1. Write a program in java to display complex number.

class complex

{

    int real;

    int imaginary;

    void input(int a, int b)

    {

        real = a;

        imaginary = b;

    }

    void output()

    {

        System.out.println(real + " + " + imaginary + "i");

    }

}

class testComplex

{

    public static void main(String[] args)

    {

        complex c1 = new complex();

        c1.input(Integer.parseInt(args[0]), Integer.parseInt(args[1]));

        c1.output();

    }

}

OUTPUT:

Microsoft Windows [Version 10.0.19045.3208]

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C:\Users\Anurag Singh>d:

D:\>cd desktop

D:\Desktop>cd java

D:\Desktop\Java>javac first.java

D:\Desktop\Java>java testComplex -3 8

-3 + 8i

1. Write a program in java to display today's date and also output the count of the number of objects created.

class showDate

{

    int date;

    int month;

    int year;

    static int count; // static vars gets initialized from 0 by default

    void input(int a, int b, int c)

    {

        date = a;

        month = b;

        year = c;

        count++;

    }

    void output()

    {

        System.out.println(date + "/" + month + "/" + year);

    }

}

class testDate

{

    public static void main(String args[])

    {

        showDate d1 = new showDate();

        showDate d2 = new showDate();

        showDate d3 = new showDate();

        d1.input(Integer.parseInt(args[0]), Integer.parseInt(args[1]), Integer.parseInt(args[2]));

        d2.input(Integer.parseInt(args[3]), Integer.parseInt(args[4]), Integer.parseInt(args[5]));

        d3.input(Integer.parseInt(args[6]), Integer.parseInt(args[7]), Integer.parseInt(args[8]));

        d1.output();

        d2.output();

        d3.output();

        System.out.println(showDate.count);

    }

}

OUTPUT:

Microsoft Windows [Version 10.0.19045.3208]

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C:\Users\Anurag Singh>d:

D:\>cd desktop

D:\Desktop>cd java

D:\Desktop\Java>javac second.java

D:\Desktop\Java>java testDate 02 08 2023 10 08 2023 16 08 2023

2/8/2023

10/8/2023

16/8/2023

3

1. Write a program in java to add two complex numbers.

class Complex

{

    int real;

    int imaginary;

    void input(int a, int b)

    {

        real = a;

        imaginary = b;

    }

    Complex add(Complex a, Complex b)

    {

        Complex res = new Complex();

        res.real = a.real + b.real;

        res.imaginary = a.imaginary + b.imaginary;

        return res;

    }

    void output()

    {

        System.out.println(real + "+" + imaginary + "i");

    }

}

class addComplex

{

    public static void main(String args[])

    {

        Complex c1 = new Complex();

        Complex c2 = new Complex();

        Complex c3 = new Complex();

        c1.input(Integer.parseInt(args[0]), Integer.parseInt(args[1]));

        c2.input(Integer.parseInt(args[2]), Integer.parseInt(args[3]));

        c3 = c3.add(c1, c2);

        c3.output();

    }

}

OUTPUT:

Microsoft Windows [Version 10.0.19045.3208]

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C:\Users\Anurag Singh>d:

D:\>cd desktop

D:\Desktop>cd java

D:\Desktop\Java>javac third.java

D:\Desktop\Java>java addComplex 9 -3 -6 4

3+1i

1. Write a program to display the age in terms of days, months and years when DOB and Current Date is given.

class calc

{

    int days, months, years;

    void input(int a, int b, int c)

    {

        days = a;

        months = b;

        years = c;

    }

    calc calculate(calc dob, calc curr)

    {

        calc age = new calc();

        if(curr.days < dob.days)

        {

            curr.days += 30;

            curr.months -= 1;

        }

        if(curr.months < dob.months)

        {

            curr.months += 12;

            curr.years -= 1;

        }

        age.days = curr.days - dob.days;

        age.months = curr.months - dob.months;

        age.years = curr.years - dob.years;

        return age;

    }

    void output()

    {

        System.out.println("Your age is: " + years + " years " + months + " months " + days + " days.");

    }

}

class displayAge

{

    public static void main(String[] args)

    {

        calc dob = new calc();

        calc curr = new calc();

        calc age = new calc();

        dob.input(Integer.parseInt(args[0]), Integer.parseInt(args[1]), Integer.parseInt(args[2]));

        curr.input(Integer.parseInt(args[3]), Integer.parseInt(args[4]), Integer.parseInt(args[5]));

        age = age.calculate(dob, curr);

        age.output();

    }

}

OUTPUT:

Microsoft Windows [Version 10.0.19045.3208]

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C:\Users\Anurag Singh>d:

D:\>cd desktop

D:\Desktop>cd java

D:\Desktop\Java>javac fourth.java

D:\Desktop\Java>java displayAge 15 04 2001 16 08 2023

Your age is: 22 years 4 months 1 days.

1. Write a program to display the age in terms of days, months and years when DOB and Current Date is given using parameterized constructor.

class computeAge

{

    int days;

    int months;

    int years;

    computeAge()

    {

        days = 0;

        months = 0;

        years = 0;

    }

    computeAge(int a, int b, int c)

    {

        days = a;

        months = b;

        years = c;

    }

    computeAge calculateAge(computeAge dob, computeAge curr)

    {

        computeAge ageCalculated = new computeAge();

        if(curr.days < dob.days)

        {

            curr.days += 30;

            curr.months -= 1;

        }

        if(curr.months < dob.months)

        {

            curr.months += 12;

            curr.years -= 1;

        }

        ageCalculated.days = curr.days - dob.days;

        ageCalculated.months = curr.months - dob.months;

        ageCalculated.years = curr.years - dob.years;

        return ageCalculated;

    }

    void output()

    {

        System.out.println("Your age is: " + years + " years " + months + " months " + days + " days.");

    }

}

class testAge

{

    public static void main(String[] args)

    {

        computeAge birthDay = new computeAge(Integer.parseInt(args[0]), Integer.parseInt(args[1]), Integer.parseInt(args[2]));

        computeAge currDay = new computeAge(Integer.parseInt(args[3]), Integer.parseInt(args[4]), Integer.parseInt(args[5]));

        computeAge age = new computeAge();

        age = age.calculateAge(birthDay, currDay);

        age.output();

    }

}

OUTPUT:

Microsoft Windows [Version 10.0.19045.3208]

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C:\Users\Anurag Singh>d:

D:\>cd desktop

D:\Desktop>cd java

D:\Desktop\Java>javac fifth.java

D:\Desktop\Java>java testAge 17 01 1972 16 08 2023

Your age is: 51 years 6 months 29 days.

6. Write a program in Java to copy the details of an object to another object during the instantiation of it.

class copyComplex

{

    int real;

    int imaginary;

    copyComplex()

    {

        real = imaginary = 0;

    }

    copyComplex(int r, int i)

    {

        real = r;

        imaginary = i;

    }

    copyComplex(copyComplex c)

    {

        real = c.real;

        imaginary = c.imaginary;

    }

    void output()

    {

        if(imaginary == 0)

            System.out.println("The complex number is: " + real);

        else if(real == 0)

            System.out.println("The complex number is: " + imaginary + "i");

        else if(imaginary > 0)

            System.out.println("The complex number is: " + real + " + " + imaginary + "i");

        else

            System.out.println("The complex number is: " + real + " - " + Math.abs(imaginary) + "i");

    }

}

class testCopy

{

    public static void main(String[] args)

    {

        copyComplex c1 = new copyComplex(Integer.parseInt(args[0]), Integer.parseInt(args[1]));

        copyComplex c2 = new copyComplex(c1);

        c1.output();

        c2.output();

    }

}

OUTPUT:

Microsoft Windows [Version 10.0.19045.3208]

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C:\Users\Anurag Singh>d:

D:\>cd desktop

D:\Desktop>cd java

D:\Desktop\Java>javac seventh.java

D:\Desktop\Java>java testCopy -7 -4

The complex number is: -7 - 4i

The complex number is: -7 - 4i