**Core JAVA SDK**

**1.Language Fundamentals and Operators Statements - Problem I**

For hotel booking application, we'll start by getting all the registration information from the user . When a new **Guest/Customer** comes for booking a room we need to record the details.

Get the following details from the user:

1. Name
2. Address
3. Contact
4. Email update
5. Proof type
6. Proof id

Generate an id for the **Guest /Customer** and give it to him.

Create a class Main with data members,  
name, address, contactNumber, email, proofType, proofID

and member functions  
register() with required arguments.

Print the details in the register method. Refer Sample Input and Ouput.

**Pre-requisites:** Use the Language Fundamentals and Operators,Statements.

**Sample Input Output:**

Registration

Enter your name

**Sasi**

Enter your address

**Ramanathapuram, Coimbatore-03.**

Contact Number

**9003469198**

E-Mail ID

[**sasi@gmail.com**](mailto:sasi@gmail.com)

Enter proof type

**Licence**

Enter proof id

**TN03LN001**

Welcome Sasi.

Here are your details

Address: Ramanathapuram, Coimbatore-03.

Contact Number: 9003469198

E-Mail ID: [sasi@gmail.com](mailto:sasi@gmail.com)

Proof type: Licence

Proof id: TN03LN001

Thank you for registering. Your id is 1..

**Program Code:**

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

public class Main {

static void register(String name, String address, String contact, String email, String proofType, String proofId) {

int id = 1;

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

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

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

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

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 "+id+"..");

}

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

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

String name;

String address;

String contactNumber;

String email;

String proofType;

String proofId;

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

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

name = br.readLine();

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

address = br.readLine();

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

contactNumber = br.readLine();

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

email = br.readLine();

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

proofType = br.readLine();

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

proofId = br.readLine();

System.out.println("");

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

}

}

**2.Language\_Fundamentals\_and\_Operators\_Statements Problem-II**

We have successfully registered the users. Now the next task is to book a room. Our duty is to list all the services provided and the user needs to choose the services.

As per the selections made, the fare is calculated.

The following are the different room types and additions services which the **Guest /Customer** have to choose.

1. AC(Rs.1000)/non-AC(Rs.750)
2. Cot(Single(Rs.0)/Double(Rs.350))
3. With cable connection(Rs. 50)/without cable connection(Rs.0)
4. Wi-Fi needed(Rs.200) or not(Rs.0)
5. Laundry service needed(Rs.100) or not(Rs.0)

Calculate the total fare after the **Guest/Customer** chooses the services and display it, and ask if the **Guest /Customer** needed any correction and confirm. And also display the options made by the

**Guest/Customer.**

Create a class Main with data members,  
ac, cot, cable, wifi, laundry, date

and member functions  
book() with necessary parameters.

**Pre-requisites:** Use the Language Fundamentals and Operators,Statements.  
  
Note: Dateformat is (MM/DD/YYYY)

**Sample Input Output:**

Booking:

Please choose the services required.

AC/non-AC(AC/nAC)

**nAC**

Cot(Single/Double)

**Double**

With cable connection/without cable connection(C/nC)

**nC**

Wi-Fi needed or not(W/nW)

**nW**  
**Laundry service needed or not(L/nL)**

**nL**

Enter the Date of Booking

**11/22/2014**

The total charge is Rs.1100.

The services chosen are Double cot non-AC room

Cable connection disabled

wifi disabled

without laundry service  
and the Date of Booking is 11/22/2014

Do you want to proceed?(yes/no)

**no**

Please choose the services required.

AC/non-AC(AC/nAC)

**AC**

Cot(Single/Double)

**Single**

With cable connection/without cable connection(C/nC)

**C**

Wi-Fi needed or not(W/nW)

**W**

Laundry service needed or not(L/nL)

**L**

Enter the Date of Booking

**11/22/2014**

The total charge is Rs.1350.

The services chosen are

Single cot AC room

Cable connection enabled

Wi-Fi enabled

with laundry service  
and the Date of Booking is 11/22/2014

Do you want to proceed?(yes/no)

**yes**

Thank you for booking. Your room number is 1.

**Program Code:**

import java.io.BufferedReader;

import java.io.InputStreamReader;

public class Main {

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

String roomType = ac.equals("AC")?"AC":"non-AC";

String cableRequired = cable.equals("C")?"enabled":"disabled";

String wifiRequired = wifi.equals("W")?"enabled":"disabled";

String laundryService = laundry.equals("L")?"with":"without";

System.out.println("The total charge is Rs."+calculate(ac,cot,cable,wifi,laundry)+".");

System.out.println("The services chosen are\n"+cot+" cot "+roomType+" room");

System.out.println("Cable connection "+cableRequired);

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

System.out.println(laundryService+" laundry service");

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

System.out.println("");

}

static int calculate(String ac, String cot, String cable, String wifi, String laundry) {

int total = 0;

if(ac.equals("AC"))

total = total + 1000;

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

total = total + 750;

if(cot.equals("Double"))

total = total + 350;

if(cable.equals("C"))

total = total + 50;

if(wifi.equals("W"))

total = total + 200;

if(laundry.equals("L"))

total = total + 100;

return total;

}

public static void main(String[] args) {

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

String ac;

String cot;

String cable;

String wifi;

String laundry;

String date;

String choice = null;

int roomNumber = 1;

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

do {

try {

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

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

ac = br.readLine();

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

cot = br.readLine();

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

cable = br.readLine();

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

wifi = br.readLine();

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

laundry = br.readLine();

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

date = br.readLine();

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

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

choice = br.readLine();

System.out.println("");

if(choice.equals("yes"))

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

} catch(Exception e) {

}

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

}

}

**3.Language Fundamentals and Operators Statements - Problem III**

Before booking it will be better to know the availablity, So you need to check the status of the rooms. To do this add a new data member to the class, List bookedRooms.

So the final list of data members is:  
ac, cot, cable, wifi, laundry, bookedRooms

And a new member function,  
checkStatus()

This function will check the bookedRoom List and tell whether the roomID is present in it.

To do this you need to make your solution menu driven.

You will have two choices:

1. Book
2. Check Status

You can refer to the booking part logic from your previous assignment.

After each booking, add the room number to the “bookedRooms” List. Use appropriate method to add roomno to List.

For simplicity, assume that for each booking successive rooms are allocated, starting from 1.

**Pre-requisites:** Use the Language Fundamentals and Operators,Statements.

**Sample Input Output:**

Menu

1. Book

2. Check Status

3. Exit

Enter your choice

**1**

Booking:

Please choose the services required.

AC/non-AC(AC/nAC)

**AC**

Cot(Single/Double)

**Single**

With cable connection/without cable connection(C/nC)

**C**

Wi-Fi needed or not(W/nW)

**W**

Laundry service needed or not(L/nL)

**L**

The total charge is Rs.1350.

The services chosen are

Single cot AC room

Cable connection enabled

Wi-Fi enabled

with laundry service

Do you want to proceed?(yes/no)

**yes**

Thank you for booking. Your room number is 1.

Menu

1. Book

2. Check Status

3. Exit

Enter your choice

**1**

Booking:

Please choose the services required.

AC/non-AC(AC/nAC)

**AC**

Cot(Single/Double)

**Double**

With cable connection/without cable connection(C/nC)

**C**

Wi-Fi needed or not(W/nW)

**W**

Laundry service needed or not(L/nL)

**L**

The total charge is Rs.1700.

The services chosen are

Double cot AC room

Cable connection enabled

Wi-Fi enabled

with laundry service

Do you want to proceed?(yes/no)

**yes**

Thank you for booking. Your room number is 2.

Menu

1. Book

2. Check Status

3. Exit

Enter your choice

**2**

Check Status:

Enter room number

**2**

Room number 2 is booked.

Menu

1. Book

2. Check Status

3. Exit

Enter your choice

**2**

Check Status:

Enter room number

**23**

Room number 23 is not booked.

Menu

1. Book

2. Check Status

3. Exit

Enter your choice

**3**

**Program Code:**

import java.io.BufferedReader;

import java.io.IOException;

import java.io.InputStreamReader;

import java.util.ArrayList;

public class Main {

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

static ArrayList<Integer> bookedRooms = new ArrayList<Integer>();

static void display(String ac, String cot, String cable, String wifi, String laundry) {

String roomType = ac.equals("AC")?"AC":"non-AC";

String cableRequired = cable.equals("C")?"enabled":"disabled";

String wifiRequired = wifi.equals("W")?"enabled":"disabled";

String laundryService = laundry.equals("L")?"with":"without";

System.out.println("The total charge is Rs."+calculate(ac,cot,cable,wifi,laundry)+".");

System.out.println("The services chosen are\n"+cot+" cot "+roomType+" room");

System.out.println("Cable connection "+cableRequired);

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

System.out.println(laundryService+" laundry service");

}

static int calculate(String ac, String cot, String cable, String wifi, String laundry) {

int total = 0;

if(ac.equals("AC"))

total = total + 1000;

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

total = total + 750;

if(cot.equals("Double"))

total = total + 350;

if(cable.equals("C"))

total = total + 50;

if(wifi.equals("W"))

total = total + 200;

if(laundry.equals("L"))

total = total + 100;

return total;

}

static void checkStatus() {

int check;

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

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

try {

check = Integer.parseInt(br.readLine());

if(check>bookedRooms.size())

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

else

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

} catch (Exception e) {

}

}

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

int choice;

String ac;

String cot;

String cable;

String wifi;

String laundry;

String date;

String choice1 = null;

int roomNumber=0;

do {

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");

choice = Integer.parseInt(br.readLine());

switch(choice) {

case 1: {

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

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

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

ac = br.readLine();

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

cot = br.readLine();

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

cable = br.readLine();

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

wifi = br.readLine();

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

laundry = br.readLine();

display(ac,cot,cable,wifi,laundry);

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

choice1 = br.readLine();

if(choice1.equals("yes")) {

roomNumber++;

bookedRooms.add(roomNumber);

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

}

break;

}

case 2:

checkStatus();

break;

case 3:

System.exit(0);

}

}while(true);

}

}

**4.Language Fundamentals and Operators Statements - Problem IV**

Hope you got used to menu driven programming. In this exercise you need to perform updations.

For instance, lets suppose the user is asking for an email update. You need to give provision for updating the email address.

Lets make the problem simple.

These are the following tasks to be done:

1. First register the guest/customer,
2. Ask for update in email,
3. Update the email if asked for, and
4. Display the details.

**Pre-requisites:** Use the Language Fundamentals and Operators,Statements.

**Sample Input Output 1:**

Registration

Enter your name

**Sasi**

Enter your address

**Ramanathapuram, Coimbatore-03.**

Contact Number

**9003469198**

E-Mail ID

[**sasi@gmail.com**](mailto:sasi@gmail.com)

Enter proof type

**Licence**

Enter proof id

**TN03LN001**

Welcome Sasi.

Here are your details

Address: Ramanathapuram, Coimbatore-03.

Contact Number: 9003469198

E-Mail ID: [sasi@gmail.com](mailto:sasi@gmail.com)

Proof type: Licence

Proof id: TN03LN001

Thank you for registering. Your id is 1..

Do you want to update the email id?(yes/no)

**yes**

Update Email:

Enter new Email id

[**sasinarmi@gmail.com**](mailto:sasinarmi@gmail.com)

Email updated

Your details are as follows

Name: Sasi

Address: Ramanathapuram, Coimbatore-03.

Contact Number: 9003469198

E-Mail ID: [sasinarmi@gmail.com](mailto:sasinarmi@gmail.com)

Proof type: Licence

Proof id: TN03LN001  
  
Sample Input and Output 2:  
 Registration  
  
 Enter your name  
jk  
 Enter your address  
abc 123  
 Contact Number  
2345612345  
 E-Mail ID  
[jk@gmail.com](mailto:jk@gmail.com) Enter proof type  
passport  
 Enter proof id  
ind001  
  
 Welcome jk.  
 Here are your details  
 Address: abc 123  
 Contact Number: 2345612345  
 E-Mail ID: [jk@gmail.com](mailto:jk@gmail.com) Proof type: passport  
 Proof id: ind001  
  
 Thank you for registering. Your id is 1..  
  
 Do you want to update the email id?(yes/no)  
no  
 Thank you

**Program Code:**

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

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

**static** **void** register(String name, String address, String contact, String email, String proofType, String proofId) {

**int** id = 1;

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

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

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

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

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 "+id+"..");

}

**static** **void** updation(String name, String address, String contact, 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: "+contact);

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

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

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

}

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

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

String name;

String address;

String contactNumber;

String email;

String proofType;

String proofId;

String choice;

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

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

name = br.readLine();

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

address = br.readLine();

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

contactNumber = br.readLine();

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

email = br.readLine();

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

proofType = br.readLine();

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

proofId = br.readLine();

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

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

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

choice = br.readLine();

**if**(choice.equals("yes")) {

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

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

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

email = br.readLine();

System.***out***.println("\nEmail updated\n");

*updation*(name,address,contactNumber,email,proofType,proofId);

}

**else**

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

}

}

**5.Language Fundamentals and Operators Statements Problem-V**

In this exercise you have to print all the bookings made using the start date and the end date.

Lets solve the problem by following these steps:

Register the customer

1. Ask whether he wants to book a room
2. If “yes” was the option, then book a room as per the requirements.
3. Repeat step 1,2 and 3, until the registration is over.
4. Now display the customer id for each room booked, if the booking date is between the start date and end date.

**Note:** Make sure the assumptions that were made during “booking” hold here also.

Add a new member function to the class:

viewBookings(). Add required parameters.

**Pre-requisites:** Use the Language Fundamentals and Operators,Statements.

**Note:** 1. Dateformat is (MM/DD/YYYY)  
 2. Use Methods to add the values to the list(customerIdList,roomNumberList, bookingDateList)  
 3. Format for displaying the room number and customer list is System.out.format("%d%12d",roomNumberList.get(i),customerIdList.get(i));

**Sample Input Output:**

Registration

Enter your name

**Sasi**

Enter your address

**Ramanathapuram, Coimbatore-03.**

Contact Number

**9003469198**

E-Mail ID

[**sasi@gmail.com**](mailto:sasi@gmail.com)

Enter proof type

**Licence**

Enter proof id

**TN03LN001**

Thank you for registering. Your id is 1..

Do you want to book a room (y/n)?

**y**

Booking

AC/non-AC(AC/nAC)

**AC**

Cot(Single/Double)

**Single**

With cable connection/without cable connection(C/nC)

**C**

Wi-Fi needed or not(W/nW)

**W**

Laundry service needed or not(L/nL)

**L**

Enter the date of booking

**11/23/2014**

The total charge is Rs.1350.

The services chosen are

Single cot AC room

Cable connection enabled

Wi-Fi enabled

with laundry service

Do you want to proceed?(yes/no)

**yes**

Thank you for booking. Your room number is 1.

Do you want to continue registration?(yes/no)

**yes**

Registration

Enter your name

**jk**

Enter your address

**PN palayam, Coimbatore-04.**

Contact Number

**9003963564**

E-Mail ID

[**jk@gmail.com**](mailto:jk@gmail.com)

Enter proof type

**Voter ID**

Enter proof id

**TN03VO004**

Thank you for registering. Your id is 2..

Do you want to book a room (y/n)?

**n**

Thank You

Do you want to continue registration?(yes/no)

**yes**

Registration

Enter your name

**Thana**

Enter your address

**ABCD, Karur-01**

Contact Number

**9003456789**

E-Mail ID

[**thana@gmail.com**](mailto:thana@gmail.com)

Enter proof type

**Licence**

Enter proof id

**TN03LN003**

Thank you for registering. Your id is 3..

Do you want to book a room (y/n)?

**y**

Booking

AC/non-AC(AC/nAC)

**AC**

Cot(Single/Double)

**Single**

With cable connection/without cable connection(C/nC)

**C**

Wi-Fi needed or not(W/nW)

**W**

Laundry service needed or not(L/nL)

**L**

Enter the date of booking

**11/23/2014**

The total charge is Rs.1350.

The services chosen are

Single cot AC room

Cable connection enabled

Wi-Fi enabled

with laundry service

Do you want to proceed?(yes/no)

**yes**

Thank you for booking. Your room number is 2.

Do you want to continue registration?(yes/no)

**no**

View all bookings:

Enter the start date

**11/22/2014**

Enter the end date

**11/23/2014**

The bookings made from 11/22/2014 to 11/23/2014 are

Room number Customer ID

1 1

2 3

**Program Code:**

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

**import** java.util.ArrayList;

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

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

**static** ArrayList<Integer> *bookedCustomer* = **new** ArrayList<Integer>();

**static** ArrayList<Integer> *bookedRooms* = **new** ArrayList<Integer>();

**static** **void** display(String ac, String cot, String cable, String wifi, String laundry) {

String roomType = ac.equals("AC")?"AC":"non-AC";

String cableRequired = cable.equals("C")?"enabled":"disabled";

String wifiRequired = wifi.equals("W")?"enabled":"disabled";

String laundryService = laundry.equals("L")?"with":"without";

System.***out***.println("\nThe total charge is Rs."+*calculate*(ac,cot,cable,wifi,laundry)+".");

System.***out***.println("The services chosen are\n"+cot+" cot "+roomType+" room");

System.***out***.println("Cable connection "+cableRequired);

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

System.***out***.println(laundryService+" laundry service\n");

}

**static** **int** calculate(String ac, String cot, String cable, String wifi, String laundry) {

**int** total = 0;

**if**(ac.equals("AC"))

total = total + 1000;

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

total = total + 750;

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

total = total + 350;

**if**(cable.equals("C"))

total = total + 50;

**if**(wifi.equals("W"))

total = total + 200;

**if**(laundry.equals("L"))

total = total + 100;

**return** total;

}

**static** **void** viewBookings() **throws** IOException {

String startDate;

String endDate;

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

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

startDate = *br*.readLine();

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

endDate = *br*.readLine();

System.***out***.println("The bookings made from "+startDate+" to "+endDate+" are");

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

**for**(**int** i=0; i<*bookedRooms*.size(); i++) {

System.***out***.println(*bookedRooms*.get(i)+" "+*bookedCustomer*.get(i));

}

}

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

**int** customerID = 0;

String name;

String address;

String contactNumber;

String email;

String proofType;

String proofId;

String bookingChoice;

String registrationChoice;

String ac;

String cot;

String cable;

String wifi;

String laundry;

String bookingDate;

String proceedChoice;

**int** roomNumber = 0;

**do** {

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

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

name = *br*.readLine();

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

address = *br*.readLine();

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

contactNumber = *br*.readLine();

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

email = *br*.readLine();

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

proofType = *br*.readLine();

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

proofId = *br*.readLine();

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

customerID++;

//bookedCustomer.add(customerID);

System.***out***.println("Thank you for registering. Your id is "+customerID+"..\n");

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

bookingChoice = *br*.readLine();

**if**(bookingChoice.equals("y")) {

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

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

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

ac = *br*.readLine();

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

cot = *br*.readLine();

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

cable = *br*.readLine();

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

wifi = *br*.readLine();

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

laundry = *br*.readLine();

System.***out***.println("\nEnter the date of booking");

bookingDate = *br*.readLine();

*display*(ac,cot,cable,wifi,laundry);

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

proceedChoice = *br*.readLine();

**if**(proceedChoice.equals("yes")) {

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

roomNumber++;

*bookedRooms*.add(roomNumber);

*bookedCustomer*.add(customerID);

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

}

}

**else**

System.***out***.println("\nThank You");

System.***out***.println("\nDo you want to continue registration?(yes/no)\n");

registrationChoice = *br*.readLine();

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

*viewBookings*();

}

}

**6.Language Fundamentals and Operators Statements - Problem VI**

Your final task is to display all the registered customers.

You add a new function  
 viewCustomers()

This function should display all the registered customers

**Pre-requisites:** Use the Language Fundamentals and Operators,Statements.

**Note:**

**Use Java Format Specifier:**

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

**Sample Input Output:**

Registration

Enter your name

**Sasi**

Enter your address

**Ramanathapuram, Coimbatore-03.**

Contact Number

**9003469198**

E-Mail ID

[**sasi@gmail.com**](mailto:sasi@gmail.com)

Enter proof type

**Licence**

Enter proof id

**TN03LN001**

Thank you for registering. Your id is 1.

Do you want to continue registration (y/n)?

**y**

Registration

Enter your name

**jk**

Enter your address

**Tiruverambur, trichy-13.**

Contact Number

**9003963564**

E-Mail ID

[**jk@gmail.com**](mailto:jk@gmail.com)

Enter proof type

**Licence**

Enter proof id

**TN03LN004**

Thank you for registering. Your id is 2.

Do you want to continue registration (y/n)?

**n**

Customers list

The registered customers are

Customer ID Customer name

1 Sasi

2 jk

Thank You

**Program Code:**

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

**import** java.util.ArrayList;

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

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

**static** ArrayList<Integer> *registeredCustomer* = **new** ArrayList<Integer>();

**static** ArrayList<String> *customerName* = **new** ArrayList<String>();

**static** **void** registeredCustomers() {

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

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

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

**for**(**int** i=0; i<*registeredCustomer*.size(); i++)

System.***out***.format("%-15d%-15s\n",*registeredCustomer*.get(i),*customerName*.get(i));

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

}

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

**int** customerID = 0;

String name;

String address;

String contactNumber;

String email;

String proofType;

String proofId;

String registrationChoice;

**do** {

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

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

name = *br*.readLine();

*customerName*.add(name);

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

address = *br*.readLine();

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

contactNumber = *br*.readLine();

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

email = *br*.readLine();

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

proofType = *br*.readLine();

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

proofId = *br*.readLine();

customerID++;

*registeredCustomer*.add(customerID);

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

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

registrationChoice = *br*.readLine();

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

*registeredCustomers*();

}

}

**7.Class and object methods Access Specifiers I**

In the previous session all the operations were done in a single Class. Now let's move on to object orientated programming.

To start with, We will concentrate on registering a customer and updating his/her email, if required.

Create Customer class with the attributes related to Customer as its data members, and all the operations related to the Customer are added as its member functions.

Create a class Customer with the following data members

fName,lName, contactNumber, eMail, proofType, proofId.

and member functions

* registerCustomer()
* display()
* updateEmail()

Add required parameters to the methods defined.

Create a Main class to get the input from the user and do all the operations.

**Sample Input Output 1:**

Registration:

Enter the customer details:

Enter the first name:

**Sasi**

Enter the last name:

**Dharan**

Enter the contact number:

**123412345**

Enter the e-mail id:

[**Sasi@gmail.com**](mailto:Sasi@gmail.com)

Enter the proof type:

**Student ID**

Enter the proof id:

**12pb05**

Thank you for registering. Your id is 1..

The customer details are as follows

The customer details are:

First Name : Sasi

Last Name : Dharan

COntact Number : 123412345

E-Mail : [Sasi@gmail.com](mailto:Sasi@gmail.com)

Proof Type : Student ID

Proof ID : 12pb05

Do you want to update email?(y/n)

**y**

Enter the new email:

[**sasinarmi@gmail.com**](mailto:sasinarmi@gmail.com)

Email updated.

The customer details are as follows

The customer details are:

First Name : Sasi

Last Name : Dharan

COntact Number : 123412345

E-Mail : [sasinarmi@gmail.com](mailto:sasinarmi@gmail.com)

Proof Type : Student ID

Proof ID : 12pb05

Thank You

**Sample Input Output 2:**  
  
 **Registration:**  
  
 **Enter the customer details:**  
 **Enter the first name:**  
**thana**  
 **Enter the last name:**  
**rathanam**  
 **Enter the contact number:**  
**234412344**  
 **Enter the e-mail** [**id:**  
**thl@gmail.com**](mailto:id:￼thl@gmail.com) **Enter the proof type:**  
**voter id**  
 **Enter the proof id:**  
**voter123**  
 **Thank you for registering. Your id is 1..**  
 **The customer details are as follows**  
 **The customer details are:**  
 **First Name : thana**  
 **Last Name : rathanam**  
 **COntact Number : 234412344**  
 **E-Mail :** [**thl@gmail.com**](mailto:thl@gmail.com) **Proof Type : voter id**  
 **Proof ID : voter123**  
 **Do you want to update email?(y/n)**  
**n**  
 **Thank You**

**Program Code:**

**Customer.java**

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

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

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

**private** **int** customerID = 0;

**private** String fName;

**private** String lName;

**private** String contactNumber;

**private** String eMail;

**private** String proofType;

**private** String proofId;

**void** registerCustomer() **throws** IOException {

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

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

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

fName = br.readLine();

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

lName = br.readLine();

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

contactNumber = br.readLine();

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

eMail = br.readLine();

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

proofType = br.readLine();

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

proofId = br.readLine();

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

}

**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("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);

}

**void** updateEmail() **throws** IOException {

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

String choice;

choice = br.readLine();

**if**(choice.equals("y")) {

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

eMail = br.readLine();

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

display();

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

} **else**

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

}

}

**Main.java**

**import** java.io.IOException;

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

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

Customer customer = **new** Customer();

**try** {

customer.registerCustomer();

customer.display();

customer.updateEmail();

} **catch** (IOException e) {

}

}

}

**8.Class and Object Methods Access Specifiers II**

Using the previous exercise, we can register any number of customers by iterating the process.

In this exercise we will be learining how to add multiple objects and storing it in a list.

Lets come to the problem. Supose that you have a hotel. You need to add multiple rooms in that hotel.

So, the classes needed to be defined are Hotel and Room.

Hotel will have multiple rooms. So we'll have room list in the hotel class.

Create a class Hotel with the following data members:

name, hotelId, address and roomList

and member functions

* addRoom – with room object as argument
* display

After creating the Hotel class, we need to design the Room class. The addRoom() method in the hotel class should add the new room to the room list.

The Room class is defined below.

Create a class Room with the following data members:

roomId, roomType, roomNumber, roomCapacity, roomAc, roomWifi, roomCabel, roomLaundry;

and a constructor with all the data members as arguments.

**Sample Input and Output:**

Enter the Hotel details:

Enter the Hotel Name:

**Taj**

Enter the Hotel ID:

**1**

Enter the Hotel Address

**Mumbai**

Enter the Room Details:

Enter the Room Id:

**1**

Enter the Room Number:

**101**

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**1**

Enter the Room Capacity:(1/2/3/4)

**1**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**false**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

Do you want to add Another Room (yes/no):

**yes**

Enter the Room Details:

Enter the Room Id:

**2**

Enter the Room Number:

**102**

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**2**

Enter the Room Capacity:(1/2/3/4)

**2**

AC Service (true/false):

**false**

Wi-Fi Service (true/false):

**true**

Cable Service (true/false):

**false**

Laundry Service (true/false):

**true**

Do you want to add Another Room (yes/no):

**no**

Thank you for booking !!

The rooms Details in Taj :

Hotel Name:Taj.

Hotel ID:1.

Hotel Address:Mumbai.

Room Details:

Room Number :101

Room Type :Normal

Services Available:

AC

Cable Connection

Laundry

Room Number :102

Room Type :Delux

Services Available:

Wi-Fi

Laundry

**Program Code:**

**Room.java**

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

**private** **int** roomId;

**private** String roomType;

**private** **int** roomNumber;

**private** **int** roomCapacity;

**private** **boolean** roomAC;

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

**private** **boolean** roomCable;

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

**public** Room(**int** roomId, String roomType, **int** roomNumber, **int** roomCapacity,

**boolean** roomAC, **boolean** roomWifi, **boolean** roomCable, **boolean** roomLaundry) {

**super**();

**this**.roomId = roomId;

**this**.roomType = roomType;

**this**.roomNumber = roomNumber;

**this**.roomCapacity = roomCapacity;

**this**.roomAC = roomAC;

**this**.roomWifi = roomWifi;

**this**.roomCable = roomCable;

**this**.roomLaundry = roomLaundry;

}

**void** display() {

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

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

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

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

**if**(roomAC)

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

**if**(roomWifi)

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

**if**(roomCable)

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

**if**(roomLaundry)

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

}

}

**Hotel.java**

**import** java.io.BufferedReader;

**import** java.io.IOException;

**import** java.io.InputStreamReader;

**import** java.util.ArrayList;

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

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

**private** String hotelName;

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

**private** String hotelAddress;

**private** **int** roomId;

**private** **int** roomNumber;

**private** String roomType;

**private** **int** roomCapacity;

**boolean** roomAC;

**boolean** roomWifi;

**boolean** roomCable;

**boolean** roomLaundry;

String roomChoice;

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

**public** **void** addRoom(Room room) **throws** IOException {

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

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

hotelName = br.readLine();

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

hotelId = Integer.*parseInt*(br.readLine());

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

hotelAddress = br.readLine();

**do** {

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

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

roomId = Integer.*parseInt*(br.readLine());

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

roomNumber = Integer.*parseInt*(br.readLine());

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

roomType= br.readLine();

**if**(roomType.equals("1"))

roomType="Normal";

**else** **if**(roomType.equals("2"))

roomType = "Delux";

**else** **if**(roomType.equals("3"))

roomType = "Super Delux";

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

roomCapacity = Integer.*parseInt*(br.readLine());

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

roomAC = Boolean.*parseBoolean*(br.readLine());

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

roomWifi = Boolean.*parseBoolean*(br.readLine());

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

roomCable = Boolean.*parseBoolean*(br.readLine());

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

roomLaundry = Boolean.*parseBoolean*(br.readLine());

roomList.add(**new** Room(roomId,roomType,roomNumber,roomCapacity,

roomAC,roomWifi,roomCable,roomLaundry));

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

roomChoice = br.readLine();

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

}

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

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

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

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

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

System.***out***.println("Hotel Address:"+hotelAddress+".\n");

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

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

roomList.get(i).display();

}

}

**Main.java**

**import** java.io.IOException;

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

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

Hotel hotel = **new** Hotel();

**int** roomId = 0;

String roomType = **null**;

**int** roomNumber = 0;

**int** roomCapacity = 0;

**boolean** roomAC = **false**;

**boolean** roomWifi = **false**;

**boolean** roomCable = **false**;

**boolean** roomLaundry = **false**;

hotel.addRoom(**new** Room(roomId,roomType,roomNumber,roomNumber,roomAC,roomWifi,

roomCable,roomLaundry));

hotel.display();

}

}

**9.Class and object methods Access Specifiers III**

From the previous exercise, we have a set of room for the hotel. In this exercise we will assign rooms to the customers when they come to book a room. The customers are registered only during the booking process.

**Note:** Assume that, each time a new customer comes.

When the customer specifies his/her needs, you should search for the requirements and assign the room if the specified room is available. Else ask the customer to alter his requirements.

The reservation happens in the Reservation class. In the Main class create a Reservation List to store all the reservations. Each time check if the room is available before assigning the room.

So, there are two things to check before assigning the room:

1. Fulfilling the requirements.
2. Availability of the room.

Create a Reservation class with folowing data members:

customer, room, checkInDate, checkOutDate, bookingDate

and member functions:

* argumented constructor.

In the Main class, after reservation, add the Reservation object to the Reservation List.

Add a Boolean variable to check the availability of the room.

* availability

Once a room is booked set the availability as false. Only when the availability is true, a customer can book a room.

For simplicity, assume that the room is unavailable after booking, irrespective of the date.

**Sample Input and Ouput:**

Enter the Hotel details:

Enter the Hotel Name:

**taj**

Enter the Hotel ID:

**1**

Enter the Hotel Address

**cbe**

Enter the Room Details:

Enter the Room Id:

**1**

Enter the Room Number:

**101**

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**1**

Enter the Room Capacity:(1/2/3/4)

**1**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**true**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

Do you want to add Another Room (yes/no):

**yes**

Enter the Room Details:

Enter the Room Id:

**2**

Enter the Room Number:

**202**

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**1**

Enter the Room Capacity:(1/2/3/4)

**1**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**true**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

Do you want to add Another Room (yes/no):

**yes**

Enter the Room Details:

Enter the Room Id:

**3**

Enter the Room Number:

**303**

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**3**

Enter the Room Capacity:(1/2/3/4)

**3**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**false**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

Do you want to add Another Room (yes/no):

**no**

Thank you for booking !!

The rooms Details in taj :

Hotel Name:taj.

Hotel ID:1.

Hotel Address:cbe.

Room Details:

Room Number :101

Room Type :Normal

Services Available:

AC

Wi-Fi

Cable Connection

Laundry

Room Number :202

Room Type :Normal

Services Available:

AC

Wi-Fi

Cable Connection

Laundry

Room Number :303

Room Type :Super Delux

Services Available:

AC

Cable Connection

Laundry

Reservation

Customer Registration:

Enter the customer details:

Enter the first name:

**karthikeyan**

Enter the last name:

**j**

Enter the contact number:

**1234123**

Enter the e-mail id:

[**jk@a.com**](mailto:jk@a.com)

Enter the proof type:

**licence**

Enter the proof id:

**TN1234**

The customer details are as follows

The customer details are:

First Name : karthikeyan

Last Name : j

Contact Number : 1234123

E-Mail : [jk@a.com](mailto:jk@a.com)

Proof Type : licence

Proof ID : TN1234

Enter the room requirements:

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**2**

Enter the Room Capacity:(1/2/3/4)

**2**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**true**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

No rooms of specified requirements

Please re-enter

Enter the room requirements:

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**1**

Enter the Room Capacity:(1/2/3/4)

**1**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**true**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

Please take room number 101

Enter the Booking date

**01/05/2015**

Enter the check-in date

**01/05/2015**

Enter the check-out date

**02/05/2015**

Do you want to perform another reservation?(y/n)

**y**

Reservation

Customer Registration:

Enter the customer details:

Enter the first name:

**jimmy**

Enter the last name:

**shar**

Enter the contact number:

**154789636**

Enter the e-mail id:

[**jimmy@sha.com**](mailto:jimmy@sha.com)

Enter the proof type:

**passport**

Enter the proof id:

**IND123**

The customer details are as follows

The customer details are:

First Name : jimmy

Last Name : shar

Contact Number : 154789636

E-Mail : [jimmy@sha.com](mailto:jimmy@sha.com)

Proof Type : passport

Proof ID : IND123

Enter the room requirements:

Enter the Room Type:

1)Normal

2)Delux

3)Super Delux

**1**

Enter the Room Capacity:(1/2/3/4)

**1**

AC Service (true/false):

**true**

Wi-Fi Service (true/false):

**true**

Cable Service (true/false):

**true**

Laundry Service (true/false):

**true**

Please take room number 202

Enter the Booking date

**01/03/2015**

Enter the check-in date

**01/05/2015**

Enter the check-out date

**01/15/2015**

Do you want to perform another reservation?(y/n)

**n**

The reservation details are as follows:

karthikeyan - 101 - 01/05/2015 - 01/05/2015 - 02/05/2015

jimmy - 202 - 01/03/2015 - 01/05/2015 - 01/15/2015

**Program Code:**

**Room.java**

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

String roomId;

String roomType;

String roomNumber;

String roomCapacity;

String roomAC;

String roomWifi;

String roomCable;

String roomLaundry;

**public** Room(String roomId, String roomType, String roomNumber, String roomCapacity,

String roomAc, String roomWifi, String roomCable, String roomLaundry) {

**this**.roomId = roomId;

**this**.roomType = roomType;

**this**.roomNumber = roomNumber;

**this**.roomCapacity = roomCapacity;

**this**.roomAC = roomAc;

**this**.roomWifi = roomWifi;

**this**.roomCable = roomCable;

**this**.roomLaundry = roomLaundry;

}

}

**Reservation.java:**

**public** **class** Reservation {

String customer;

String reservedRoom;

String checkInDate;

String checkOutDate;

String bookingDate;

**public** Reservation(String customer,String reservedRoomNumber,String checkInDate,

String checkOutDate,String bookingDate) {

**this**.customer = customer;

**this**.reservedRoom = reservedRoomNumber;

**this**.checkInDate = checkInDate;

**this**.checkOutDate = checkOutDate;

**this**.bookingDate = bookingDate;

}

}

**Hotel.java:**

**import** java.util.ArrayList;

**import** java.util.Iterator;

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

String hotelName;

String hotelId;

String hotelAddress;

**static** String *reserved* = "";

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

ArrayList<Reservation> reservationArrayList = **new** ArrayList<Reservation>();

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

roomArrayList.add(room);

}

**public** **void** addReservation(Reservation reserve) {

reservationArrayList.add(reserve);

}

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

Iterator iterator = roomArrayList.iterator();

**while**(iterator.hasNext() == **true**) {

Room room = (Room)iterator.next();

System.***out***.println("\n");

//System.out.println();

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

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

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

**if**(room.roomAC.equals("true"))

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

**if**(room.roomWifi.equals("true"))

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

**if**(room.roomCable.equals("true"))

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

**if**(room.roomLaundry.equals("true"))

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

}

}

**public** **boolean** Availability(String roomType,String roomReqCapacity,String roomReqAC,

String roomReqWifi,String roomReqCable,String roomReqLaundry) {

Boolean availability = **false**;

**int** count;

Iterator iterator = roomArrayList.iterator();

//int itrcount=0;

**while**(iterator.hasNext() == **true**) {

count = 0;

Room room = (Room)iterator.next();

**if**(room.roomType.equals(roomType))

count = count+1;

**if**(room.roomCapacity.equals(roomReqCapacity))

count=count+1;

**if**(room.roomAC.equals(roomReqAC))

count = count+1;

**if**(room.roomWifi.equals(roomReqWifi))

count = count+1;

**if**(room.roomCable.equals(roomReqCable))

count = count+1;

**if**(room.roomLaundry.equals(roomReqLaundry))

count = count+1;

**if**(count == 6) {

availability=**true**;

**this**.*reserved* = room.roomNumber;

iterator.remove();

**break**;

}

}

**return** availability;

}

**public** **void** displayReservation() {

Iterator iterator = reservationArrayList.iterator();

**while**(iterator.hasNext() == **true**) {

Reservation reservation = (Reservation)iterator.next();

System.***out***.println(reservation.customer+" - "+reservation.reservedRoom+" - "

+reservation.bookingDate+" - "+reservation.checkInDate+" - "

+reservation.checkOutDate);

}

}

}

**Main.java:**

import java.io.BufferedReader;

import java.io.InputStreamReader;

public class Main {

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

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

//variables for Hotel

String hotelName;

String hotelID;

String hotelAddress;

Hotel hotel = new Hotel();

//variables for Room

String roomID;

String roomNumber;

String roomType;

String roomCapacity;

String roomAC;

String roomWifi;

String roomCable;

String roomLaundry;

String roomChoice = "yes";

//variables for Customer

String firstName;

String lastName;

String contactNumber;

String eMail;

String proofType;

String proofID;

//Variables for Room requirements

String roomReqType;

String roomReqCapacity;

String roomReqAC;

String roomReqWifi;

String roomReqCable;

String roomReqLaundry;

String reservedRoomNumber = "";

int space = 0;

Boolean availability = false;

String reserveAgain = "";

//Variables for Booking

String bookingDate;

String checkInDate;

String checkOutDate;

//Getting Hotel details

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

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

hotelName = br.readLine();

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

hotelID = br.readLine();

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

hotelAddress = br.readLine();

//Adding rooms to hotel

do

{

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

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

roomID = br.readLine();

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

roomNumber = br.readLine();

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

roomType = br.readLine();

if(roomType.equals("1"))

roomType="Normal";

else if(roomType.equals("2"))

roomType="Delux";

else if(roomType.equals("3"))

roomType="Super Delux";

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

roomCapacity = br.readLine();

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

roomAC = br.readLine();

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

roomWifi = br.readLine();

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

roomCable = br.readLine();

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

roomLaundry = br.readLine();

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

roomChoice = br.readLine();

Room room = new Room(roomID,roomType,roomNumber,roomCapacity,

roomAC,roomWifi,roomCable,roomLaundry);

hotel.addRoom(room);

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

//Displaying room details

if(roomChoice.equals("no")) {

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

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

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

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

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

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

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

hotel.display();

do {

//Customer Registration

System.out.println("Reservation\n\n");

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

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

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

firstName = br.readLine();

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

lastName = br.readLine();

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

contactNumber = br.readLine();

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

eMail = br.readLine();

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

proofType = br.readLine();

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

proofID = br.readLine();

//Displaying Customer Details

if(space!=0) {

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

}

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

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

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

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

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();System.out.println();

do {

//Room requirements

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

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

roomReqType = br.readLine();

if(roomReqType.equals("1"))

roomReqType="Normal";

else if(roomReqType.equals("2"))

roomReqType="Delux";

else if(roomReqType.equals("3"))

roomReqType="Super Delux";

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

roomReqCapacity = br.readLine();

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

roomReqAC = br.readLine();

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

roomReqWifi = br.readLine();

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

roomReqCable = br.readLine();

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

roomReqLaundry = br.readLine();

availability=hotel.Availability(roomReqType, roomReqCapacity,

roomReqAC, roomReqWifi, roomReqCable, roomReqLaundry);

if(availability) {

System.out.println("Please take room number "+hotel.reserved);

System.out.println();

reservedRoomNumber=hotel.reserved;

} else

System.out.println("No rooms of specified requirements"

+ "\nPlease re-enter\n\n\n\n");

} while(!availability);

//Reserving a room

System.out.println();

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

bookingDate = br.readLine();

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

checkInDate = br.readLine();

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

checkOutDate = br.readLine();

Reservation reservation = new Reservation(firstName,reservedRoomNumber,checkInDate,

checkOutDate,bookingDate);

hotel.addReservation(reservation);

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

space=space+1;

reserveAgain = br.readLine();

} while(reserveAgain.equals("y"));

if(reserveAgain.equals("n")) {

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

hotel.displayReservation();

}

}

}

}

**10.Inheritance Interfaces I**

The Customer class can be defined in a single class. But there are different kinds of room like lodging room, party hall or conference hall. Each type may have different requirements, but all belongs to room.

Create a class Hotel with the following data members:

name, hotelId, address and roomList

and member functions

* addRoom – with room object as argument
* display

After creating the Hotel class, we need to design the Room class. The addRoom() method in the hotel class should add the new room add the room object to the room list.

The Room class is defined as below,

Create a class Room with the following data members:

id, rate, hours,

and a constructor with all the data members as arguments.

The rate is defined per unit time (as defined in 'hours')

The hours is the unit time for which the rate holds.

(So the total cost can be calculated as rate\*totalTime/hour )

Create a class HotelRoom which extends Room with data members:  
 roomType, wifi

Create a class Hall which extends Room with data members  
 capacity, soundSystem

Create a class PartyHall which extends Hall with data members

* type - can be Single, Double or Delux.
* amenities - cost for extra amenities

Create a class ConferenceHall which extends Hall with data members  
 wifiHall, projector

Define rate as following:

For hotel room:

* Single -1000 for 24 hours
* Double – 1500 for 24hours
* Delux – 2000 for 24hours

For Party Hall – 200 per hour

For Conference Hall – 250 per hour

Don't worry about the amenities cost and extra cost for other facilities like wifi, AC, etc..

**Sample Input and Output:**

Enter the Hotel Details

Enter the Hotel name

**taj**

Enter the Hotel Location

**cbe**

Enter the Room name

1.Hotel Room

2.Hall

**1**

Enter the Room Type

1.Single

2.Double

3.Delux

**1**

Need WiFi ??(true/false)

**true**

Do you want to add another room?(y/n)

**y**

Enter the Room name

1.Hotel Room

2.Hall

**2**

Enter the Hall Type

1.Party Hall

2.Conference Hall

**2**

Enter the Capacity

**100**

Need soundSystem ??(true/false)

**true**

Need WiFi ??(true/false)

**true**

Need Projector ??(true/false)

**true**

Do you want to add another room?(y/n)

**y**

Enter the Room name

1.Hotel Room

2.Hall

**2**

Enter the Hall Type

1.Party Hall

2.Conference Hall

**2**

Enter the Capacity

**50**

Need soundSystem ??(true/false)

**true**

Need WiFi ??(true/false)

**false**

Need Projector ??(true/false)

**true**

Do you want to add another room?(y/n)

**n**

Hotel Room Details :

Lodge Room

Room ID : 1

Room Type : Single

wifi : true

Room Rate : 1000

Conference Hall

Room ID : 2

Capacity : 100

Sound System : true

Wifi : true

Projector : true

Room Rate : 250

Conference Hall

Room ID : 3

Capacity : 50

Sound System : true

Wifi : false

Projector : true

Room Rate : 250

**Program Code:**

**Hotel.java**

import java.util.ArrayList;

import java.util.List;

public class Hotel {

String name;

String address;

int hotelId;

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

public String getName() {

return name;

}

public void setName(String name) {

this.name = name;

}

public String getAddress() {

return address;

}

public void setAddress(String address) {

this.address = address;

}

public int getHotelId() {

return hotelId;

}

public void setHotelId(int hotelId) {

this.hotelId = hotelId;

}

public List<Room> getRoomList() {

return roomList;

}

public void setRoomList(List<Room> roomList) {

this.roomList = roomList;

}

void addRoom(Room obj2) {

roomList.add(obj2);

}

void display() {

int cnt = roomList.size();

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

for (int i = 0; i < cnt; i++) {

Room r = roomList.get(i);

r.display();

}

}

}

**HotelRoom.java**

public class HotelRoom extends Room {

int roomType;

boolean wifi;

public HotelRoom(int roomid, int hours, int rate, int roomType, boolean wifi) {

super(roomid, hours, rate);

this.roomType = roomType;

this.wifi = wifi;

}

void display() {

System.out.println("Lodge Room");

System.out.println("Room ID : " + roomid);

System.out.print("Room Type : ");

if (roomType == 1)

System.out.println("Single");

else if (roomType == 2)

System.out.println("Double");

else

System.out.println("Delux");

System.out.println("wifi : " + wifi);

System.out.println("Room Rate : " + rate);

System.out.println();

}

}

**Room.java**

public class Room {

int roomid, hours;

int rate;

public Room() {

}

public Room(int roomid, int hours, int rate) {

this.roomid = roomid;

this.hours = hours;

this.rate = rate;

}

void display() {

}

}

**Hall.java**

public class Hall extends Room {

int capacity;

boolean soundSystem;

public Hall(int roomid, int hours, int rate, int capacity, boolean soundSystem) {

super(roomid, hours, rate);

this.capacity = capacity;

this.soundSystem = soundSystem;

}

void display() {

}

}

**PartyHall.java**

public class PartyHall extends Hall {

String amenities;

String roomType;

public PartyHall(int roomid, int hours, int rate, int capacity, boolean soundSystem, String roomType,

String amenities) {

super(roomid, hours, rate, capacity, soundSystem);

this.roomType = roomType;

this.amenities = amenities;

}

void display() {

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

System.out.println("Room ID : " + roomid);

System.out.println("Capacity : " + capacity);

System.out.println("Sound System : " + soundSystem);

System.out.println("Type of Party : " + roomType);

System.out.println("Amenties : " + amenities);

System.out.println("Room Rate : " + rate);

System.out.println();

}

}

**ConferenceHall.java**

public class ConferenceHall extends Hall {

boolean wifiHall;

boolean projector;

public ConferenceHall(int roomid, int hours, int rate, int capacity,

boolean soundSystem, boolean wifiHall, boolean projector) {

super(roomid, hours, rate, capacity, soundSystem);

this.wifiHall = wifiHall;

this.projector = projector;

}

void display() {

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

System.out.println("Room ID : " + roomid);

System.out.println("Capacity : " + capacity);

System.out.println("Sound System : " + soundSystem);

System.out.println("Wifi : " + wifiHall);

System.out.println("Projector : " + projector);

System.out.println("Room Rate : " + rate);

System.out.println();

}

}

**Main.java**

import java.util.Scanner;

public class Main {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

Room roomObj = new Room();

Hotel hotelObj = new Hotel();

String hotelName;

String hotelAddress;

String choice;

String amenities;

String roomType1;

int roomid = 0;

int roomName;

int roomType;

int hallType;

int capacity;

boolean wifi;

boolean soundSystem;

boolean projector;

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

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

hotelName = sc.nextLine();

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

hotelAddress = sc.nextLine();

do {

roomid++;

int sum = 0;

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

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

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

roomName = sc.nextInt();

if (roomName == 1) {

int hours = 24;

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

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

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

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

roomType = sc.nextInt();

if (roomType == 1)

sum = sum + ((1000 \* hours) / 24);

else if (roomType == 2)

sum = sum + ((1500 \* hours) / 24);

else

sum = sum + ((2000 \* hours) / 24);

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

wifi = sc.nextBoolean();

roomObj = new HotelRoom(roomid, hours, sum, roomType, wifi);

hotelObj.addRoom(roomObj);

} else {

int hours = 1;

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

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

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

hallType = sc.nextInt();

if (hallType == 1) {

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

capacity = sc.nextInt();

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

soundSystem = sc.nextBoolean();

sc.nextLine();

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

roomType1 = sc.nextLine();

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

amenities = sc.nextLine();

sum = sum + 200 \* hours;

roomObj = new PartyHall(roomid, hours, sum, capacity, soundSystem,

roomType1, amenities);

hotelObj.addRoom(roomObj);

}

else {

sum = sum + 250 \* hours;

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

capacity = sc.nextInt();

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

soundSystem = sc.nextBoolean();

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

wifi = sc.nextBoolean();

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

projector = sc.nextBoolean();

roomObj = new ConferenceHall(roomid, hours, sum, capacity, soundSystem, wifi, projector);

hotelObj.addRoom(roomObj);

}

}

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

choice = sc.next();

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

hotelObj.display();

}

}