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Experiment No.	5B

AIM:	Program on Inheritance
Program 1	
PROBLEM STATEMENT :	<p>Give the definition of four classes, Person, Doctor, Patient and Billing, whose objects are records for a clinic.</p> <p>Class Doctor will be derived from the class Person. A doctor have name and Date (inherited from the class Person), it's speciality; fees and income;</p> <p>Patient will be derived from the class Person. A Patient record has the patient's name and Date (inherited from the class Person) and a Doctor object.</p> <p>A Billing object will contain a Patient object, a Doctor object, Date of bill using date object and an amount due of type double. Be sure your classes have a reasonable complement of constructors, copy constructor, override equals(check equality of object) and toString methods and member functions.</p> <p>First write a driver program to test all your member functions, and then write a test program that creates at least two patients, at least two doctors, and at least two Billing records, then prints out the total income from the Billing records.</p> <p>At the time of Billing the Patient's Doctor name and Billing object's doctor name equality should be checked.</p> <p>Total bill generated will be no of days the patient admitted (current date-admitted date) * 2000+ doctore fees * no of days from the date of billing (current date-admitted date).</p> <p>Update the Doctors income to no of days from the date of billing (current date-admitted date).</p>

PROGRAM:

```
import java.util.*;

class Person {
    String name;
    Date date; //joining date

    public Person(String name, Date date) {
        this.name = name;
        this.date = date;
    }
}

class Doctor extends Person {
    String speciality;
    double fees;
    double income;

    public Doctor(String name, Date date, String speciality, double fees, double
income) {
        super(name, date);
        this.speciality = speciality;
        this.fees = fees;
        this.income = income;
    }
}

class Patient extends Person {
    Doctor doctor;

    public Patient(String name, Date date, Doctor doctor) {
        super(name, date);
        this.doctor = doctor;
    }
}

class Billing {
    Patient patient;
    Doctor doctor;
    Date last_date; //leaving date
    double amountDue;
```

```

    public Billing(Patient patient, Doctor doctor, Date last_Date, double
amountDue) {
        this.patient = patient;
        this.doctor = doctor;
        this.last_date = last_Date;
        this.amountDue = amountDue;
    }
    //Billing function to calculate due amount.
    public void calculateDue(Date date, Date last_Date) {
        //days patient was admitted.
        long milliseconds = last_date.getTime() - date.getTime();
        int days = (int) (milliseconds / (1000 * 60 * 60 * 24));

        amountDue = days * 2000 + doctor.fees * days;
        System.out.println("Days: " + days);
        System.out.println("The bill is: " + amountDue);
    }
}
public class Clinic {
    // @SuppressWarnings("deprecation")
    public static void main(String[] args) {
        //leaving date and person date are different.
        Date joinDate = new Date(2024,2,7);
        Date newDate = new Date(2024, 3, 1);

        //Initialise doctor, patient and billing objects
        Doctor doctor1 = new Doctor("Dr. Jack", joinDate, "Cardiologist", 500, 0);
        Doctor doctor2 = new Doctor("Dr. Jill", joinDate, "Neurologist", 600, 0);
        Patient patient1 = new Patient("John", newDate, doctor1);
        Patient patient2 = new Patient("Jane", newDate, doctor2);
        Billing billing1 = new Billing(patient1, doctor1, newDate, 0);
        Billing billing2 = new Billing(patient2, doctor2, newDate, 0);
        billing1.calculateDue(joinDate, newDate);
        billing2.calculateDue(joinDate, newDate);

    }
}

```

RESULT:

```
lenovo@lenovo-ThinkCentre-neo-50s-Gen-3:~/Desktop/2023300065$ javac Clinic.java
lenovo@lenovo-ThinkCentre-neo-50s-Gen-3:~/Desktop/2023300065$ java Clinic
Days: 25
The bill is: 62500.0
Days: 25
The bill is: 65000.0
```

CONCLUSION:

I have learnt about Inheritance. I have also learnt about the string methods and member functions. I have also learnt about date object in java.