1. Write a java program to print your biodata?

Code:

```
class Question1{
    public static void main(String[] args) {
        System.out.println("Name: Pratyush Tripathy");
        System.out.println("College: Indira Gandhi Institute of
Technology, Sarang");
        System.out.println("Roll Number: 404036");
        System.out.println("Regd\sNo: 2105105032");
        System.out.println("Branch: MCA");
        System.out.println("Scocity: Mycomp");
        System.out.println("Year: 2021-2023");
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question1.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> Java Question1
Name: Pratyush Tripathy
College: Indira Gandhi Institute of Technology, Sarang
Roll Number: 404036
Regd No: 2105105032
Branch: MCA
Scocity: Mycomp
Year: 2021-2023
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

2. Write a java program to find simple interest?

Code:

```java
class Question2 {
    public static void main(String[] args) {
        float principle, rateOfInterest, SI;
        int time;

        principle = 10000;
        rateOfInterest = 8.25f;
        time = 3;

        SI = (principle * time * rateOfInterest) / 100;

        System.out.println("Principle: " + principle);
        System.out.println("Time: " + time);
        System.out.println("Rate of Intrest: " +rateOfInterest);
        System.out.println("The Simple Intrest: " + SI);

    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question2.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question2
Principle: 10000.0
Time: 3
Rate of Intrest: 8.25
The Simple Intrest: 2475.0
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

3. Write a java program for temperature conversion?

Code:

```java
class Question3 {
    public static void main(String[] args) {
        float farhenit, celcious;
        celcious = 40;
        farhenit = (celcious * 9/5) + 32;
        System.out.println("Temperature in Celcious:"+celcious);
        System.out.println("Temperature in farhenit:"+farhenit);
        farhenit = 315;
        celcious = (farhenit - 32) * 5/9;
        System.out.println("Temperature in farhenit:"+farhenit);
        System.out.println("Temperature in Celcious:"+celcious);
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question3.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question3
Temperature in Celcious: 40.0
Temperature in farhenit: 104.0
Temperature in farhenit: 315.0
Temperature in Celcious: 157.22223
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

4. Write a java program to implement adder circuit and booth algorithm using bitwise operator?

Code:

```
import java.util.Scanner;
class Question4 {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        boolean a, b, c, carry, sum, xor;
        a = true;
        b = true;
        c = false;

        System.out.println("Half Adder");

        sum = a ^ b;
        carry = a & b;

        System.out.println("Value of a is: "+a);
        System.out.println("Value of b is: "+b);
        System.out.println("Value of sum is: "+sum);
        System.out.println("Value of carry is: "+carry);

        System.out.println("Full Adder");

        carry = carry | (sum ^ c);
        sum = sum ^ c;

        System.out.println("Value of a is: "+a);
        System.out.println("Value of b is: "+b);
        System.out.println("Value of c is: "+c);
        System.out.println("Value of sum is: "+sum);
        System.out.println("Value of carry is: "+carry);

        int n, m, temp, output;
        boolean dn1, dn2, dn3, dn4, dm1, dm2, dm3, dm4;

        System.out.print("Enter the number less then 16 in binary: ");
        n = in.nextInt();
        System.out.print("Enter another number less then 16 in binary: ");
        m = in.nextInt();
```

```
        temp = 0;
        carry = false;
        output = 0;

        dn1 = n / 1000 == 1 ? true : false;
        dn2 = n / 100 % 10 == 1 ? true : false;
        dn3 = n / 10 % 10 == 1 ? true : false;
        dn4 = n % 10 == 1 ? true : false;

        dm1 = m / 1000 == 1 ? true : false;
        dm2 = m / 100 % 10 == 1 ? true : false;
        dm3 = m / 10 % 10 == 1 ? true : false;
        dm4 = m % 10 == 1 ? true : false;

        xor = dn4 ^ dm4;
        sum =  xor ^ carry;
        carry = (xor & carry) | (dn4 & dm4);
        temp = temp * 10 + (sum ? 1: 0);

        xor = dn3 ^ dm3;
        sum =  xor ^ carry;
        carry = (xor & carry) | (dn3 & dm3);
        temp = temp * 10 + (sum ? 1: 0);

        xor = dn2 ^ dm2;
        sum =  xor ^ carry;
        carry = (xor & carry) | (dn2 & dm2);
        temp = temp * 10 + (sum ? 1: 0);

        xor = dn1 ^ dm1;
        sum =  xor ^ carry;
        carry = (xor & carry) | (dn1 & dm1);
        temp = temp * 10 + (sum ? 1: 0);
        output = carry ? 1 : 0;
        output = Integer.parseInt(String.valueOf(output)+String.valueOf(temp));

        System.out.println("The value is: "+output);
        in.close();
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question4.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question4
Half Adder
Value of a is: true
Value of b is: true
Value of sum is: false
Value of carry is: true
Full Adder
Value of a is: true
Value of b is: true
Value of c is: false
Value of sum is: false
Value of carry is: true
Enter the number less then 16 in binary: 1011
Enter another number less then 16 in binary: 1100
The value is: 11110
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

5. A. Sum of all digits of any 4 digit numbers

Code:

```java
class Question5a {
    public static void main(String[] args) {
        int num, sum;
        num = 3971;

        sum = (num % 10) + (num % 100 / 10) + (num % 1000 / 100) + (num / 1000);

        System.out.println("The sum of " + num + " is: " + sum);
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5a.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5a
The sum of 3971 is: 20
```

5.B. find the face value and position value of any 4 digit number?

Code:

```
class Question5b {
    public static void main(String[] args) {
        int num;

        num = 6319;

        System.out.println("First number\n\tface value:"+(num/1000)+"
\n\tposition value: "+(num - num % 1000));
        System.out.println("First number\n\tface value:"+(num/100%10)+"
\n\tposition value: "+(num/100%10 * 100));
        System.out.println("First number\n\tface value:"+(num/10%10)+"
\n\tposition value: "+(num/10%10 * 10));
        System.out.println("First number\n\tface value:"+(num%10)+"
\n\tposition value: "+(num%10));

    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5b.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5b
First number
        face value:6
        position value: 6000
First number
        face value:3
        position value: 300
First number
        face value:1
        position value: 10
First number
        face value:9
        position value: 9
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

5.C. Find the value available at position required by user it may be 10, 100 or 1000?

Code:

```
Class Question5c {
    public static void main(String[] args) {
        int num;
        num = 6198;

        System.out.println("The number: "+num);
        System.out.println("Value available at position 1000: "+(num/1000));
        System.out.println("Value available at position 100: "+(num/100%10));
        System.out.println("Value available at position 10: "+(num/10%10));
        System.out.println("Value available at position 1: "+(num%10));
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5c.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5c
The number: 6198
Value available at position 1000: 6
Value available at position 100: 1
Value available at position 10: 9
Value available at position 1: 8
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

5.D. Sum of product of consecutive digits of any 4 digit number?
Suppose num=1234 then output= 4*3+3*2+2*1

Code:

```
Class Question5d {
    public static void main(String[] args) {
        int num, sum, num1, num2, num3, num4;

        num = 1234;
        num1 = num / 1000;
        num2 = num / 100 % 10;
        num3 = num / 10 % 10;
        num4 = num % 10;

        sum = (num1 * num2) + (num2 * num3) + (num3 * num4);

        System.out.println("The number: " + num);
        System.out.println("Sum of product of consecutive digits: " + sum);
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5d.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5d
The number: 1234
Sum of product of consecutive digits: 20
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

5.E. find sum of product of corresponding digits of two any 4 digit number Such as n=1234 m=7896 output = 6*4+9*3+8*2+7*1 ?

Code:

```
class Question5e {
    public static void main(String[] args) {
        int num1, num2, sum;
        int n1d1, n1d2, n1d3, n1d4;
        int n2d1, n2d2, n2d3, n2d4;

        num1 = 1234;
        num2 = 7896;

        n1d1 = num1 / 1000;
        n1d2 = num1 / 100 % 10;
        n1d3 = num1 / 10 % 10;
        n1d4 = num1 % 10;

        n2d1 = num2 / 1000;
        n2d2 = num2 / 100 % 10;
        n2d3 = num2 / 10 % 10;
        n2d4 = num2 % 10;

        sum = n1d1*n2d1 + n1d2*n2d2 + n1d3*n2d3 + n1d4*n2d4;

        System.out.println("First Number: "+num1);
        System.out.println("Second Number: "+num2);
        System.out.println("Sum of product of corresponding
digits of the two number is: "+sum);

    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5e.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5e
First Number: 1234
Second Number: 7896
Sum of product of corresponding digits of the two number is: 74
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

5.F. find bitwise and , or , and xor of 2nd and 4th digit of any 4 digit number?

Code:

```
Class Question5f {
    public static void main(String[] args) {
        int num, d2, d4;
        num = 2386;
        d2 = num / 100 % 10;
        d4 = num % 10;

        System.out.println("The number is: " + num);
        System.out.println("Bitwise and of 2nd and 4th digit: " + (d2 & d4));
        System.out.println("Bitwise or of 2nd and 4th digit: " + (d2 | d4));
        System.out.println("Bitwise xor of 2nd and 4th digit: " + (d2 ^ d4));
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5f.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5f
The number is: 2386
Bitwise and of 2nd and 4th digit: 2
Bitwise or of 2nd and 4th digit: 7
Bitwise xor of 2nd and 4th digit: 5
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

5.G. Find left shit, right shift and zero fill of summation of all digits of any 4 digit number and it will be shifted by 3rd digit of any 4 digit number?

Code:

```
class Question5g {
    public static void main(String[] args) {
        int num, sum, d1, d2, d3, d4;
        num = 9728;

        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;

        sum = d1 + d2 + d3 + d4;

        System.out.println("The number is: " + num);
        System.out.println("The Sum of the digits is: " + sum);
        System.out.println("Left shift upto " + d3 + " to sum is: " +
(sum << d3));
        System.out.println("Right shift upto " + d3 + " to sum is: " +
(sum >> d3));
        System.out.println("Right shift and zero fill upto " + d3 + " to
sum is: " + (sum >>> d3));

    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question5g.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question5g
The number is: 9728
The Sum of the digits is: 26
Left shift upto 2 to sum is: 104
Right shift upto 2 to sum is: 6
Right shift and zero fill upto 2 to sum is: 6
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6. A. Sum of all even digits of any 4 digit number?

Code:

```java
class Question6a {
    public static void main(String[] args) {
        int num, sum, d1, d2, d3, d4;
        num = 4187;

        sum = 0;
        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;
        sum += d1 % 2 == 0 ? d1 : 0;
        sum += d2 % 2 == 0 ? d2 : 0;
        sum += d3 % 2 == 0 ? d3 : 0;
        sum += d4 % 2 == 0 ? d4 : 0;

        System.out.println("The number is: "+num);
        System.out.println("Sum of the all even digits of the number is: "+sum);
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6a.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6a
The number is: 4187
Sum of the all even digits of the number is: 12
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6.B. Sum of all odd digits of any 4 digit number

Code:

```java
class Question6b {
    public static void main(String[] args) {
        int num, sum, d1, d2, d3, d4;
        num = 4187;

        sum = 0;
        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;
        sum += d1 % 2 != 0 ? d1 : 0;
        sum += d2 % 2 != 0 ? d2 : 0;
        sum += d3 % 2 != 0 ? d3 : 0;
        sum += d4 % 2 != 0 ? d4 : 0;

        System.out.println("The number is: " + num);
        System.out.println("Sum of the all odd digits of the number is: " + sum);
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6b.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6b
The number is: 4187
Sum of the all odd digits of the number is: 8
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6.C. Difference between average of all even digits except divisible by 4 and avearge of all odd digits except divisble by 3 of any 4 digit number

Code:

```
class Question6c {
    public static void main(String[] args) {
        int num, d1, d2, d3, d4;
        int avgEvenCount = 0, avgOddCount = 0;
        float diff, avgEven, avgOdd;
        num = 6275;

        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;

        avgEven = 0;
        avgOdd = 0;

        avgOddCount += (d1 % 2 == 0) && (d1 %4 != 0) ? 0 : 1;
        avgEven += (d1 % 2 == 0) && (d1 %4 != 0) ? d1 : 0;

        avgOddCount += (d2 % 2 == 0) && (d2 %4 != 0) ? 0 : 1;
        avgEven += (d2 % 2 == 0) && (d2 %4 != 0) ? d2 : 0;

        avgOddCount += (d3 % 2 == 0) && (d3 %4 != 0) ? 0 : 1;
        avgEven += (d3 % 2 == 0) && (d3 %4 != 0) ? d3 : 0;

        avgOddCount += (d4 % 2 == 0) && (d4 %4 != 0) ? 0 : 1;
        avgEven += (d4 % 2 == 0) && (d4 %4 != 0) ? d4 : 0;

        // avg odd
        avgEvenCount += (d1 % 2 != 0) && (d1 %3 != 0) ? 0 : 1;
        avgOdd += (d1 % 2 != 0) && (d1 %3 != 0)  ? d1 : 0;

        avgEvenCount += (d2 % 2 != 0) && (d2 %3 != 0) ? 0 : 1;
        avgOdd += (d2 % 2 != 0) && (d2 %3 != 0) ? d2 : 0;
```

```
        avgEvenCount += (d3 % 2 != 0) && (d3 %3 != 0) ? 0 : 1;
        avgOdd += (d3 % 2 != 0) && (d3 %3 != 0) ? d3 : 0;

        avgEvenCount += (d4 % 2 != 0) && (d4 %3 != 0) ? 0 : 1;
        avgOdd += (d4 % 2 != 0) && (d4 %3 != 0) ? d4 : 0;

        avgEven /= avgEvenCount;
        avgOdd /= avgOddCount;

        diff = avgEven - avgOdd;
        System.out.println("Number is: "+num);
        System.out.println("The difference is: "+diff);
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6c.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6c
Number is: 6275
The difference is: -2.0
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6.D. Sum of product of consecutive even digits of any 4 digit number? Suppose num=1624 then output= 4*2+2*6

Code:

```
class Question6d {
    public static void main(String[] args) {
        int num, sum;
        int d1, d2, d3, d4;

        num = 1624;
        sum = 0;

        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;

        sum += d1 % 2 == 0 && d2 % 2 == 0  ? d1 * d2 : 0;
        sum += d2 % 2 == 0 && d3 % 2 == 0  ? d2 * d3 : 0;
        sum += d3 % 2 == 0 && d4 % 2 == 0  ? d3 * d4 : 0;

        System.out.println("Sum of product of consecutive
even digits: "+sum);

    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6d.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6d
Sum of product of consecutive even digits: 20
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6.E. Sum of product of consecutive odd digits of any 4 digit number? Suppose num=1356 then output= 5*3+ 3*1

Code:

```
class Question6e {
    public static void main(String[] args) {
        int num, sum;
        int d1, d2, d3, d4;

        num = 1356;
        sum = 0;

        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;

        sum += d1 % 2 != 0 && d2 % 2 != 0  ? d1 * d2 : 0;
        sum += d2 % 2 != 0 && d3 % 2 != 0  ? d2 * d3 : 0;
        sum += d3 % 2 != 0 && d4 % 2 != 0  ? d3 * d4 : 0;

        System.out.println("Sum of product of consecutive
odd digits: "+sum);

    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6e.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6e
Sum of product of consecutive odd digits: 18
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6.F. Difference between Sum of product of consecutive even digits except 2 and 6 and Sum of product of consecutive odd digits except 3 and 7 of any 4 digit number

Code:

```
import java.util.Scanner;
class Question6f {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        int num, d1, d2, d3, d4, sumOdd, sumEven, diff;

        System.out.println("Enter the 4 digit Number: ");
        num = in.nextInt();

        diff = 0;
        sumOdd = 0;
        sumEven = 0;

        d1 = num / 1000;
        d2 = num / 100 % 10;
        d3 = num / 10 % 10;
        d4 = num % 10;

        sumEven += ( d1 % 2 == 0 && d1 != 2 && d1 != 6 )
&& ( d2 % 2 == 0 && d2 != 2 && d2 != 6 ) ? d1 * d2 : 0;
        sumEven += ( d2 % 2 == 0 && d2 != 2 && d2 != 6 )
&& ( d3 % 2 == 0 && d3 != 2 && d3 != 6 ) ? d2 * d3 : 0;
        sumEven += ( d3 % 2 == 0 && d3 != 2 && d3 != 6 )
&& ( d4 % 2 == 0 && d4 != 2 && d4 != 6 ) ? d3 * d4 : 0;

        sumOdd += ( d1 % 2 != 0 && d1 != 3 && d1 != 7 ) &&
( d2 % 2 != 0 && d2 != 3 && d2 != 7 ) ? d1 * d2 : 0;
        sumOdd += ( d2 % 2 != 0 && d2 != 3 && d2 != 7 ) &&
( d3 % 2 != 0 && d3 != 3 && d3 != 7 ) ? d2 * d3 : 0;
        sumOdd += ( d3 % 2 != 0 && d3 != 3 && d3 != 7 ) &&
( d4 % 2 != 0 && d4 != 3 && d4 != 7 ) ? d3 * d4 : 0;
```

```
        diff = sumEven - sumOdd;


        System.out.println("The sum of all Even Digits:
"+sumEven);
        System.out.println("The sum of all Odd Digits:
"+sumOdd);
        System.out.println("The difference is: "+diff);
        in.close();
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6f.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6f
Enter the 4 digit Number:
4455
The sum of all Even Digits: 16
The sum of all Odd Digits: 25
The difference is: -9
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```

6.G. Write a java program to find sum of product of corresponding even digits of first any digit number and corresponding odd digit of any 4 digit number Such as n=1234 m=4567 output=4*7+2*5

Code:

```
import java.util.Scanner;
class Question6g {
    public static void main(String[] args) {
        Scanner in = new Scanner(System.in);
        int n,m, dn1, dn2, dn3, dn4, dm1, dm2, dm3, dm4, sum;

        System.out.print("Enter the first Number: ");
        n = in.nextInt();
        System.out.print("Enter the second Number: ");
        m = in.nextInt();

        sum = 0;
        dn1 = n / 1000;
        dn2 = n / 100 % 10;
        dn3 = n / 10 % 10;
        dn4 = n % 10;

        dm1 = m / 1000;
        dm2 = m / 100 % 10;
        dm3 = m / 10 % 10;
        dm4 = m % 10;

        sum += (dn1 %2 == 0) && (dm1 %2 != 0) ? dn1 * dm1 : 0;
        sum += (dn2 %2 == 0) && (dm2 %2 != 0) ? dn2 * dm2 : 0;
        sum += (dn3 %2 == 0) && (dm3 %2 != 0) ? dn3 * dm3 : 0;
        sum += (dn4 %2 == 0) && (dm4 %2 != 0) ? dn4 * dm4 : 0;

        System.out.println("The sum value is: "+sum);
        in.close();
    }
}
```

Output:

```
PS D:\IGIT College Practicals\Java Practicals\Practical 1> javac Question6g.java
PS D:\IGIT College Practicals\Java Practicals\Practical 1> java Question6g
Enter the first Number: 1234
Enter the second Number: 4567
The sum value is: 38
PS D:\IGIT College Practicals\Java Practicals\Practical 1>
```