**Operators**

**--1**

**import** java.util.Scanner;

**public** **class** Main {

**private** **static** Scanner *s*;

**public** **static** **void** main(String[] args) {

// **TODO** Auto-generated method stub

*s* = **new** Scanner(System.***in***);

TestClass m=**new** TestClass();

System.***out***.println();

System.***out***.println("Registration");

System.***out***.println();

System.***out***.println("Enter your name");

m.name =*s*.nextLine();

System.***out***.println("Enter your address");

m.address =*s*.nextLine();

System.***out***.println("Contact Number");

m.contactNumber =Long.*parseLong*(*s*.nextLine());

System.***out***.println("E-Mail ID");

m.email =*s*.nextLine();

System.***out***.println("Enter proof type");

m.proofType =*s*.nextLine();

System.***out***.println("Enter proof id");

m.proofId =*s*.nextLine();

m.register(m.name,m.address,m.contactNumber,m.email,m.proofType,m.proofId);

}

}

**class** TestClass {

String name;

String address;

**long** contactNumber;

String email;

String proofType;

String proofId;

**public** **void** register(String name,String address,**long** contactNumber,String email,String proofType,String proofId){

System.***out***.println();

System.***out***.println("Welcome "+name+".");

System.***out***.println("Here are your details");

System.***out***.println("Address: "+address);

System.***out***.println("Contact Number: "+contactNumber);

System.***out***.println("E-Mail ID: "+email);

System.***out***.println("Proof type: "+proofType);

System.***out***.println("Proof id: "+proofId);

System.***out***.println();

System.***out***.println("Thank you for registering. Your id is 1..");

}

}

--2

import java.text.ParseException;

import java.util.Scanner;

public class Main {

String ac;

String cot;

String cable;

String wifi;

String laundry;

String date;

public void book(String ac,String cot,String cable,String wifi,String laundry,String date)

{

int ac\_=1000,nonac\_=750;

int single=0,doub=350;

int cc=50,wcc=0;

int wn=200,wnn=0;

int ls=100,lsn=0;

int total=0;

if(ac.equals("AC"))

{total+=ac\_;}

else if(ac.equals("nAC"))

{total+=nonac\_;}

if(cot.equals("Single"))

{total+=single;}

else if(cot.equals("Double"))

{total+=doub;}

if(cable.equals("C"))

{total+=cc;}

else if(cable.equals("nC"))

{total+=wcc;}

if(wifi.equals("W"))

{total+=wn;}

else if(wifi.equals("nW"))

{total+=wnn;}

if(laundry.equals("L"))

{total+=ls;}

else if(laundry.equals("nL"))

{total+=lsn;}

System.out.println("The total charge is Rs."+total+".");

System.out.println("The services chosen are");

if(cot.equals("Single"))

System.out.print("Single cot");

else

System.out.print("Double cot");

if(ac.equals("AC"))

System.out.println(" AC room");

else

System.out.println(" non-AC room");

if(cable.equals("C"))

System.out.println("Cable connection enabled");

else

System.out.println("Cable connection disabled");

if(wifi.equals("W"))

System.out.println("Wi-Fi enabled");

else

System.out.println("Wi-Fi disabled");

if(laundry.equals("L"))

System.out.println("with laundry service");

else

System.out.println("without laundry service");

System.out.println("and the Date of Booking is "+date);

System.out.println();

}

Scanner s=new Scanner(System.in);

int roomno=0;

String proceed;

public void book1(){

System.out.println("Booking:");

do{

System.out.println();

System.out.println("Please choose the services required.");

System.out.println("AC/non-AC(AC/nAC)");

ac=s.nextLine();

System.out.println("Cot(Single/Double)");

cot=s.nextLine();

System.out.println("With cable connection/without cable connection(C/nC)");

cable=s.nextLine();

System.out.println("Wi-Fi needed or not(W/nW)");

wifi=s.nextLine();

System.out.println("Laundry service needed or not(L/nL)");

laundry=s.nextLine();

System.out.println("Enter the Date of Booking");

date=s.nextLine();

System.out.println();

book(ac, cot,cable,wifi, laundry, date);

System.out.println("Do you want to proceed?(yes/no)");

proceed=s.nextLine();

}while(proceed.equals("no"));

roomno+=1;

System.out.println();

System.out.println("Thank you for booking. Your room number is "+roomno+".");

}

public static void main(String[] args) throws ParseException {

Main m=new Main();

m.book1();

}

}

--3

import java.text.ParseException;

import java.util.Scanner;

public class Main {

public void book(String ac,String cot,String cable,String wifi,String laundry,String date)

{

int ac\_=1000,nonac\_=750;

int single=0,doub=350;

int cc=50,wcc=0;

int wn=200,wnn=0;

int ls=100,lsn=0;

int total=0;

if(ac.equals("AC"))

{total+=ac\_;}

else if(ac.equals("nAC"))

{total+=nonac\_;}

if(cot.equals("Single"))

{total+=single;}

else if(cot.equals("Double"))

{total+=doub;}

if(cable.equals("C"))

{total+=cc;}

else if(cable.equals("nC"))

{total+=wcc;}

if(wifi.equals("W"))

{total+=wn;}

else if(wifi.equals("nW"))

{total+=wnn;}

if(laundry.equals("L"))

{total+=ls;}

else if(laundry.equals("nL"))

{total+=lsn;}

System.out.println("The total charge is Rs."+total+".");

System.out.println("The services chosen are");

if(cot.equals("Single"))

System.out.print("Single cot");

else

System.out.print("Double cot");

if(ac.equals("AC"))

System.out.println(" AC room");

else

System.out.println(" non-AC room");

if(cable.equals("C"))

System.out.println("Cable connection enabled");

else

System.out.println("Cable connection disabled");

if(wifi.equals("W"))

System.out.println("Wi-Fi enabled");

else

System.out.println("Wi-Fi disabled");

if(laundry.equals("L"))

System.out.println("with laundry service");

else

System.out.println("without laundry service");

}

Scanner s=new Scanner(System.in);

String ac;

String cot;

String cable;

String wifi;

String laundry;

String date;

String proceed;

int bookedRoomList=0;

public void book1(){

Main m=new Main();

System.out.println("Booking:");

do{

System.out.println("Please choose the services required.");

System.out.println("AC/non-AC(AC/nAC)");

ac=s.nextLine();

System.out.println("Cot(Single/Double)");

cot=s.nextLine();

System.out.println("With cable connection/without cable connection(C/nC)");

cable=s.nextLine();

System.out.println("Wi-Fi needed or not(W/nW)");

wifi=s.nextLine();

System.out.println("Laundry service needed or not(L/nL)");

laundry=s.nextLine();

m.book(ac, cot, cable, wifi, laundry, date);

System.out.println("Do you want to proceed?(yes/no)");

proceed=s.nextLine();

}while(proceed.equals("no"));

bookedRoomList+=1;

System.out.println("Thank you for booking. Your room number is "+bookedRoomList+".");

menu();

}

public void checkStatus() {

// TODO Auto-generated method stub

System.out.println("Check Status:");

System.out.println("Enter room number");

int roomId=Integer.parseInt(s.nextLine());

if(roomId>bookedRoomList)

{

System.out.println("Room number "+roomId+" is not booked.");

}

else

{

System.out.println("Room number "+roomId+" is booked.");

}

menu();

}

public void menu()

{

System.out.println("Menu");

System.out.println("1. Book");

System.out.println("2. Check Status");

System.out.println("3. Exit");

System.out.println("Enter your choice");

String str= s.nextLine();

int n=Integer.parseInt(str);

switch(n)

{

case 1:book1();break;

case 2:checkStatus();break;

case 3:break;

default:System.out.println("Enter a correct choice");

}

}

public static void main(String[] args) throws ParseException {

Main t=new Main();

t.menu();

}

}

--4

**import** java.util.Scanner;

**public** **class** Main {

String name;

String address;

**long** contactNumber;

String email;

String proofType;

String proofId;

**public** **void** register(String name,String address,**long** contactNumber,String email,String proofType,String proofId){

System.***out***.println();

System.***out***.println("Welcome "+name+".");

System.***out***.println("Here are your details");

System.***out***.println("Address: "+address);

System.***out***.println("Contact Number: "+contactNumber);

System.***out***.println("E-Mail ID: "+email);

System.***out***.println("Proof type: "+proofType);

System.***out***.println("Proof id: "+proofId);

System.***out***.println();

}

**public** **void** register1(String name,String address,**long** contactNumber,String email,String proofType,String proofId){

System.***out***.println("Your details are as follows");

System.***out***.println("Name: "+name);

System.***out***.println("Address: "+address);

System.***out***.println("Contact Number: "+contactNumber);

System.***out***.println("E-Mail ID: "+email);

System.***out***.println("Proof type: "+proofType);

System.***out***.println("Proof id: "+proofId);

System.***out***.println();

}

**private** **static** Scanner *s*;

**public** **static** **void** main(String[] args) {

*s* = **new** Scanner(System.***in***);

Main m=**new** Main();

System.***out***.println();

System.***out***.println("Registration");

System.***out***.println();

System.***out***.println("Enter your name");

m.name =*s*.nextLine();

System.***out***.println("Enter your address");

m.address =*s*.nextLine();

System.***out***.println("Contact Number");

m.contactNumber =Long.*parseLong*(*s*.nextLine());

System.***out***.println("E-Mail ID");

m.email =*s*.nextLine();

System.***out***.println("Enter proof type");

m.proofType =*s*.nextLine();

System.***out***.println("Enter proof id");

m.proofId =*s*.nextLine();

m.register(m.name,m.address,m.contactNumber,m.email,m.proofType,m.proofId);

System.***out***.println("Thank you for registering. Your id is 1..");

System.***out***.println();

System.***out***.println("Do you want to update the email id?(yes/no)");

String str=*s*.nextLine();

**if**(str.equals("yes"))

{

System.***out***.println();

System.***out***.println("Update Email:");

System.***out***.println("Enter new Email id");

m.email=*s*.nextLine();

System.***out***.println();

System.***out***.println("Email updated");

System.***out***.println();

m.register1(m.name,m.address,m.contactNumber,m.email,m.proofType,m.proofId);

}

**else**

{

System.***out***.println("Thank you");

}

}

}

--5

Main.java

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.text.ParseException;

import java.util.\*;

public class Main {

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

Scanner s = new Scanner(System.in);

TestCLass t=new TestCLass(s);

int i=0,j=0;

char c=0;

String proceed="";

do {

System.out.println("Registration");

System.out.println();

t.getinfo();

t.customerList(i);

System.out.println("Thank you for registering. Your id is "+t.customerIdList[i]+"..");

System.out.println();

System.out.println("Do you want to book a room (y/n)?");

c=s.nextLine().charAt(0);

System.out.println();

if('y'==c)

{

System.out.println("Booking:");

t.room();

t.roomNumberList(i, j);

t.bookingDateList(i);

System.out.println("Thank you for booking. Your room number is "+t.roomNumberList[i]+".");

System.out.println();

j++;

}

else if (c=='n')

{

System.out.println("Thank You");

System.out.println();

}

System.out.println("Do you want to continue registration?(yes/no)");

System.out.println();

proceed=s.nextLine();

i++;

}

while(proceed.equals("yes"));

System.out.println("View all bookings:");

System.out.println();

t.viewBookings(i);

}

}

TestClass.java

import java.text.ParseException;

import java.text.SimpleDateFormat;

import java.util.Date;

import java.util.Scanner;

public class TestCLass {

Scanner s;

String name;

String address;

String contactNumber;

String email;

String proofType;

String proofId;

String ac;

String cot;

String cable;

String wifi;

String laundry;

String date;

String proceed;

int[] customerIdList = new int[10];

String[] bookingDateList=new String[10];

int[] roomNumberList=new int[10];

public TestCLass(Scanner s)

{

this.s=s;

}

public void register(String name,String address,String contactNumber,String email,String proofType,String proofId){

System.out.println("Welcome "+name);

System.out.println("Here are your details");

System.out.println("Address: "+address);

System.out.println("Contact Number: "+contactNumber);

System.out.println("E-Mail ID: "+email);

System.out.println("Proof type: "+proofType);

System.out.println("Proof id: "+proofId);

System.out.println();

System.out.println();

}

public void getinfo()

{

System.out.println("Enter your name");

name =s.nextLine();

System.out.println("Enter your address");

address =s.nextLine();

System.out.println("Contact Number");

contactNumber =s.nextLine();

System.out.println("E-Mail ID");

email =s.nextLine();

System.out.println("Enter proof type");

proofType =s.nextLine();

System.out.println("Enter proof id");

proofId =s.nextLine();

System.out.println();

//register(name,address,contactNumber,email,proofType,proofId);

}

public void room()

{

do{

System.out.println("AC/non-AC(AC/nAC)");

ac=s.nextLine();

System.out.println("Cot(Single/Double)");

cot=s.nextLine();

System.out.println("With cable connection/without cable connection(C/nC)");

cable=s.nextLine();

System.out.println("Wi-Fi needed or not(W/nW)");

wifi=s.nextLine();

System.out.println("Laundry service needed or not(L/nL)");

laundry=s.nextLine();

System.out.println();

System.out.println("Enter the date of booking");

date=s.nextLine();

System.out.println();

book(ac, cot, cable, wifi, laundry, date);

System.out.println();

System.out.println("Do you want to proceed?(yes/no)");

proceed=s.nextLine();

System.out.println();

}while(proceed.equals("no"));

}

public void book(String ac,String cot,String cable,String wifi,String laundry,String date)

{

int ac\_=1000,nonac\_=750;

int single=0,doub=350;

int cc=50,wcc=0;

int wn=200,wnn=0;

int ls=100,lsn=0;

int total=0;

if(ac.equals("AC"))

{total+=ac\_;}

else if(ac.equals("nAC"))

{total+=nonac\_;}

if(cot.equals("Single"))

{total+=single;}

else if(cot.equals("Double"))

{total+=doub;}

if(cable.equals("C"))

{total+=cc;}

else if(cable.equals("nC"))

{total+=wcc;}

if(wifi.equals("W"))

{total+=wn;}

else if(wifi.equals("nW"))

{total+=wnn;}

if(laundry.equals("L"))

{total+=ls;}

else if(laundry.equals("nL"))

{total+=lsn;}

System.out.println("The total charge is Rs."+total+".");

System.out.println("The services chosen are");

if(cot.equals("Single"))

System.out.print("Single cot");

else

System.out.print("Double cot");

if(ac.equals("AC"))

System.out.println(" AC room");

else

System.out.println(" non-AC room");

if(cable.equals("C"))

System.out.println("Cable connection enabled");

else

System.out.println("Cable connection disabled");

if(wifi.equals("W"))

System.out.println("Wi-Fi enabled");

else

System.out.println("Wi-Fi disabled");

if(laundry.equals("L"))

System.out.println("with laundry service");

else

System.out.println("without laundry service");

}

public void customerList(int i)

{

customerIdList[i]=i+1;

}

public void bookingDateList(int i)

{

bookingDateList[i]=date;

}

public void roomNumberList(int i,int j)

{

roomNumberList[i]=j+1;

}

public void viewBookings(int i) throws ParseException

{

System.out.println("Enter the start date");

String sdate=s.nextLine();

System.out.println("Enter the end date");

String edate=s.nextLine();

System.out.println("The bookings made from "+sdate+" to "+edate+" are");

Date date1=new SimpleDateFormat("MM/dd/yyyy").parse(sdate);

Date date2=new SimpleDateFormat("MM/dd/yyyy").parse(edate);

System.out.println("Room number Customer ID");

for(int z=0;z<i;z++)

{

if(bookingDateList[z]!=null){

Date date3=new SimpleDateFormat("MM/dd/yyyy").parse(bookingDateList[z]);

if(date1.compareTo(date3) \* date3.compareTo(date2) >= 0)

{

System.out.format("%d%12d",roomNumberList[z],customerIdList[z]);

System.out.println();

}

}}

}

}

--6

Main.java

**import** java.util.Scanner;

**public** **class** Main {

**private** **static** Scanner *s*;

**public** **static** **void** main(String[] args) {

*s* = **new** Scanner(System.***in***);

TestClass m=**new** TestClass();

**int**[] customerId=**new** **int**[10];

String[] customerName=**new** String[10];

**int** i=0;

String str="y";

**do**{

System.***out***.println("Registration");

System.***out***.println("Enter your name");

m.name =*s*.nextLine();

System.***out***.println("Enter your address");

m.address =*s*.nextLine();

System.***out***.println("Contact Number");

m.contactNumber =Long.*parseLong*(*s*.nextLine());

System.***out***.println("E-Mail ID");

m.email =*s*.nextLine();

System.***out***.println("Enter proof type");

m.proofType =*s*.nextLine();

System.***out***.println("Enter proof id");

m.proofId =*s*.nextLine();

//m.register(m.name,m.address,m.contactNumber,m.email,m.proofType,m.proofId);

customerId[i]=i+1;

customerName[i]=m.name;

System.***out***.println("Thank you for registering. Your id is "+customerId[i]+".");

System.***out***.println("Do you want to continue registration (y/n)?");

str=*s*.nextLine();

i++;

}**while**(str.equals("y"));

System.***out***.println("Customers list");

m.viewCustomers(i,customerId,customerName);

System.***out***.println("Thank You");

}

}

TestClass.java

**public** **class** TestClass {

**public** String name;

**public** String address;

**public** **long** contactNumber;

**public** String email;

**public** String proofType;

**public** String proofId;

**public** **void** register(String name,String address,**long** contactNumber,String email,String proofType,String proofId){

System.***out***.println("Welcome "+name);

System.***out***.println("Here are your details");

System.***out***.println("Address: "+address);

System.***out***.println("Contact Number: "+contactNumber);

System.***out***.println("E-Mail ID: "+email);

System.***out***.println("Proof type: "+proofType);

System.***out***.println("Proof id: "+proofId);

System.***out***.println();

System.***out***.println();

}

**public** **void** viewCustomers(**int** i,**int**[] CustomerID,String[] customerName)

{

System.***out***.println("The registered customers are");

System.***out***.printf("%-15s%-15s\n","Customer ID","Customer name");

**for**(**int** z=0;z<i;z++)

{

System.***out***.format("%-15s%-15s\n",CustomerID[z],customerName[z]);

}

}

}

Access Specifiers

--1

Main.java

**import** java.util.Scanner;

**public** **class** Main {

**public** **static** **void** main(String[] args) {

Scanner s = **new** Scanner(System.***in***);

Customer cust=**new** Customer(s);

cust.register();

System.***out***.println("Do you want to update email?(y/n)");

String str=s.nextLine();

**if**(str.equals("y"))

{

cust.updateEmail();

}

System.***out***.println("Thank You");

}

}

Customer.java

**mport** java.util.Scanner;

**public** **class** Customer {

Scanner s;

**private** String fname;

**private** String lname;

**private** String contactNumber;

**private** String eMail;

**private** String proofType;

**private** String proofId;

**public** Customer(Scanner s)

{

**this**.s=s;

}

**public** String getFname() {

**return** fname;

}

**public** **void** setFname(String fname) {

**this**.fname = fname;

}

**public** String getLname() {

**return** lname;

}

**public** **void** setLname(String lname) {

**this**.lname = lname;

}

**public** String getContactNumber() {

**return** contactNumber;

}

**public** **void** setContactNumber(String contactNumber) {

**this**.contactNumber = contactNumber;

}

**public** String geteMail() {

**return** eMail;

}

**public** **void** seteMail(String eMail) {

**this**.eMail = eMail;

}

**public** String getProofType() {

**return** proofType;

}

**public** **void** setProofType(String proofType) {

**this**.proofType = proofType;

}

**public** String getProofId() {

**return** proofId;

}

**public** **void** setProofId(String proofId) {

**this**.proofId = proofId;

}

**public** **void** register()

{

System.***out***.println("Registration:");

System.***out***.println();

System.***out***.println("Enter the customer details:");

System.***out***.println("Enter the first name:");

setFname(s.nextLine());

System.***out***.println("Enter the last name:");

setLname(s.nextLine());

System.***out***.println("Enter the contact number:");

setContactNumber(s.nextLine());

System.***out***.println("Enter the e-mail id:");

seteMail(s.nextLine());

System.***out***.println("Enter the proof type:");

setProofType(s.nextLine());

System.***out***.println("Enter the proof id:");

setProofId(s.nextLine());

System.***out***.println("Thank you for registering. Your id is 1..");

display();

}

**public** **void** display()

{

System.***out***.println("The customer details are as follows");

System.***out***.println("The customer details are:");

System.***out***.println("First Name : "+getFname());

System.***out***.println("Last Name : "+getLname());

System.***out***.println("COntact Number : "+getContactNumber());

System.***out***.println("E-Mail : "+geteMail());

System.***out***.println("Proof Type : "+getProofType());

System.***out***.println("Proof ID : "+getProofId());

}

**public** **void** display1()

{

System.***out***.println("Email updated.");

System.***out***.println("The customer details are as follows");

System.***out***.println("The customer details are:");

System.***out***.println("First Name : "+getFname());

System.***out***.println("Last Name : "+getLname());

System.***out***.println("COntact Number : "+getContactNumber());

System.***out***.println("E-Mail : "+geteMail());

System.***out***.println("Proof Type : "+getProofType());

System.***out***.println("Proof ID : "+getProofId());

}

**public** **void** updateEmail()

{

System.***out***.println("Enter the new email:");

seteMail(s.nextLine());

display1();

}

}

--2

Main.java

**import** java.util.Scanner;

**public** **class** Main {

**private** **static** Scanner *s*;

**public** **static** **void** main(String[] arg)

{

**int** roomid;

**int** roomnumber;

String roomtype;

String roomcapacity;

**boolean** roomAc;

**boolean** roomWifi;

**boolean** roomCabel;

**boolean** roomLaundry;

String str;

*s* = **new** Scanner(System.***in***);

Hotel h=**new** Hotel();

System.***out***.println("Enter the Hotel details:");

System.***out***.println("Enter the Hotel Name:");

h.setName(*s*.nextLine());

System.***out***.println("Enter the Hotel ID:");

h.setHotelId(Integer.*parseInt*(*s*.nextLine()));

System.***out***.println("Enter the Hotel Address");

h.setAddress(*s*.nextLine());

**do**{

System.***out***.println("Enter the Room Details:");

System.***out***.println("Enter the Room Id:");

roomid=Integer.*parseInt*(*s*.nextLine());

System.***out***.println("Enter the Room Number:");

roomnumber=Integer.*parseInt*(*s*.nextLine());

System.***out***.println("Enter the Room Type:");

System.***out***.println("1)Normal");

System.***out***.println("2)Delux");

System.***out***.println("3)Super Delux");

roomtype=*s*.nextLine();

System.***out***.println("Enter the Room Capacity:(1/2/3/4)");

roomcapacity=*s*.nextLine();

System.***out***.println("AC Service (true/false):");

roomAc=Boolean.*parseBoolean*(*s*.nextLine());;

System.***out***.println("Wi-Fi Service (true/false):");

roomWifi=Boolean.*parseBoolean*(*s*.nextLine());

System.***out***.println("Cable Service (true/false):");

roomCabel=Boolean.*parseBoolean*(*s*.nextLine());

System.***out***.println("Laundry Service (true/false):");

roomLaundry=Boolean.*parseBoolean*(*s*.nextLine());

Room room=**new** Room(roomid, roomnumber,roomtype, roomcapacity,roomAc, roomWifi, roomCabel, roomLaundry);

h.addRoom(room);

System.***out***.println("Do you want to add Another Room (yes/no):");

str=*s*.nextLine();

}**while**(str.equals("yes"));

System.***out***.println("Thank you for booking !!");

h.display();

}

}

Hotel.java

**import** java.util.ArrayList;

**public** **class** Hotel {

**private** String name;

**private** **int** hotelId;

**private** String address;

ArrayList<Room> roomlist=**new** ArrayList<Room>();

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** **int** getHotelId() {

**return** hotelId;

}

**public** **void** setHotelId(**int** hotelId) {

**this**.hotelId = hotelId;

}

**public** String getAddress() {

**return** address;

}

**public** **void** setAddress(String address) {

**this**.address = address;

}

**public** **void** addRoom(Room room)

{

roomlist.add(room);

}

**public** **void** display()

{

System.***out***.println("The rooms Details in "+**this**.getName()+" :");

System.***out***.println("Hotel Name:"+**this**.getName()+".");

System.***out***.println("Hotel ID:"+**this**.getHotelId()+".");

System.***out***.println("Hotel Address:"+**this**.getAddress()+".");

System.***out***.println();

System.***out***.println("Room Details:");

**for** (Room room : roomlist) {

System.***out***.println();

System.***out***.println("Room Number :"+room.getRoomnumber());

**if**(room.getRoomtype().equals("1"))

{

System.***out***.println("Room Type :Normal");

}

**else** **if**(room.getRoomtype().equals("2"))

{

System.***out***.println("Room Type :Delux");

}

**else** **if**(room.getRoomtype().equals("3"))

{

System.***out***.println("Room Type :Super Delux");

}

System.***out***.println("Services Available:");

**if**(room.isRoomAc())

System.***out***.println("AC");

**if**(room.isRoomWifi())

System.***out***.println("Wi-Fi");

**if**(room.isRoomCabel())

System.***out***.println("Cable Connection");

**if**(room.isRoomLaundry())

System.***out***.println("Laundry");

}

}

}

Room.java

**public** **class** Room {

**private** **int** roomid;

**private** **int** roomnumber;

**private** String roomtype;

**private** String roomcapacity;

**private** **boolean** roomAc;

**private** **boolean** roomWifi;

**private** **boolean** roomCabel;

**private** **boolean** roomLaundry;

**public** Room( **int** roomid, **int** roomnumber,String roomtype, String roomcapacity, **boolean** roomAc, **boolean** roomWifi, **boolean** roomCabel, **boolean** roomLaundry)

{

**this**.roomid=roomid;

**this**.roomnumber=roomnumber;

**this**.roomtype=roomtype;

**this**.roomcapacity=roomcapacity;

**this**.roomAc=roomAc;

**this**.roomWifi=roomWifi;

**this**.roomCabel=roomCabel;

**this**.roomLaundry=roomLaundry;

}

**public** **int** getRoomid() {

**return** roomid;

}

**public** **int** getRoomnumber() {

**return** roomnumber;

}

**public** String getRoomtype() {

**return** roomtype;

}

**public** String getRoomcapacity() {

**return** roomcapacity;

}

**public** **boolean** isRoomAc() {

**return** roomAc;

}

**public** **boolean** isRoomWifi() {

**return** roomWifi;

}

**public** **boolean** isRoomCabel() {

**return** roomCabel;

}

**public** **boolean** isRoomLaundry() {

**return** roomLaundry;

}

}

--3

import java.text.ParseException;

import java.text.SimpleDateFormat;

import java.util.ArrayList;

import java.util.Date;

import java.util.List;

import java.util.Scanner;

class Hotel{

private String name,address;

private int hotelId;

static public List<Room> roomList = new ArrayList<Room>();

void addRoom(Room room){

roomList.add(room);

}

Room availableRoom(Scanner in){

String roomType = null,roomCapacity;

boolean roomAc,roomWifi,roomCabel,roomLaundry;

int flag =0;

//System.out.println("Reservation");

do{

System.out.println("\nEnter the room requirements:");

System.out.println("Enter the Room Type:\n1)Normal\n2)Delux\n3)Super Delux");

int roomTypeSelected = Integer.parseInt(in.nextLine());

switch(roomTypeSelected){

case 1:

roomType = "Normal";

break;

case 2:

roomType = "Delux";

break;

case 3:

roomType = "Super Delux";

break;

default:

System.out.println("Select correct Room Type");

}

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomCapacity = in.nextLine();

System.out.println("AC Service (true/false):");

roomAc = Boolean.parseBoolean(in.nextLine());

System.out.println("Wi-Fi Service (true/false):");

roomWifi = Boolean.parseBoolean(in.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel = Boolean.parseBoolean(in.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry = Boolean.parseBoolean(in.nextLine());

for(Room r:roomList){

if(r.getRoomType().equalsIgnoreCase(roomType)

&& r.getRoomCapacity().equalsIgnoreCase(roomCapacity)

&& r.getRoomAc() == roomAc

&& r.getRoomWifi() == roomWifi

&& r.getRoomCable() == roomCabel

&& r.getRoomLaundry() == roomLaundry

&& r.availiabiltyOfRooms == true

)

{

System.out.println("Please take room number "+r.getRoomNumber()+"\n\n");

flag = 1;

return r;

}

}

if(flag == 0)

System.out.println("No rooms of specified requirements\nPlease re-enter\n\n\n");

}while(flag !=1);

return null;

}

void display(){

System.out.println("Thank you for booking !!\nThe rooms Details in "+this.name+" :");

System.out.println("Hotel Name:"+this.name+".");

System.out.println("Hotel ID:"+this.hotelId+".");

System.out.println("Hotel Address:"+this.address+".");

System.out.println("\n\nRoom Details:");

for(Room room : roomList){

System.out.println("\n\nRoom Number :" + room.getRoomNumber());

System.out.println("Room Type :" + room.getRoomType());

System.out.println("Services Available:" );

System.out.print(room.getRoomAc()?"AC\n":"");

System.out.print( room.getRoomWifi()?"Wi-Fi\n":"");

System.out.print( room.getRoomCable()?"Cable Connection\n":"");

System.out.print( room.getRoomLaundry()?"Laundry\n":"");

}

}

String getHotelName(){

return name;

}

String getHotelAddress(){

return address;

}

int getHotelID(){

return hotelId;

}

void setHotelName(String name){

this.name = name;

}

void setHotelAddress(String address){

this.address = address;

}

void setHotelID(int hotelId){

this.hotelId = hotelId;

}

}

class Room{

private String roomType;

private String roomNumber,roomCapacity;

private boolean roomAc, roomWifi, roomCabel, roomLaundry;

private int roomId;

boolean availiabiltyOfRooms = true;

Room(){

}

Room(int roomId, String roomType,String roomNumber,String roomCapacity,boolean roomAc,boolean roomWifi,boolean roomCabel, boolean roomLaundry)

{

this.roomId = roomId;

this.roomType = roomType;

this.roomNumber = roomNumber;

this.roomCapacity = roomCapacity;

this.roomAc = roomAc;

this.roomWifi = roomWifi;

this.roomCabel = roomCabel;

this.roomLaundry = roomLaundry;

}

void roomReservation(Scanner in){

System.out.println("Enter the room requirements:");

do

{

System.out.println("Enter the Room Type:\n1)Normal\n2)Delux\n3)Super Delux");

int roomTypeSelected = Integer.parseInt(in.nextLine());

switch(roomTypeSelected){

case 1:

roomType = "Normal";

break;

case 2:

roomType = "Delux";

break;

case 3:

roomType = "Super Delux";

break;

default:

System.out.println("Select correct Room Type");

}

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomCapacity = in.nextLine();

System.out.println("AC Service (true/false):");

roomAc = Boolean.parseBoolean(in.nextLine());

System.out.println("Wi-Fi Service (true/false):");

roomWifi = Boolean.parseBoolean(in.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel = Boolean.parseBoolean(in.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry = Boolean.parseBoolean(in.nextLine());

System.out.println("Do you want to add Another Room (yes/no):");

}while((in.nextLine()).equalsIgnoreCase("yes"));

}

String getRoomNumber(){

return roomNumber;

}

String getRoomType(){

return roomType;

}

boolean getRoomAc(){

return roomAc;

}

boolean getRoomCable(){

return roomCabel;

}

boolean getRoomWifi(){

return roomWifi;

}

boolean getRoomLaundry(){

return roomLaundry;

}

String getRoomCapacity(){

return roomCapacity;

}

}

class Reservation{

Customer customer;

Room bookRoom;

Date checkIndate;

Date checkOutDate;

Date bookingDate;

Reservation(Customer currentCustomer , Room requiredRoom){

customer = currentCustomer;

bookRoom = requiredRoom;;

}

}

class Customer{

String fName,lName, contactNumber, eMail, proofType, proofId;

static int count=0;

void registerCustomer(Scanner in){

System.out.println("Reservation");

System.out.println("\n\nCustomer Registration:\n\n");

System.out.println("Enter the customer details:");

System.out.println("Enter the first name:");

fName = in.nextLine();

System.out.println("Enter the last name:");

lName = in.nextLine();

System.out.println("Enter the contact number:");

contactNumber = in.nextLine();

System.out.println("Enter the e-mail id:");

eMail = in.nextLine();

System.out.println("Enter the proof type:");

proofType = in.nextLine();

System.out.println("Enter the proof id:");

proofId = in.nextLine();

if(count > 0)

System.out.println("\n"); count++;

display();

}

void display(){

System.out.println("The customer details are as follows");

System.out.println("The customer details are:");

System.out.println("First Name : "+fName);

//System.out.println("Here are your details");

System.out.println("Last Name : "+lName);

System.out.println("Contact Number : "+contactNumber);

System.out.println("E-Mail : "+eMail);

System.out.println("Proof Type : "+proofType);

System.out.println("Proof ID : "+proofId+"\n");

}

}

public class Main {

String roomType;

String roomNumber ,roomCapacity;

boolean roomAc, roomWifi, roomCabel, roomLaundry;

static List<Reservation> Reservation = new ArrayList<Reservation>();

int roomId,roomTypeSelected;

static boolean availability =false;

static Scanner in = new Scanner(System.in);

void setHotelInfo(Hotel h){

System.out.println("Enter the Hotel details:");

System.out.println("Enter the Hotel Name:");

h.setHotelName(in.nextLine());

System.out.println("Enter the Hotel ID:");

h.setHotelID(Integer.parseInt(in.nextLine()));

System.out.println("Enter the Hotel Address");

h.setHotelAddress(in.nextLine());

}

void bookRoom(Hotel h){

do

{

System.out.println("Enter the Room Details:\nEnter the Room Id:");

roomId = Integer.parseInt(in.nextLine());

System.out.println("Enter the Room Number:");

roomNumber = in.nextLine();

System.out.println("Enter the Room Type:\n1)Normal\n2)Delux\n3)Super Delux");

roomTypeSelected = Integer.parseInt(in.nextLine());

switch(roomTypeSelected){

case 1:

roomType = "Normal";

break;

case 2:

roomType = "Delux";

break;

case 3:

roomType = "Super Delux";

break;

default:

System.out.println("Select correct Room Type");

}

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomCapacity = in.nextLine();

System.out.println("AC Service (true/false):");

roomAc = Boolean.parseBoolean(in.nextLine());

System.out.println("Wi-Fi Service (true/false):");

roomWifi = Boolean.parseBoolean(in.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel = Boolean.parseBoolean(in.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry = Boolean.parseBoolean(in.nextLine());

Room roomData = new Room(roomId, roomType, roomNumber, roomCapacity, roomAc,roomWifi, roomCabel, roomLaundry);

h.addRoom(roomData);

System.out.println("Do you want to add Another Room (yes/no):");

}while((in.nextLine()).equalsIgnoreCase("yes"));

}

static boolean checkRoomAvailability(Room roomAvail){

availability = roomAvail.availiabiltyOfRooms;

return availability;

}

public static void main(String args[]){

String choice;

Hotel hotel = new Hotel();

Main main = new Main();

Room room = new Room();

Reservation reservation;

Customer customer;

SimpleDateFormat sf = new SimpleDateFormat("MM/dd/yyyy");

//Filling hotel Details

main.setHotelInfo(hotel);

//fill Room Details

main.bookRoom(hotel);

hotel.display();

//New Customer

do{

customer = new Customer();

customer.registerCustomer(in);

room = hotel.availableRoom(in);

if(checkRoomAvailability(room)){

try {

room.availiabiltyOfRooms = false;

reservation = new Reservation(customer, room);

System.out.println("Enter the Booking date");

reservation.bookingDate = sf.parse(in.nextLine());

System.out.println("Enter the check-in date");

reservation.checkIndate = sf.parse(in.nextLine());

System.out.println("Enter the check-out date");

reservation.checkOutDate= sf.parse(in.nextLine());

Reservation.add(reservation);

} catch (ParseException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

System.out.println("Do you want to perform another reservation?(y/n)");

choice = in.nextLine();

}while(choice.equalsIgnoreCase("y"));

System.out.println("The reservation details are as follows:\n\n");

for(Reservation reservedCustomer : Reservation)

System.out.println(reservedCustomer.customer.fName+" - "+reservedCustomer.bookRoom.getRoomNumber()+" - "+sf.format(reservedCustomer.bookingDate)

+" - "+sf.format(reservedCustomer.checkIndate)+" - "+sf.format(reservedCustomer.checkOutDate));

}

}

Inheritance and Interface

--1

import java.util.Scanner;

import java.util.ArrayList;

import java.util.List;

public class Main {

static Scanner in=new Scanner(System.in);

static String choice;

public static void main(String[] args){

Hotel obj=registerHotel();

do{

obj.addRoom(new Room());

System.out.println("Do you want to add another room?(y/n)");

choice=in.nextLine();

}while(choice.equalsIgnoreCase("y"));

obj.display();

}

private static Hotel registerHotel() {

String name,address;

System.out.println("Enter the Hotel Details");

System.out.println("Enter the Hotel name");

name=Main.in.nextLine();

System.out.println("Enter the Hotel Location");

address=Main.in.nextLine();

return new Hotel(name,"11",address);

}

}

class ConferenceHall extends Hall {

private String wifi,projector;

ConferenceHall(int id,int capacity,String wifi,String projector,String soundSystem) {

super("Conference Hall",id,1,capacity,soundSystem);

this.wifi=wifi;

this.projector=projector;

setRate(250);

}

@Override()

public void display(){

System.out.print("\n"+getRoomType());

System.out.print("\nRoom ID : "+getId());

System.out.print("\nCapacity : "+getCapacity());

System.out.print("\nSound System : "+getSoundSystem());

System.out.print("\nWifi : "+wifi);

System.out.print("\nProjector : "+projector);

System.out.print("\nRoom Rate : "+getRate()+"\n");

}

}

class Hall extends Room {

private String soundSystem;

public String getSoundSystem() {

return soundSystem;

}

public void setSoundSystem(String soundSystem) {

this.soundSystem = soundSystem;

}

public int getCapacity() {

return capacity;

}

public void setCapacity(int capacity) {

this.capacity = capacity;

}

private int capacity;

Hall(String roomType,int id,int hour,int capacity,String soundSystem) {

super(roomType,id,hour);

this.capacity=capacity;

this.soundSystem=soundSystem;

}

@Override

public void display(){

}

}

class PartyHall extends Hall {

private String type;

private int amenities;

PartyHall(){

super("Party Hall",0,1,0,"true");

}

PartyHall(int id,int capacity,String soundSystem,String type,int amenities) {

super("Party Hall",id,1,capacity,soundSystem);

this.amenities=amenities;

this.type=type;

generateRate();

}

private void generateRate(){

super.setRate(200);

}

@Override()

public void display(){

System.out.print("\n"+getRoomType());

System.out.print("\nRoom ID : "+getId());

System.out.print("\nCapacity : "+getCapacity());

System.out.print("\nSound System : "+getSoundSystem());

System.out.print("\nType of Party : "+type);

System.out.print("\nAmenties : "+amenities);

System.out.print("\nRoom Rate : "+getRate()+"\n");

}

}

class Room {

private int id,rate,hour;

private String roomType;

public Room(){

}

Room(String roomType,int id,int hour)

{

this.roomType=roomType;

this.id=id;

//this.rate=rate;

this.hour=hour;

}

public int getId() {

return id;

}

public void setId(int id) {

this.id = id;

}

public int getRate() {

return rate;

}

public void setRate(int rate) {

this.rate = rate;

}

public int getHour() {

return hour;

}

public void setHour(int hour) {

this.hour = hour;

}

public void display(){

}

public String getRoomType() {

return roomType;

}

public void setRoomType(String roomType) {

this.roomType = roomType;

}

}

class Hotel {

private String name,hotelId,address;

private List<Room> roomList=new ArrayList<Room>();

static int count=1;

int i,rName,hType;

Hotel(){

}

Hotel(String name,String hotelId,String address){

this.name=name;

this.hotelId=hotelId;

this.address=address;

}

public void addRoom(Room obj){

String rType="null",wifi,projector,soundSystem,partyName;

int roomType,capacity,amenities;

System.out.println("Enter the Room name");

System.out.println("1.Hotel Room");

System.out.println("2.Hall");

rName=Integer.parseInt(Main.in.nextLine());

if(rName==1){

System.out.println("Enter the Room Type");

System.out.println("1.Single");

System.out.println("2.Double");

System.out.println("3.Delux");

roomType=Integer.parseInt(Main.in.nextLine());

switch(roomType){

case 1:

rType="Single";

break;

case 2:

rType="Double";

break;

case 3:

rType="Delux";

break;

}

System.out.println("Need WiFi ??(true/false)");

wifi=Main.in.nextLine();

obj=new HotelRoom(count++,rType,wifi);

}

else{

System.out.println("Enter the Hall Type");

System.out.println("1.Party Hall");

System.out.println("2.Conference Hall");

hType=Integer.parseInt(Main.in.nextLine());

if(hType==1){

System.out.println("Enter the Capacity");

capacity=Integer.parseInt(Main.in.nextLine());

System.out.println("Need soundSystem ??(true/false)");

soundSystem=Main.in.nextLine();

System.out.println("Enter the Party Name");

partyName=Main.in.nextLine();

System.out.println("Enter the Amenities Cost");

amenities=Integer.parseInt(Main.in.nextLine());

obj=new PartyHall(count++, capacity, soundSystem, partyName, amenities);

}

else{

System.out.println("Enter the Capacity");

capacity=Integer.parseInt(Main.in.nextLine());

System.out.println("Need soundSystem ??(true/false)");

soundSystem=Main.in.nextLine();

System.out.println("Need WiFi ??(true/false)");

wifi=Main.in.nextLine();

System.out.println("Need Projector ??(true/false)");

projector=Main.in.nextLine();

obj=new ConferenceHall(count++,capacity, wifi, projector,soundSystem);

}

}

roomList.add(obj);

}

public void display(){

System.out.print("Hotel Room Details : ");

for(i=0;i<roomList.size();i++){

roomList.get(i).display();

}

}

}

class HotelRoom extends Room {

private String rType,wifi;

HotelRoom(int id,String rType,String wifi) {

super("Lodge Room",id,24);

this.rType=rType;

this.wifi=wifi;

generateRate();

}

private void generateRate(){

if(this.rType.equalsIgnoreCase("single"))

super.setRate(1000);

else if(this.rType.equalsIgnoreCase("double"))

super.setRate(1500);

else if(this.rType.equalsIgnoreCase("delux"))

super.setRate(2000);

else

System.out.println("Invalid");

}

@Override()

public void display(){

System.out.print("\n"+getRoomType());

System.out.print("\nRoom ID : "+getId());

System.out.print("\nRoom Type : "+rType);

System.out.print("\nwifi : "+wifi);

System.out.print("\nRoom Rate : "+getRate()+"\n");

}

}

Collections

--1

Main.java

import java.util.ArrayList;

import java.util.Collections;

import java.util.Comparator;

import java.util.List;

import java.util.Scanner;

public class Main {

private static Scanner s;

public static void main(String[] args) {

// TODO Auto-generated method stub

char st;

s = new Scanner(System.in);

TestClass t=new TestClass();

System.out.println();

System.out.println("Customer Registration:\n");

do{

Customer m=new Customer();

System.out.println("Enter the customer details:");

System.out.println("Enter the first name:");

m.Fname =s.nextLine();

System.out.println("Enter the last name:");

m.Lname =s.nextLine();

System.out.println("Enter the contact number:");

m.contactNumber =Long.parseLong(s.nextLine());

System.out.println("Enter the e-mail id:");

m.email =s.nextLine();

System.out.println("Enter the proof type:");

m.proofType =s.nextLine();

System.out.println("Enter the proof id:");

m.proofId =s.nextLine();

t.addCust(m);

System.out.println("Do you want to add new customer?(y/n)");

st=s.nextLine().charAt(0);

}while(st=='y');

Collections.sort(t.cust);

t.display();

}

}

class TestClass {

List<Customer> cust=new ArrayList<Customer>();

public void display()

{

System.out.println("The customer details are as follows");

for (Customer t : cust) {

t.register(t.Fname, t.Lname, t.contactNumber, t.email, t.proofType, t.proofId);

}

}

public void addCust(Customer t)

{

cust.add(t);

}

}

Customer.java

**public** **class** Customer **implements** Comparable<Customer> {

String Fname;

String Lname;

**long** contactNumber;

String email;

String proofType;

String proofId;

**public** **void** register(String Fname,String Lname,**long** contactNumber,String email,String proofType,String proofId){

System.***out***.println("The customer details are:");

System.***out***.println("First Name : "+Fname);

System.***out***.println("Last Name : "+Lname);

System.***out***.println("Contact Number : "+contactNumber);

System.***out***.println("E-Mail : "+email);

System.***out***.println("Proof Type : "+proofType);

System.***out***.println("Proof ID : "+proofId);

System.***out***.println();

}

**public** **int** compareTo(Customer name) {

**return** Fname.compareTo(name.Fname);

}

}

--2

Main.java

import java.util.Collections;

import java.util.Comparator;

import java.util.List;

import java.util.Scanner;

public class Main {

private static final String Room = null;

private static Scanner s;

public static void main(String[] arg)

{

int roomid;

String roomnumber;

String roomtype;

String roomcapacity;

boolean roomAc;

boolean roomWifi;

boolean roomCabel;

boolean roomLaundry;

String str;

s = new Scanner(System.in);

Hotel h=new Hotel();

System.out.println("Enter the Hotel details:");

System.out.println("Enter the Hotel Name:");

h.setName(s.nextLine());

System.out.println("Enter the Hotel ID:");

h.setHotelId(Integer.parseInt(s.nextLine()));

System.out.println("Enter the Hotel Address");

h.setAddress(s.nextLine());

do{

System.out.println("Enter the Room Details:");

System.out.println("Enter the Room Id:");

roomid=Integer.parseInt(s.nextLine());

System.out.println("Enter the Room Number:");

roomnumber=s.nextLine();

System.out.println("Enter the Room Type:");

System.out.println("1)Normal");

System.out.println("2)Delux");

System.out.println("3)Super Delux");

roomtype=s.nextLine();

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomcapacity=s.nextLine();

System.out.println("AC Service (true/false):");

roomAc=Boolean.parseBoolean(s.nextLine());;

System.out.println("Wi-Fi Service (true/false):");

roomWifi=Boolean.parseBoolean(s.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel=Boolean.parseBoolean(s.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry=Boolean.parseBoolean(s.nextLine());

Room room=new Room(roomid, roomnumber,roomtype, roomcapacity,roomAc, roomWifi, roomCabel, roomLaundry);

h.addRoom(room);

System.out.println("Do you want to add Another Room (yes/no):");

str=s.nextLine();

}while(str.equals("yes"));

System.out.println("Thank you for booking !!");

Collections.sort(h.roomlist);

h.display();

}

}

Hotel.java

import java.util.ArrayList;

import java.util.Collections;

import java.util.List;

public class Hotel {

private String name;

private int hotelId;

private String address;

List<Room> roomlist=new ArrayList<Room>();

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public int getHotelId() {

return hotelId;

}

public void setHotelId(int hotelId) {

this.hotelId = hotelId;

}

public String getAddress() {

return address;

}

public void setAddress(String address) {

this.address = address;

}

public void addRoom(Room room)

{

roomlist.add(room);

}

public void display()

{

System.out.println("The rooms Details in "+this.getName()+" :");

System.out.println("Hotel Name:"+this.getName()+".");

System.out.println("Hotel ID:"+this.getHotelId()+".");

System.out.println("Hotel Address:"+this.getAddress()+".");

System.out.println();

System.out.println("Room Details:");

for (Room room : roomlist) {

System.out.println();

System.out.println("Room Number :"+room.getRoomnumber());

if(room.getRoomtype().equals("1"))

{

System.out.println("Room Type :Normal");

}

else if(room.getRoomtype().equals("2"))

{

System.out.println("Room Type :Delux");

}

else if(room.getRoomtype().equals("3"))

{

System.out.println("Room Type :Super Delux");

}

System.out.println("Services Available:");

if(room.isRoomAc())

System.out.println("AC");

if(room.isRoomWifi())

System.out.println("Wi-Fi");

if(room.isRoomCabel())

System.out.println("Cable Connection");

if(room.isRoomLaundry())

System.out.println("Laundry");

}

}

}

Room.java

**import** java.util.Comparator;

**public** **class** Room **implements** Comparable<Room>{

**private** **int** roomid;

String roomnumber;

**private** String roomtype;

**private** String roomcapacity;

**private** **boolean** roomAc;

**private** **boolean** roomWifi;

**private** **boolean** roomCabel;

**private** **boolean** roomLaundry;

**public** Room( **int** roomid, String roomnumber,String roomtype, String roomcapacity, **boolean** roomAc, **boolean** roomWifi, **boolean** roomCabel, **boolean** roomLaundry)

{

**this**.roomid=roomid;

**this**.roomnumber=roomnumber;

**this**.roomtype=roomtype;

**this**.roomcapacity=roomcapacity;

**this**.roomAc=roomAc;

**this**.roomWifi=roomWifi;

**this**.roomCabel=roomCabel;

**this**.roomLaundry=roomLaundry;

}

**public** **int** getRoomid() {

**return** roomid;

}

**public** String getRoomnumber() {

**return** roomnumber;

}

**public** String getRoomtype() {

**return** roomtype;

}

**public** String getRoomcapacity() {

**return** roomcapacity;

}

**public** **boolean** isRoomAc() {

**return** roomAc;

}

**public** **boolean** isRoomWifi() {

**return** roomWifi;

}

**public** **boolean** isRoomCabel() {

**return** roomCabel;

}

**public** **boolean** isRoomLaundry() {

**return** roomLaundry;

}

**public** **int** compareTo(Room r) {

**return** roomnumber.compareTo(r.roomnumber);

}

}

Exception

--1

Main.java

**import** java.util.Scanner;

**public** **class** Main {

**private** **static** Scanner *s*;

**public** **static** **void** main(String[] arg)

{

**int** roomid;

**int** roomnumber=0;

String roomtype;

String roomcapacity;

**boolean** roomAc;

**boolean** roomWifi;

**boolean** roomCabel;

**boolean** roomLaundry;

String str;

**boolean** flag=**true**;

*s* = **new** Scanner(System.***in***);

Hotel h=**new** Hotel();

System.***out***.println("Enter the Hotel details:");

System.***out***.println("Enter the Hotel Name:");

h.setName(*s*.nextLine());

System.***out***.println("Enter the Hotel ID:");

h.setHotelId(Integer.*parseInt*(*s*.nextLine()));

System.***out***.println("Enter the Hotel Address");

h.setAddress(*s*.nextLine());

**do**{

System.***out***.println("Enter the Room Details:");

System.***out***.println("Enter the Room Id:");

roomid=Integer.*parseInt*(*s*.nextLine());

**do**{

**try**{

System.***out***.println("Enter the Room Number:");

roomnumber=Integer.*parseInt*(*s*.nextLine());

**if**(roomnumber<0)

{

**throw** **new** InvalidRoomException("Invalid Room Number\nRe-enter Room Number");

}

}

**catch**(InvalidRoomException e)

{

e.getMessage();

}

}**while**(roomnumber<0);

System.***out***.println("Enter the Room Type:");

System.***out***.println("1)Normal");

System.***out***.println("2)Delux");

System.***out***.println("3)Super Delux");

roomtype=*s*.nextLine();

System.***out***.println("Enter the Room Capacity:(1/2/3/4)");

roomcapacity=*s*.nextLine();

System.***out***.println("AC Service (true/false):");

roomAc=Boolean.*parseBoolean*(*s*.nextLine());;

System.***out***.println("Wi-Fi Service (true/false):");

roomWifi=Boolean.*parseBoolean*(*s*.nextLine());

System.***out***.println("Cable Service (true/false):");

roomCabel=Boolean.*parseBoolean*(*s*.nextLine());

System.***out***.println("Laundry Service (true/false):");

roomLaundry=Boolean.*parseBoolean*(*s*.nextLine());

Room room=**new** Room(roomid, roomnumber,roomtype, roomcapacity,roomAc, roomWifi, roomCabel, roomLaundry);

h.addRoom(room);

System.***out***.println("Do you want to add Another Room (yes/no):");

str=*s*.nextLine();

}**while**(str.equals("yes"));

System.***out***.println("Thank you for booking !!");

h.display();

}

}

Hotel.java

**import** java.util.ArrayList;

**public** **class** Hotel {

**private** String name;

**private** **int** hotelId;

**private** String address;

ArrayList<Room> roomlist=**new** ArrayList<Room>();

**public** String getName() {

**return** name;

}

**public** **void** setName(String name) {

**this**.name = name;

}

**public** **int** getHotelId() {

**return** hotelId;

}

**public** **void** setHotelId(**int** hotelId) {

**this**.hotelId = hotelId;

}

**public** String getAddress() {

**return** address;

}

**public** **void** setAddress(String address) {

**this**.address = address;

}

**public** **void** addRoom(Room room)

{

roomlist.add(room);

}

**public** **void** display()

{

System.***out***.println("The rooms details:");

System.***out***.println("Hotel Name:"+**this**.getName()+".");

System.***out***.println("Hotel ID:"+**this**.getHotelId()+".");

System.***out***.println("Hotel Address:"+**this**.getAddress()+".");

**for** (Room room : roomlist) {

System.***out***.println();

System.***out***.println("Room Number :"+room.getRoomnumber());

**if**(room.getRoomtype().equals("1"))

{

System.***out***.println("Room Type :Normal");

}

**else** **if**(room.getRoomtype().equals("2"))

{

System.***out***.println("Room Type :Delux");

}

**else** **if**(room.getRoomtype().equals("3"))

{

System.***out***.println("Room Type :Super Delux");

}

System.***out***.println("Services Available:");

**if**(room.isRoomAc())

System.***out***.println("AC");

**if**(room.isRoomWifi())

System.***out***.println("Wi-Fi");

**if**(room.isRoomCabel())

System.***out***.println("Cable Connection");

**if**(room.isRoomLaundry())

System.***out***.println("Laundry");

}

}

}

Room.java

**public** **class** Room {

**private** **int** roomid;

**private** **int** roomnumber;

**private** String roomtype;

**private** String roomcapacity;

**private** **boolean** roomAc;

**private** **boolean** roomWifi;

**private** **boolean** roomCabel;

**private** **boolean** roomLaundry;

**public** Room( **int** roomid, **int** roomnumber,String roomtype, String roomcapacity, **boolean** roomAc, **boolean** roomWifi, **boolean** roomCabel, **boolean** roomLaundry)

{

**this**.roomid=roomid;

**this**.roomnumber=roomnumber;

**this**.roomtype=roomtype;

**this**.roomcapacity=roomcapacity;

**this**.roomAc=roomAc;

**this**.roomWifi=roomWifi;

**this**.roomCabel=roomCabel;

**this**.roomLaundry=roomLaundry;

}

**public** **int** getRoomid() {

**return** roomid;

}

**public** **int** getRoomnumber() {

**return** roomnumber;

}

**public** String getRoomtype() {

**return** roomtype;

}

**public** String getRoomcapacity() {

**return** roomcapacity;

}

**public** **boolean** isRoomAc() {

**return** roomAc;

}

**public** **boolean** isRoomWifi() {

**return** roomWifi;

}

**public** **boolean** isRoomCabel() {

**return** roomCabel;

}

**public** **boolean** isRoomLaundry() {

**return** roomLaundry;

}

}

InvalidRoomException.java

**public** **class** InvalidRoomException **extends** Exception{

String s;

**public** InvalidRoomException(String s)

{

**this**.s=s;

}

**public** String getMessage()

{

System.***out***.println(s);

**return** s;

}

}

--2

Main.java

import java.util.Scanner;

import java.util.regex.Matcher;

import java.util.regex.Pattern;

public class Main {

private static Scanner s;

public static void main(String[] args) {

// TODO Auto-generated method stub

s = new Scanner(System.in);

TestClass m=new TestClass();

System.out.println();

System.out.println("Customer Registration:");

System.out.println();

System.out.println("Enter the customer details:");

System.out.println("Enter the first name:");

m.Fname =s.nextLine();

System.out.println("Enter the last name:");

m.Lname =s.nextLine();

System.out.println("Enter the contact number:");

m.contactNumber =Long.parseLong(s.nextLine());

System.out.println("Enter the e-mail id:");

do{

try{

m.email =s.nextLine();

Pattern p=Pattern.compile("^[A-Z0-9.\_%+-]+@[A-Z0-9.-]+\\.[A-Z]{2,6}$", Pattern.CASE\_INSENSITIVE);

Matcher matcher = p.matcher(m.email);

if(matcher.find())

{

break;

}

else{

throw new EmailException("Invalid Email ID\nRe-enter Email ID");

}

}

catch(EmailException e){

System.out.println(e.getMessage());

}}while(true);

System.out.println("Enter the proof type:");

m.proofType =s.nextLine();

System.out.println("Enter the proof id:");

m.proofId =s.nextLine();

m.register(m.Fname,m.Lname,m.contactNumber,m.email,m.proofType,m.proofId);

}

}

class TestClass {

String Fname;

String Lname;

long contactNumber;

String email;

String proofType;

String proofId;

public void register(String Fname,String Lname,long contactNumber,String email,String proofType,String proofId){

System.out.println("Thank you for registering. Your id is 1..");

System.out.println("The customer details are as follows");

System.out.println("The customer details are:");

System.out.println("First Name : "+Fname);

System.out.println("Last Name : "+Lname);

System.out.println("Contact Number : "+contactNumber);

System.out.println("E-Mail : "+email);

System.out.println("Proof Type : "+proofType);

System.out.println("Proof ID : "+proofId);

System.out.println();

}

}

EmailException.java

**public** **class** EmailException **extends** Exception {

**public** EmailException(String s)

{

**super**(s);

}

}

GarbageCollection

import java.text.ParseException;

import java.text.SimpleDateFormat;

import java.util.ArrayList;

import java.util.Date;

import java.util.List;

import java.util.Scanner;

class Hotel{

private String name,address;

private int hotelId;

static public List<Room> roomList = new ArrayList<Room>();

void addRoom(Room room){

roomList.add(room);

}

Room availableRoom(Scanner in){

String roomType = null,roomCapacity;

boolean roomAc,roomWifi,roomCabel,roomLaundry;

int flag =0;

//System.out.println("Reservation");

do{

System.out.println("\nEnter the room requirements:");

System.out.println("Enter the Room Type:\n1)Normal\n2)Delux\n3)Super Delux");

int roomTypeSelected = Integer.parseInt(in.nextLine());

switch(roomTypeSelected){

case 1:

roomType = "Normal";

break;

case 2:

roomType = "Delux";

break;

case 3:

roomType = "Super Delux";

break;

default:

System.out.println("Select correct Room Type");

}

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomCapacity = in.nextLine();

System.out.println("AC Service (true/false):");

roomAc = Boolean.parseBoolean(in.nextLine());

System.out.println("Wi-Fi Service (true/false):");

roomWifi = Boolean.parseBoolean(in.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel = Boolean.parseBoolean(in.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry = Boolean.parseBoolean(in.nextLine());

for(Room r:roomList){

if(r.getRoomType().equalsIgnoreCase(roomType)

&& r.getRoomCapacity().equalsIgnoreCase(roomCapacity)

&& r.getRoomAc() == roomAc

&& r.getRoomWifi() == roomWifi

&& r.getRoomCable() == roomCabel

&& r.getRoomLaundry() == roomLaundry

&& r.availiabiltyOfRooms == true

)

{

System.out.println("Please take room number "+r.getRoomNumber()+"\n");

flag = 1;

return r;

}

}

if(flag == 0)

System.out.println("No rooms of specified requirements\nPlease re-enter\n");

}while(flag !=1);

return null;

}

void display(){

System.out.println("Thank you for booking !!\nThe rooms Details in "+this.name+" :");

System.out.println("Hotel Name:"+this.name+".");

System.out.println("Hotel ID:"+this.hotelId+".");

System.out.println("Hotel Address:"+this.address+".");

System.out.println("\nRoom Details:");

for(Room room : roomList){

System.out.println("\nRoom Number :" + room.getRoomNumber());

System.out.println("Room Type :" + room.getRoomType());

System.out.println("Services Available:" );

System.out.print(room.getRoomAc()?"AC\n":"");

System.out.print( room.getRoomWifi()?"Wi-Fi\n":"");

System.out.print( room.getRoomCable()?"Cable Connection\n":"");

System.out.print( room.getRoomLaundry()?"Laundry\n":"");

}

}

String getHotelName(){

return name;

}

String getHotelAddress(){

return address;

}

int getHotelID(){

return hotelId;

}

void setHotelName(String name){

this.name = name;

}

void setHotelAddress(String address){

this.address = address;

}

void setHotelID(int hotelId){

this.hotelId = hotelId;

}

}

class Room{

private String roomType;

private String roomNumber,roomCapacity;

private boolean roomAc, roomWifi, roomCabel, roomLaundry;

private int roomId;

boolean availiabiltyOfRooms = true;

Room(){

}

Room(int roomId, String roomType,String roomNumber,String roomCapacity,boolean roomAc,boolean roomWifi,boolean roomCabel, boolean roomLaundry)

{

this.roomId = roomId;

this.roomType = roomType;

this.roomNumber = roomNumber;

this.roomCapacity = roomCapacity;

this.roomAc = roomAc;

this.roomWifi = roomWifi;

this.roomCabel = roomCabel;

this.roomLaundry = roomLaundry;

}

void roomReservation(Scanner in){

System.out.println("Enter the room requirements:");

do

{

System.out.println("Enter the Room Type:\n1)Normal\n2)Delux\n3)Super Delux");

int roomTypeSelected = Integer.parseInt(in.nextLine());

switch(roomTypeSelected){

case 1:

roomType = "Normal";

break;

case 2:

roomType = "Delux";

break;

case 3:

roomType = "Super Delux";

break;

default:

System.out.println("Select correct Room Type");

}

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomCapacity = in.nextLine();

System.out.println("AC Service (true/false):");

roomAc = Boolean.parseBoolean(in.nextLine());

System.out.println("Wi-Fi Service (true/false):");

roomWifi = Boolean.parseBoolean(in.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel = Boolean.parseBoolean(in.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry = Boolean.parseBoolean(in.nextLine());

System.out.println("Do you want to add Another Room (yes/no):");

}while((in.nextLine()).equalsIgnoreCase("yes"));

}

String getRoomNumber(){

return roomNumber;

}

String getRoomType(){

return roomType;

}

boolean getRoomAc(){

return roomAc;

}

boolean getRoomCable(){

return roomCabel;

}

boolean getRoomWifi(){

return roomWifi;

}

boolean getRoomLaundry(){

return roomLaundry;

}

String getRoomCapacity(){

return roomCapacity;

}

}

class Reservation{

Customer customer;

Room bookRoom;

Date checkIndate;

Date checkOutDate;

Date bookingDate;

Reservation(Customer currentCustomer , Room requiredRoom){

customer = currentCustomer;

bookRoom = requiredRoom;;

}

}

class Customer{

String fName,lName, contactNumber, eMail, proofType, proofId;

static int count=0;

void registerCustomer(Scanner in){

System.out.println("Reservation");

System.out.println("\nCustomer Registration:\n");

System.out.println("Enter the customer details:");

System.out.println("Enter the first name:");

fName = in.nextLine();

System.out.println("Enter the last name:");

lName = in.nextLine();

System.out.println("Enter the contact number:");

contactNumber = in.nextLine();

System.out.println("Enter the e-mail id:");

eMail = in.nextLine();

System.out.println("Enter the proof type:");

proofType = in.nextLine();

System.out.println("Enter the proof id:");

proofId = in.nextLine();

System.out.println();

display();

}

void display(){

System.out.println("The customer details are as follows");

System.out.println("The customer details are:");

System.out.println("First Name : "+fName);

//System.out.println("Here are your details");

System.out.println("Last Name : "+lName);

System.out.println("Contact Number : "+contactNumber);

System.out.println("E-Mail : "+eMail);

System.out.println("Proof Type : "+proofType);

System.out.println("Proof ID : "+proofId);

}

}

public class Main {

String roomType;

String roomNumber ,roomCapacity;

boolean roomAc, roomWifi, roomCabel, roomLaundry;

static List<Reservation> Reservation = new ArrayList<Reservation>();

int roomId,roomTypeSelected;

static boolean availability =false;

static Scanner in = new Scanner(System.in);

void setHotelInfo(Hotel h){

System.out.println("Enter the Hotel details:");

System.out.println("Enter the Hotel Name:");

h.setHotelName(in.nextLine());

System.out.println("Enter the Hotel ID:");

h.setHotelID(Integer.parseInt(in.nextLine()));

System.out.println("Enter the Hotel Address");

h.setHotelAddress(in.nextLine());

}

void bookRoom(Hotel h){

do

{

System.out.println("Enter the Room Details:\nEnter the Room Id:");

roomId = Integer.parseInt(in.nextLine());

System.out.println("Enter the Room Number:");

roomNumber = in.nextLine();

System.out.println("Enter the Room Type:\n1)Normal\n2)Delux\n3)Super Delux");

roomTypeSelected = Integer.parseInt(in.nextLine());

switch(roomTypeSelected){

case 1:

roomType = "Normal";

break;

case 2:

roomType = "Delux";

break;

case 3:

roomType = "Super Delux";

break;

default:

System.out.println("Select correct Room Type");

}

System.out.println("Enter the Room Capacity:(1/2/3/4)");

roomCapacity = in.nextLine();

System.out.println("AC Service (true/false):");

roomAc = Boolean.parseBoolean(in.nextLine());

System.out.println("Wi-Fi Service (true/false):");

roomWifi = Boolean.parseBoolean(in.nextLine());

System.out.println("Cable Service (true/false):");

roomCabel = Boolean.parseBoolean(in.nextLine());

System.out.println("Laundry Service (true/false):");

roomLaundry = Boolean.parseBoolean(in.nextLine());

Room roomData = new Room(roomId, roomType, roomNumber, roomCapacity, roomAc,roomWifi, roomCabel, roomLaundry);

h.addRoom(roomData);

System.out.println("Do you want to add Another Room (yes/no):");

}while((in.nextLine()).equalsIgnoreCase("yes"));

}

static boolean checkRoomAvailability(Room roomAvail){

availability = roomAvail.availiabiltyOfRooms;

return availability;

}

public static void main(String args[]){

String choice;

Hotel hotel = new Hotel();

Main main = new Main();

Room room = new Room();

Reservation reservation;

Customer customer;

SimpleDateFormat sf = new SimpleDateFormat("MM/dd/yyyy");

//Filling hotel Details

main.setHotelInfo(hotel);

//fill Room Details

main.bookRoom(hotel);

hotel.display();

//New Customer

do{

customer = new Customer();

customer.registerCustomer(in);

room = hotel.availableRoom(in);

if(checkRoomAvailability(room)){

try {

room.availiabiltyOfRooms = false;

reservation = new Reservation(customer, room);

System.out.println("Enter the Booking date(MM/dd/yyyy)");

reservation.bookingDate = sf.parse(in.nextLine());

System.out.println("Enter the check-in date(MM/dd/yyyy)");

reservation.checkIndate = sf.parse(in.nextLine());

System.out.println("Enter the check-out date(MM/dd/yyyy)");

reservation.checkOutDate= sf.parse(in.nextLine());

Reservation.add(reservation);

} catch (ParseException e) {

// TODO Auto-generated catch block

e.printStackTrace();

}

}

System.out.println("Do you want to perform another reservation?(y/n)");

choice = in.nextLine();

}while(choice.equalsIgnoreCase("y"));

System.out.println("The reservation details are as follows:\n");

for(Reservation reservedCustomer : Reservation)

System.out.println(reservedCustomer.customer.fName+" - "+reservedCustomer.bookRoom.getRoomNumber()+" - "+sf.format(reservedCustomer.bookingDate)

+" - "+sf.format(reservedCustomer.checkIndate)+" - "+sf.format(reservedCustomer.checkOutDate));

System.gc();

}

}

Threads

--1

Main.java

**import** java.util.Scanner;

**public** **class** Main {

**private** **static** Scanner *s*;

**public** **static** **void** main(String[] args) {

*s* = **new** Scanner(System.***in***);

MyThread t=**new** MyThread(*s*);

String str;

System.***out***.println("Do you want to check out yes/no");

str=*s*.nextLine();

**if**(str.equals("yes"))

{

Thread t1=**new** Thread(t);

t1.start();

}

**else**

{System.***out***.println("Thank you for continuing your stay");

}

}

}

MyThread.java

**import** java.text.ParseException;

**import** java.text.SimpleDateFormat;

**import** java.util.Date;

**import** java.util.Scanner;

**public** **class** MyThread **implements** Runnable{

Scanner s;

**public** MyThread(Scanner s)

{

**this**.s=s;

}

@Override

**public** **void** run() {

Object obj=**null**;

System.***out***.println("Enter the check-in date");

String ckin=s.nextLine();

System.***out***.println("Enter the check-out date");

String ckout=s.nextLine();

System.***out***.println("Enter the Room Type:\nNormal\nDeluxe\nSuper Deluxe");

String type=s.nextLine();

**int** n=1500;

**int** d=3500;

**int** sd=3500;

SimpleDateFormat format = **new** SimpleDateFormat("dd/MM/yyyy");

Date d1 = **null**;

Date d2 = **null**;

**try** {

d1 =format.parse(ckin);

} **catch** (ParseException e) {

// **TODO** Auto-generated catch block

e.printStackTrace();

}

**try** {

d2 =format.parse(ckout);

} **catch** (ParseException e) {

// **TODO** Auto-generated catch block

e.printStackTrace();

};

**long** diff = d2.getTime() - d1.getTime();

**int** diffDays = (**int**) (diff / (24 \* 60 \* 60 \* 1000));

System.***out***.println("Room Service Initiated for the room ");

MyThread2 t2=**new** MyThread2();

Thread t3 =**new** Thread(t2);

t3.start();

**try** {

t3.join();

} **catch** (InterruptedException e) {

// **TODO** Auto-generated catch block

e.printStackTrace();

}

**int** rate = 0;

**if**(type.equals("Normal"))

{

rate=n\*diffDays;

}

**else** **if**(type.equals("Deluxe"))

{

rate=d\*diffDays;

}

**else** **if**(type.equals("Super Deluxe"))

{

rate=sd\*diffDays;

}

System.***out***.println("The total rent for "+diffDays+" Days is "+rate);

}

}

Mythread2.java

**public** **class** MyThread2 **implements** Runnable{

@Override

**public** **void** run() {

System.***out***.println("Room checking is going on");

System.***out***.println("Room Service is clear - You can proceed with checkout process");

}

}