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[];
     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;
```

```
    }


    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 {

	/**
	 * @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");
               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");
                for(int k=0;k<nGuests;k++)
                    guests[k].displayGuestInfo();
                }
                break;

            }

            }

            while(choice !=0);


      }

}
```