Restaurant management system

Object-oriented programming

November 2022

Introduction

A Restaurant Management System (RMS) is software designed to manage all restaurant activities in a simple and secure manner. This system will provide restaurant management with the ability and flexibility to administer the entire system through a single interface. The system allows the administration to keep track of customer details in the system and take orders and generate bills.

Our goal is to :

1. Take the user's detail and store it in the database
2. Show the menu
3. Take the order
4. Generate the bill

Project scope

This program can be implemented in many types of restaurants where there is more rush, and the number of workers is less.

This project can solve many problems related to restaurant management. Problems like standing in long queues to give orders, limited menu pamphlets, waiting till the bill is generated, paper waste due to bill generation, etc. With this, we also collect large amount of customer data and their picks from the menu. We can later create a Data product out of it which provides customer suggestions based on their previous choices.

In solution, we have digitised all this process and have built a simple system that will take the user's names, numbers, and email for verification, take the order and generate the bill.

Project Description

This project will provide users with 3 options.

(1) If the user is new then the user can register his\herself this information will be stored in the database.
(2) If a user already has the account then he\she will be able to log in.
(3) To exit the program.

After the user will enter his\her detail menu will be shown and will ask for the order. The user has to select items and has to write the name of the food and to end the process of ordering user has to write “finish”. And the program will show the total item user has ordered and will generate the user names bill text file.

This project contains 4 classes :

1. Restaurant [contains the main method]
2. Conn [connect the java program with the database]
3. RestauranDao [contains various as per the project goal]
4. User [this will take details from the user]

Class Description:

1. Restaurant

This class will contain the main method of the project. This method contains an infinite while loop. And will provide users with three options. (1) to log in if they have already registered. This will ask the user to enter their name, mobile number, and email address and will check the details matches the information stored in the database. (2) to register if they are new. This will ask the user to enter their name, mobile number, and email address. Check the if they are valid and then store them in the database. (3) to terminate the program. This will contain break instructions that will break the infinite loop and the program will get terminated.

2. Conn

This class has a static method connection which will connect the java program to the database Mysql.

3. User

This class has four attributes name, phone number, email address, and order array. This contains a constructor, and various get, and set methods. This class contains the method getOrder() which will also take the order from the user.

4. restauranDao

This class contains the method

(1) showingMenu.

This method will fetch the data from the database and will show the menu (food name and its price) category-wise.

(2) insertUser

This will take data from the user class and insert the new users' data into the database.

(3) bill

This method contains file handling. This will generate the text of the bill which will contain the total amount and the items that the user has ordered.

(4) checkUser

This will check the login details of the user. It compares the detail that the user has entered with the database table.

Database:

The database is prepared in Mysql. This database contains the table of the restaurant(restaurant details like phone number, name, etc), a menu(contains food id, food name, price, and category), and customers which save the detail of the customer's registration detail.

Source code

Class - Restaurant

```
package restaurant;
import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;


public class reastaurant {

  public static void main(String[] args) throws NumberFormatException, IOException {

        BufferedReader br= new BufferedReader(new InputStreamReader(System.in));

        while(true) {
                System.out.println("");
                System.out.println("++++++++++++++++++++++++** welcome to hotel xyz
**++++++++++++++++++++++++++++++++++++++++++++++++++");
                System.out.println("To enter the user detail press: 1");
                System.out.println("If you are new customer press : 2");
                System.out.println("to exit the program press    : 3");
                System.out.println("");
                int c;
                c=Integer.parseInt(br.readLine());

                if (c==1)
                {
                        //checking the user detail
                        System.out.println("");
                        System.out.println("enter the user name:");
                        String name=br.readLine();
                        System.out.println("enter the user contact number:");
                        String number=br.readLine();
                        System.out.println("enter the user email address:");
                        String email=br.readLine();

                        user us=new user(name,number,email);

                        System.out.println("");
                        System.out.println("showing the details you have entered");
                        System.out.println("");
                        System.out.println("-----------------------------------------------------");
                        System.out.println("|name= "+user.getName());
                        System.out.println("|phone number= "+us.contact_number);
                        System.out.println("|email id="+us.email_id);
                        System.out.println("-----------------------------------------------------");
                        System.out.println("");
                        restaurantDao.checkUser(us);

                        // showing the menu
```

```
                    restaurantDao.showingMenu();

                    // getting the order
                    user.getOrder();

                    //generating the bill
                    restaurantDao.bill();


                }

                else if(c==2) {
                    String name;
                    String email;
                    String number;
                    while(true) {
                    System.out.println("enter the user name:");
                    name=br.readLine();
                    if (name.matches("^[a-zA-Z ]*$")) {break;}
                    else {System.out.println("Invalid name\nRenter the name");}
                    }

                    while(true) {
                    System.out.println("enter the user contact number:");
                    number=br.readLine();
                    String checkMobile="^\\d{10}$";
                    if(number.matches(checkMobile)) {break;}
                    else {System.out.println("INVALID mobile number\nRenter the mobile number");}
                    }

                    while(true) {
                    System.out.println("enter the user email address:");
                    email=br.readLine();
                    String regexPattern =
"^(?=.{1,64}@)[A-Za-z0-9_-]+(\\.[A-Za-z0-9_-]+)*@"+"[^-][A-Za-z0-9-]+(\\.[A-Za-z0-9-]+)*(\\.[A-Za-z]{2,})$";
                    if(email.matches(regexPattern)){break;}
                    else {System.out.println("Invalid email\nRenter the email");}
                    }

                    user us=new user(name,number,email);

                    System.out.println("showing the details you have entered");
                    boolean ans=restaurantDao.insertUser(us);
                    System.out.println(us);

                    if(ans) {
                            System.out.println("you data is successfully added");
                    }
                    else {
                            System.out.println("something went wrong please try again later");
                    }

                    // showing the menu
                    restaurantDao.showingMenu();

                    // getting the order
                    user.getOrder();
```

```
                        //generating the bill
                        restaurantDao.bill();

                }


                else if(c==3) {break;}

                else if(c==4) {restaurantDao.showingMenu();}

        }

                System.out.println("Thank you for visiting out hotle");
                System.out.println("see you again");
  }

}
```

Class - Conn

```
package restaurant;

import java.sql.Connection;
import java.sql.DriverManager;

public class Conn {
  static Connection con;

  public  static Connection create() {

        try {
                // load the driver
                //Class.forName("com.mysql.jdbc.Driver");

                // creating the connection
                con=DriverManager.getConnection("jdbc:mysql://localhost:3306/restaurant","root","Manav91101");

        }
        catch(Exception e){
                e.printStackTrace();
        }
        return con;
  }

}
```

Class - user

```
package restaurant;

import java.io.BufferedReader;
import java.io.IOException;
import java.io.InputStreamReader;
//import java.util.Scanner;

public class user {
```

```
static String name;
String contact_number;
String email_id;
 static //vector<String>= new <String>(n);
                String orderArray[]=new String[20];
static int count=0;


public user(String name, String contact_number, String email_id) {
                super();
                this.name = name;
                this.contact_number = contact_number;
                this.email_id = email_id;


}




public static String getName() {
                return name;
}


public void setName(String name) {
                this.name = name;
}


public String getContact_number() {
                return contact_number;
}


public void setContact_number(String contact_number) {
                this.contact_number = contact_number;
}


public String getEmail_id() {
                return email_id;
}


public void setEmail_id(String email_id) {
                this.email_id = email_id;
}


@Override
public String toString() {
                return "user [name=" + name + ", contact_number=" + contact_number + ", email_id=" + email_id + "]";
}
```

```
        static void getOrder() throws IOException
        {
         System.out.println("");
         System.out.println("****************************************");
         System.out.println("please give your order");
         System.out.println("****************************************");
         System.out.println("");
         System.out.println("****************************************");
         System.out.println("to finish the order type finish");
         System.out.println("****************************************");
         System.out.println("");

//       Scanner scan=new Scanner(System.in) ;
         BufferedReader scan= new BufferedReader(new InputStreamReader(System.in));

         //String st=new String();


                        for(int i=0;i<20;i++)
                                {
                                        System.out.println("Enter Item: ");
                                        String order = scan.readLine();


                                        if(order.equals("finish"))
                                        {
                                                break;
                                        }
                                        else
                                        {
                                                orderArray[i]=order;
                                                count++;
                                        }

                                }
                        System.out.println("you have orderd total "+count+" items");
        }

  public static String[] getOrderArray()
        {
         return orderArray;
        }


  /*public user() {

  }*/



}
```

Class- restaurantDao

```
package restaurant;

import java.sql.*;
import java.io.*;
```

```
public class restaurantDao {

  /*-------------------------------------------------------------------------------------------------------------------------*/

  public static void showingMenu()  {



                        try {
                        Connection con=Conn.create();

                        Statement st=con.createStatement();

                        String s[]= {"veg soups","starters","chat","snack","sabsi","roti","naan"};



                        for(int i=0;i<s.length;i++) {

                                        String q="select * from menu where category ='"+s[i]+"';";
                                        //System.out.println(q);
                                        ResultSet set=st.executeQuery(q);
                                        set.next();
                                        String category=set.getString(4);

                                        if(category.equalsIgnoreCase(s[i]))

                                        {
                                                System.out.printf("");
                                System.out.println("******************"+s[i]+": ****************");
                                System.out.printf("|%-30s|%-5s|%n","foode name","price");
                                System.out.println("_____________________________________");

                                                while(set.next())
                                                {

                                                                        String foodName=set.getString(2);
                                                                        int price=(int) (set.getDouble(3));
                                                                        String category1=set.getString(4);



                                                                        System.out.printf("|%-30s|%-5d|%n",foodName,price);
                                                                        //System.out.println("food name : "+foodName+"
price           : "+price);
                                                                        //System.out.println("                price           : "+price);

                                                                        //System.out.println("categary  : "+category1);



                                                        }
                                                        System.out.println("_____________________________________");
                                        }

                                        else {continue;}
```

```
                    }


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

}

/*-------------------------------------------------------------------------------------------------------------------------*/

static boolean insertUser(user us) {

        boolean f=false;

        try {
                    Connection con=Conn.create();

                    Statement st=con.createStatement();
                    String q="insert into customer(c_Name,c_contact_number,c_email) value(?,?,?)";
                    PreparedStatement pstmt=con.prepareStatement(q);

                    pstmt.setString(1,user.getName());
                    pstmt.setString(2,us.getContact_number());
                    pstmt.setString(3,us.getEmail_id());

                    pstmt.executeUpdate();

                    f=true;

                   }

                    catch(Exception e)
                    {
                                e.printStackTrace();
                                 f=false;
                    }

                    return f;
}


/*-------------------------------------------------------------------------------------------------------------------------*/

        static boolean bill () throws IOException
        {
                    // creating new file
                    String billFileName = user.getName() + ".txt";
                    File bill=new File(billFileName);
                    bill.createNewFile();
                    //writing the file
        FileWriter billWrite=new FileWriter(bill);

                    boolean f=false;
```

```
		try {
				Connection con=Conn.create();
				Statement st=con.createStatement();
				String orderAr[]=user.getOrderArray();


				/* user usOrder=new user();
				usOrder.getOrder();*/


				//String priceQuery="select price from menu where foodname="+orderAr[i];


				int countDao=user.count;
				double totalAmount=0;

				String billLine="++++++++++++++++++++++++++++++++ welcome to hotel xyz
++++++++++++++++++++++++++++++++";
				billWrite.write(billLine);
					for(int i=0;i<countDao;i++)

					{
						String q1="select * from menu where foodname='"+orderAr[i]+"';";
//						System.out.println(q1);
						ResultSet fetchRes=st.executeQuery(q1);
						fetchRes.next();
						int foodId = fetchRes.getInt(1);
							String foodName=fetchRes.getString(2);
							int price= fetchRes.getInt(3);
							String category=fetchRes.getString(4);

							totalAmount=totalAmount+price;

							String billLine1 = "\nfood id:  "+foodId+"\n"+"food name:
"+foodName+" \n"+"food price:"+price+"\n";


							billWrite.write(billLine1);




//							set.next();

					}
					billWrite.write("---------------------------");
					billWrite.write("|total amount= "+totalAmount+"|");
					billWrite.write("---------------------------");
					String billLine3="\n++++++++++++++++++++++++++++++++ Thanks for visiting
++++++++++++++++++++++++++++++++";
					billWrite.write(billLine3);
					billWrite.close();

				 f=true;

				}
```

```
                                                        catch(Exception e)
                                                        {
                                                                e.printStackTrace();
                                                                 f=false;
                                                        }

                                                        return f;

        }


        /*-------------------------------------------------------------------------------------------------------------*/

        static void checkUser(user us) {
                //boolean f=false;

                try {
                        Connection con=Conn.create();

                        Statement st=con.createStatement();

                        String name=user.getName();
                       String number=us.getContact_number();
                       String email=us.getEmail_id();



                        String q="select * from customer where c_Name='"+name+"' and c_contact_number='"+number+"' and
c_email='"+email+"';";
                        ResultSet set=st.executeQuery(q);

                        set.next();
                        String c_name=set.getString(2);
                        String c_number=set.getString(3);
                        String c_email=set.getString(4);



                        if(name.equalsIgnoreCase(c_name)&& number.equalsIgnoreCase(c_number)&& email.equalsIgnoreCase(c_email) ) {

                                System.out.println(" you have entered the right detail");
                                System.out.println(" please enter your order");

                        }
                        else {
                                System.out.println(" you have entered the wrong detail");
                                System.out.println(" please renter your details ");
                                System.out.println(" or if you dont have an account signup the new one ");

                        }


                //   f=true;


                }
                catch(Exception e) {
```

```
                    e.printStackTrace();
                    //f=false;
                }
        //  return f;


        }


}
```

Taking input

Logging in

```
++++++++++++++++++++++++** welcome to hotel xyz **++++++++++++++++++++++++++++++++++++++++++++++
To enter the user detail press: 1
If you are new customer press : 2
to exit the program press     : 3

2
enter the user name:
harinee
enter the user contact number:
9081488871
enter the user email address:
harinee@gmail.com
showing the details you have entered
user [name=harinee, contact_number=9081488871, email_id=harinee@gmail.com]
you data is successfully added
```

Registering

```
++++++++++++++++++++++++** welcome to hotel xyz **++++++++++++++++++++++++++++++++
To enter the user detail press: 1
If you are new customer press : 2
to exit the program press     : 3

2
enter the user name:
manav
enter the user contact number:
7041939535
enter the user email address:
manavchok@gmail.com
showing the details you have entered
user [name=manav, contact_number=7041939535, email_id=manavchok@gmail.com]
you data is successfully added
```

Showing the menu

```
reastaurant [Java Application] C:\Program Files\Java\jdk-18.0.2.1\bin\javaw.exe  (29-Nov-2022, 10:04:06 pm) [pid: 16532]
*****************veg soups: ****************
|foode name                      |price|
_____________________________________
|veg corn soup                   |80   |
|veg thai soup                   |90   |
|veh manchow soup                |90   |
|cream and spinach soup          |80   |
_____________________________________
*****************starters: ****************
|foode name                      |price|
_____________________________________
|chilli Paneer                   |120  |
|Aloo tikki                      |90   |
|spring roles                    |150  |
|cheese spinach balls            |160  |
_____________________________________
*****************chat: ****************
|foode name                      |price|
_____________________________________
|sev puri                        |50   |
|dahi puri                       |50   |
|bhel                            |40   |
|dahi bhalla                     |60   |
_____________________________________
*****************snack: ****************
|foode name                      |price|
_____________________________________
|dabeli                          |50   |
|hakka noodles                   |50   |
|manchurian                      |50   |
|dabeli                          |50   |
|samosa                          |50   |
|sev khamni                      |50   |
_____________________________________
*****************sabsi: ****************
|foode name                      |price|
_____________________________________
```

Taking the order

```
****************************************
please give your order
****************************************

****************************************
to finish the order type finish
****************************************

Enter Item:
paneer tikka
Enter Item:
rumali roti
Enter Item:
finish
you have orderd total 2 items

++++++++++++++++++++++++** welcome to hotel xyz **++++++++++++++++++++++++++++++++++++++++++++++++++
To enter the user detail press: 1
If you are new customer press : 2
to exit the program press     : 3
```

Bill text file

manav - Notepad

File Edit View

```
++++++++++++++++++++++++++++++++ welcome to hotel xyz ++++++++++++++++++++++++++++++++
food id:  6
food name: Paneer tikka
food price:100

food id:  29
food name: rumali roti
food price:60
---------------------------|total amount= 160.0|----------------------------
++++++++++++++++++++++++++++++++ Thanks for visiting ++++++++++++++++++++++++++++++++
```

Future work

In the future to make the program better we add the following steps:

- Can implement the method to show seats available.
- Can track meals ordered, meals served, and meals pending.
- Track waiters, butlers, and a number of customers handled by them.
- Can delete the order
- Can add order into the current Order.
- Make a separate method for Restaurant workers which to edit the menu.