while(true)
            {
                try         //try-catch block to validate the price of
item greater than 0
                {
                    price[i]=scan2.nextInt();
                    if(price[i]<=0)
                    {
                        throw new Exception("Enter valid value greater
than 0.");
                    }
                }
                catch(Exception e)
                {
                    System.out.println(e.getMessage());
                    continue;
                }
                break;
            }
            total+=price[i];
        }
    }


    void generateinvoice() throws IOException      //to generate
invoice in separate txt file
    {
        FileWriter fw=new FileWriter("BILL.txt",true);
        fw.write("\n");
        fw.write("\n");
        fw.write("-----------------------------------------------------
------\n");
        fw.write("INVOICE\n");
        fw.write("-----------------------------------------------------
------\n");
```

```
        fw.write("Name: "+ name+"\n");
        fw.write("Items\t\tPrice\n");
        for(int i=0;i<noofitems;i++)
        {
            fw.write(items[i]+"\t\t"+price[i]+"\n");
        }
        fw.write("-------------------------------------------------------
------\n");
        fw.write("Total:\t\t"+total+"\n");
        fw.write("Thank you and Visit Again.\n");
        fw.write("-------------------------------------------------------
------\n");
        fw.write("\n");
        fw.write("\n");
        fw.close();
    }
}
```

Name of File: grocerystore.java

File Purpose: This file contains main method. The main method decides the user of the program that is the customer or the shopkeeper.

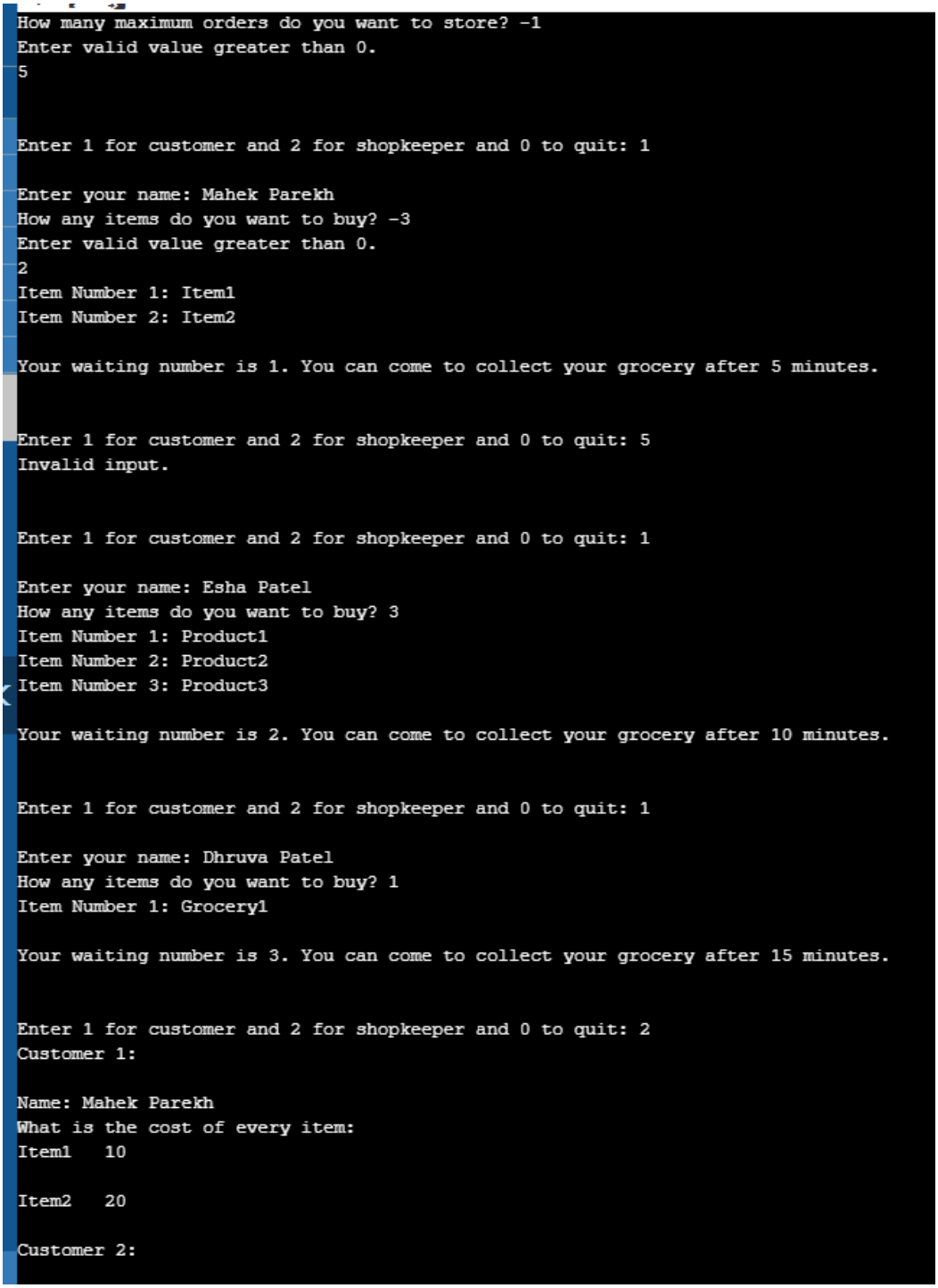
Java File Code:

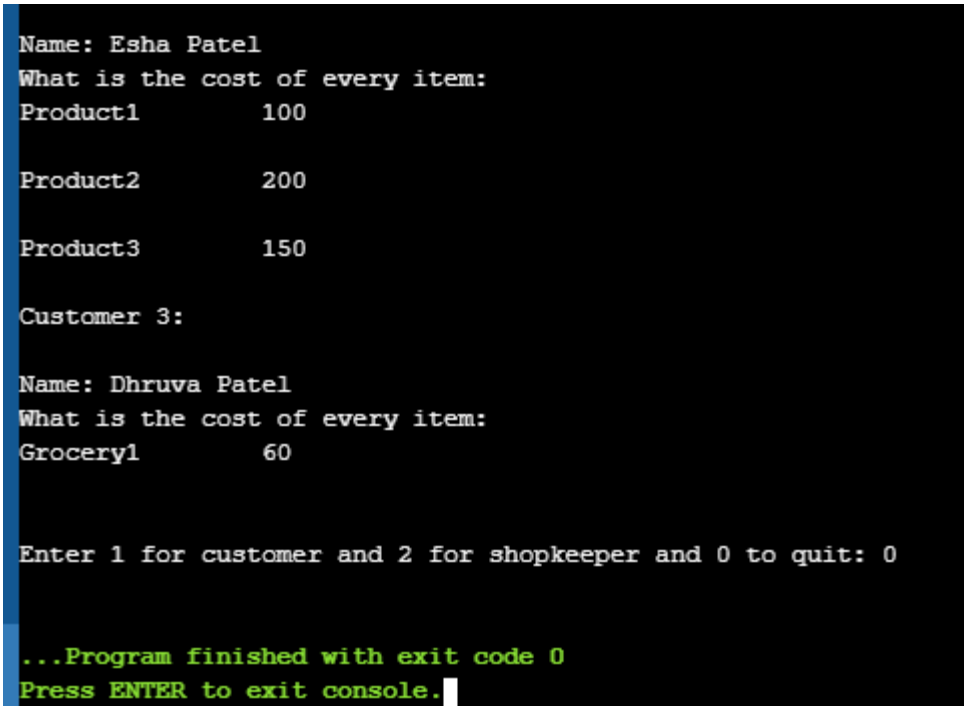
```
import java.io.*;
import java.util.Scanner;


public class grocerystore
{
    public static void main(String [] args) throws IOException
    {
        System.out.print("How many maximum orders do you want to store?
");
        Scanner scan=new Scanner(System.in);
        int n;
        while(true)
        {
            try        //try-catch block to validate the value of
maximum number orders at one time to greater than 0
            {
                n=scan.nextInt();
                if(n<=0)
                {
                    throw new Exception("Enter valid value greater than
0.");
                }
            }
            catch(Exception e)
            {
                System.out.println(e.getMessage());
                continue;
            }
            break;
        }
```

```
        customer [] cust=new customer[n];     //creates n objects
        int deci;
        int num=0;
        do{
            System.out.print("Enter 1 for customer and 2 for shopkeeper
and 0 to quit: ");
            deci=scan.nextInt();  //to decide whether you are customer
or shopkeeper
            if(deci==1)           //if the user is customer
            {
                cust[num]=new customer(num);  //new object is created
                cust[num].details();    //details method is called to
store details of the customer and the order
                num++;
            }
            else if(deci==2)      //if the user is shopkeeper
            {
                 if(num==0)       //condition if no order is pending
                 {
                       System.out.println("No orders pending.\n");
                 }
                for(int i=0;i<num;i++)
                {
                    System.out.println("Customer "+(i+1)+": ");
                    cust[i].calctot();              //total value of
order of customers calculated
                    cust[i].generateinvoice();      //bill of the
customer is generated into separate file
                }
                num=0;
            }
            else if(deci!=0)      //invalid request
            {
                System.out.println("Invalid input.\n");
            }
        }while(deci!=0);
    }
}
```

(P.T.O)

Screen Shots:




Name: Esha Patel
What is the cost of every item:
Product1 100
Product2 200
Product3 150
Customer 3:
Name: Dhruva Patel
What is the cost of every item:
Grocery1 60
Enter 1 for customer and 2 for shopkeeper and 0 to quit: 0
...Program finished with exit code 0
Press ENTER to exit console.

(P.T.O)

File: BILL.txt

java BILL.txt

```
-----------------------------------------------------------------
INVOICE
-----------------------------------------------------------------
Name: Mahek Parekh
Items       Price
Item1       10
Item2       20
-----------------------------------------------------------------
Total:      30
Thank you and Visit Again.
-----------------------------------------------------------------




-----------------------------------------------------------------
INVOICE
-----------------------------------------------------------------
Name: Esha Patel
Items       Price
Product1        100
Product2        200
Product3        150
-----------------------------------------------------------------
Total:      450
Thank you and Visit Again.
-----------------------------------------------------------------




-----------------------------------------------------------------
INVOICE
-----------------------------------------------------------------
Name: Dhruva Patel
Items       Price
Grocery1        60
-----------------------------------------------------------------
Total:      60
Thank you and Visit Again.
-----------------------------------------------------------------
```