

King Saud University
College of Computer and Information Systems
Department of Computer Science
CSC 113: Java Programming-II

Lab: Relationship between Classes (Aggregation)

```
public class Guest {
    private int guestId;
    private String name;
    private String nationality;
    private int age;
    public Guest(int guestId, String name, String nationality,
int age) {

        this.guestId = guestId;
        this.name = name;
        this.nationality = nationality;
        this.age = age;
    }
    public int getGuestId() {
        return guestId;
    }
    public String getName() {
        return name;
    }
    public String getNationality() {
        return nationality;
    }
    public int getAge() {
        return age;
    }

    public void displayGuestInfo()
    {
        System.out.println("Guest Id: "+guestId);
        System.out.println("Guest Name: "+name);
        System.out.println("Guest Nationality: "+nationality);
        System.out.println("Guest Age: "+age);
    }

}

public class Hotel {
    private String hotelName;
    private Guest arrGuests[];
```

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```
private int nbGuests;
public Hotel(String hotelName, int size) {

    this.hotelName = hotelName;
    arrGuests=new Guest[size];
    nbGuests=0;
}

public boolean addGuest(Guest g)    {
    if(nbGuests<arrGuests.length)
    {
        arrGuests[nbGuests++]=g;
        return true;
    }
    else
        return false;
}

int countGuests(String n)
{
    int count=0;
    for(int i=0; i<nbGuests; i++)
        if(arrGuests[i].getNationality().equals(n))
            count++;

    return count;
}

Guest getOldestGuest()
{
    Guest oldest=arrGuests[0];

    for(int i=1; i<nbGuests; i++)
        if(arrGuests[i].getAge()>oldest.getAge())
            oldest=arrGuests[i];

    return oldest;
}
```

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```
public Guest[] getGuests(String n)
{
    Guest guests[]=new Guest[nbGuests];
    int j=0;
    for(int i=0;i<nbGuests;i++)

        if(arrGuests[i].getNationality().equals(n))
        {
            guests[j]=arrGuests[i];
            j++;
        }

    return guests;
}

public int splitGuests(Guest[] saudi, Guest[] expat)    {
    int j=0,k=0;
    for(int i=0;i<nbGuests;i++)
        if(arrGuests[i].getNationality().equals("Saudi"))
        {
            saudi[j]=arrGuests[i];
            j++;
        }
        else
        {
            expat[k]=arrGuests[i];
            k++;
        }

    return k;
}

}

import java.util.Scanner;
public class Main {
```

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```
/**
 * @param args
 */
public static void main(String[] args) {
    // TODO Auto-generated method stub
    //This program assumes single word String input.

    Scanner input=new Scanner(System.in);
    Hotel h=new Hotel("Marriot",10);
    int choice;
    String nat;
    int nGuests;

    do
    {

        System.out.println("To Add a new Guest Enter 1 ");
        System.out.println("To get the number of Guests of
given nationality Enter 2 ");
        System.out.println("To get and display oldest Guest
Enter 3 ");
        System.out.println("To get and display all Guests of a
given nationality Enter 4 ");
        System.out.println("To view all Saudi Guests Enter 5
");
        System.out.println("To Exit Enter 0 ");
        System.out.println("Enter Option___");
        choice=input.nextInt();

        switch(choice)
        {
            case 1:
                System.out.println("Enter Id,Name,Nationality and
Age of Guest ");
                Guest g=new
Guest(input.nextInt(),input.next(),input.next(),input.nextInt())
;
                if( h.addGuest(g))
                    System.out.println("Guest Added
Successfully");
                else
                    System.out.println("Hotel Full");
```

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```
        break;
    case 2:
        System.out.println("Enter Nationality");
        nat=input.next();
        System.out.println("No Of "+nat+" Guests are
"+h.countGuests(nat));
        break;
    case 3:
        Guest oldest=h.getOldestGuest();
        if(oldest!=null)
        {
            System.out.println("Oldest Guest in the
Hotel is ");
            oldest.displayGuestInfo();
        }
        else
            System.out.println("Hotel is vacant");

        break;
    case 4:
        System.out.println("Enter Nationality");
        nat=input.next();
        nGuests=h.countGuests(nat);
        if(nGuests==0)
            System.out.println("No Guest of this
Nationality Found");
        else
        {
            Guest guests[]=h.getGuests(nat);
            for(int k=0;k<nGuests;k++)
                guests[k].displayGuestInfo();
        }
        break;

    case 5:
        nGuests=h.countGuests("Saudi");
        if(nGuests==0)
            System.out.println("No Guest of Saudi
Nationality Found");
        else
        {
            Guest guests[]=h.getGuests("Saudi");
```

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```
        for(int k=0;k<nGuests;k++)
            guests[k].displayGuestInfo();
        }
    }

    while(choice !=0);

}

}
```