11.Write a Java program to convert a decimal number to binary and display the binary representation.

```
import java.util.Scanner;

public class DecimalToBinary {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a decimal number: ");
        int decimal = scanner.nextInt();

        String binary = decimalToBinary(decimal);
        System.out.println("Binary representation: " + binary);
    }

    public static String decimalToBinary(int decimal) {
        if (decimal == 0) {
            return "0";
        }

        StringBuilder binary = new StringBuilder();
        while (decimal > 0) {
            int remainder = decimal % 2;
            binary.insert(0, remainder);
            decimal /= 2;
        }

        return binary.toString();
    }
}
```

12.Write a Java program to convert a binary number to decimal and display the decimal value.

```
import java.util.Scanner;

public class BinaryToDecimal {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a binary number: ");
        String binary = scanner.nextLine();

        int decimal = convertBinaryToDecimal(binary);
        System.out.println("Decimal value: " + decimal);
    }

    public static int convertBinaryToDecimal(String binary) {
        int decimal = 0;
        int power = 0;
```

```
        for (int i = binary.length() - 1; i >= 0; i--) {
            int digit = binary.charAt(i) - '0';
            decimal += digit * Math.pow(2, power);
            power++;
        }

        return decimal;
    }
}
```

13.Write a Java program to perform addition, subtraction, multiplication, and division on two floating-point numbers and display the results.

```
import java.util.Scanner;

public class FloatingPointCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the first number: ");
        float num1 = scanner.nextFloat();

        System.out.print("Enter the second number: ");
        float num2 = scanner.nextFloat();

        float addition = num1 + num2;
        float subtraction = num1 - num2;
        float multiplication = num1 * num2;
        float division = num1 / num2;

        System.out.println("Addition: " + addition);
        System.out.println("Subtraction: " + subtraction);
        System.out.println("Multiplication: " + multiplication);
        System.out.println("Division: " + division);
    }
}
```

14.Write a Java program to check if a given character is a vowel or a consonant and display the result.

```
import java.util.Scanner;

class VowelConsonant{
  public static void main(String args[]){
      char ch;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter the alphabet");
      ch=sc.next().charAt(0);

  if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u'){
```

```
    System.out.println( "alphabet is vowel");
  }else{
    System.out.println( "alphabet is consonant");
  }
  }
}
```

15.Write a Java program to find the square root of a given number and display the result.

```
import java.util.Scanner;
public class SquareRoot
{
    public static void main(String[] args)
    {
        //Take input from the user
        //Create an instance of the Scanner class
        Scanner sc = new Scanner(System.in);
        System.out.println("Enter a number: ");
        int num = sc.nextInt();
        Double squareroot = Math.pow(num, 0.5);
        System.out.println("The Square Root of the Given Number  " + num + "  =  " +
squareroot);

   }
}
```

16.Write a Java program to calculate the area of a rectangle with given length and width, and display the result.

```
import java.util.Scanner;
public class rectangle{
    public static void main(String args[])
    {
    int width=5;
    int height=10;
    int area=width*height;
        System.out.println("Area of rectangle="+area);
     }
}
```

17.Write a Java program to calculate the volume of a sphere with given radius, and display the result.

```
import java.util.Scanner;
public class sphere{
        public static void main(String args[])
    {
    int radius=48;
    double pie=3.14285714286;
    double volume=(4.0/3.0)*pie*(radius*radius*radius);
    System.out.println("Volume of the sphere="+volume);
     }
```

```
}
```

18.Write a Java program to convert a decimal number to hexadecimal and display the hexadecimal representation.

```
import java.util.Scanner;

public class DecimalToHexadecimal {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a decimal number: ");
        int decimal = scanner.nextInt();

        String hexadecimal = convertToHexadecimal(decimal);

        System.out.println("Hexadecimal representation: " + hexadecimal);
    }

    public static String convertToHexadecimal(int decimal) {
        if (decimal == 0) {
            return "0";
        }

        StringBuilder hexadecimal = new StringBuilder();

        while (decimal > 0) {
            int remainder = decimal % 16;
            hexadecimal.insert(0, getHexDigit(remainder));
            decimal /= 16;
        }

        return hexadecimal.toString();
    }

    public static char getHexDigit(int digit) {
        if (digit >= 0 && digit <= 9) {
            return (char) (digit + '0');
        } else {
            return (char) (digit - 10 + 'A');
        }
    }
}
```

19.Write a Java program to concatenate three strings and display the combined string.

```
import java.util.Scanner;
public class StringConcatenation {
    public static void main(String[] args) {
        String str1 = "How";
        String str2 = "are";
```

```
        String str3 = "u";

        String combinedString = str1 + " " + str2 + str3;

        System.out.println("Combined String: " + combinedString);
    }
}
```

20.Write a Java program to calculate the average of four integers and display the result.

```
import java.util.Scanner;
public class AverageCalculator {
    public static void main(String[] args) {
        int num1 = 54;
        int num2 = 65;
        int num3 = 28;
        int num4 = 81;

        double average = (num1 + num2 + num3 + num4) / 4.0;

        System.out.println("The average is: " + average);
    }
}
```

21.Write a Java program to convert a string to uppercase and display the result.

```
import java.util.Scanner;
public class UppercaseConverter {
    public static void main(String[] args) {
        String input = "welcome to shimoga";
        String result = convertToUppercase(input);
        System.out.println("Original string: " + input);
        System.out.println("Uppercase string: " + result);
    }

    public static String convertToUppercase(String input) {
        return input.toUpperCase();
    }
}
```

22.Write a Java program to convert a binary number to hexadecimal and display the hexadecimal representation.

```
import java.util.Scanner;
public class BinaryToHexadecimal {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);
        System.out.print("Enter a binary number: ");
        String binaryNumber = scanner.nextLine();
        int decimalNumber = Integer.parseInt(binaryNumber, 2);
        String hexadecimalNumber = Integer.toHexString(decimalNumber);
        System.out.println("Hexadecimal representation: " + hexadecimalNumber);
```

```
    }
}
```

23.Write a Java program to calculate the product of three floating-point numbers and display the result.

```
import java.util.Scanner;
public class ProductCalculator {
    public static void main(String[] args) {
        float number1 = 2.5f;
        float number2 = 3.7f;
        float number3 = 1.2f;

        float product = number1 * number2 * number3;

        System.out.println("The product of the three numbers is: " + product);
    }
}
```

24..Write a Java program to check if a given string is empty (contains no characters) and display the result.

```
import java.util.Scanner;
public class StringEmptyCheck {
    public static void main(String[] args) {
        String input = ""; // Replace this with the string you want to check

        boolean isEmpty = input.isEmpty();

        if (isEmpty) {
            System.out.println("The string is empty.");
        } else {
            System.out.println("The string is not empty.");
        }
    }
}
```

25.Write a java program to Find big value of 3 Numbers.

```
import java.util.Scanner;
public class LargestNumber
{
public static void main(String[] args)
{

int a=40, b=78, c=19;
if(a>=b && a>=c)
System.out.println(" is the largest Number:"+a);
else if (b>=a && b>=c)
System.out.println(" is the largest Number:"+b);
else
System.out.println(" is the largest number:"+c);
}
```

```
}
```

26.Write a JAVAprogram to check whether a year is leap year or not.

```
import java.util.Scanner;
class LeapYear{
  public static void main(String args[]){
    int year;
    System.out.println("Enter an year");
    Scanner sc=new Scanner(System.in);
    year=sc.nextInt();
    if((year % 4==0)&&(year % 100!=0))
      System.out.println("leap year");
    else
      System.out.println("not a leap year");

}
  }
```

27. Write a JAVAprogram to check whether a character is alphabet or not.

```
import java.util.Scanner;

class AlphabetorNot{
  public static void main(String args[]){
      char ch;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter the character");
      ch=sc.next().charAt(0);

      if((ch>='a' && ch<='z')||(ch>='A'&& ch<='Z')){
        System.out.println("Given character is alphabet");
      }
      else {
        System.out.println("character is not alphabet");
      }
  }
}
```

28. Write a JAVAprogram to input any alphabet and check whether it is vowel or consonant.

```
import java.util.Scanner;

class VowelConsonant{
  public static void main(String args[]){
      char ch;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter the alphabet");
      ch=sc.next().charAt(0);

  if (ch == 'a' || ch == 'e' || ch == 'i' || ch == 'o' || ch == 'u'){
    System.out.println( "alphabet is vowel");
```

```
  }else{
    System.out.println( "alphabet is consonant");
  }
  }
}
```

29. Write a JAVAprogram to input any character and check whether it is alphabet, digit or special character.

```
import java.util.Scanner;

class AlphabetDigitSpecial{
  public static void main(String args[]){
      char ch;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter the character");
      ch=sc.next().charAt(0);

  if((ch >= 'a' && ch <= 'z') || (ch >= 'A' && ch <= 'Z')){
    System.out.println("character is alphabet");
  } else if(ch >= '0' && ch <= '9'){
    System.out.println("character is digit");
  } else {
    System.out.println("character is special character");
  }
  }
}
```

30.Write a JAVAprogram to check whether a character is uppercase or lowercase alphabet.

```
import java.util.Scanner;

class UppercaseorNot{
  public static void main(String args[]){
      char ch;
      Scanner sc=new Scanner(System.in);
      System.out.println("Enter the character");
      ch=sc.next().charAt(0);
    if (ch >= 'A' && ch <= 'Z'){
      System.out.println("character is upper case");
    }else if (ch>='a'&& ch<='z'){
      System.out.println("character is lower case");
    }
  }
}
```

31.Write a JAVAprogram to input week number and print week day.

```
import java.util.Scanner;
class WeekDay{
  public static void main(String args[]){
    int number;
```

```
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter the Week Number(1-7)");
    number=sc.nextInt();

    if(number==1){
      System.out.println("This is Sunday");
    }else if (number==2){
      System.out.println("This is Monday");
    }else if (number==3){
      System.out.println("This is Tuesday");
    }else if (number==4){
      System.out.println("This is Wednesday");
    }else if (number==5){
      System.out.println("This is Thursday");
    }else if (number==6){
      System.out.println("This is Friday");
    }else if (number==7){
      System.out.println("This is Saturday");
    }
  }
}
```

32.Write a JAVAprogram to count total number of notes in given amount.

```
import java.util.Scanner;
class CountNotes{
  public static void main(String args[]){
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter the amount");
    int amt=sc.nextInt();
    int n2000,n500,n200,n100,n50,n20,n10,n5;
    n2000=n500=n200=n100=n50=n20=n10=n5=0;
    if(amt>=2000)
    {
      n2000=amt/2000;
      amt=amt-n2000*2000;
      System.out.println("number of 2000 notes="+n2000);
    }
    if(amt>=500)
    {
      n500=amt/500;
      amt=amt-n500*500;
      System.out.println("number of 500 notes="+n500);
    }
    if(amt>=200)
    {
      n200=amt/200;
      amt=amt-n200*200;
      System.out.println("number of 200 notes="+n200);
    }
    if(amt>=100)
```

```
    {
      n100=amt/100;
      amt=amt-n100*100;
      System.out.println("number of 100 notes="+n100);
    }
    if(amt>=50)
    {
      n50=amt/50;
      amt=amt-n50*50;
      System.out.println("number of 50 notes="+n50);
    }
    if(amt>=20)
    {
      n20=amt/20;
      amt=amt-n20*20;
      System.out.println("number of 20 notes="+n20);
    }
    if(amt>=10)
    {
      n10=amt/10;
      amt=amt-n10*10;
      System.out.println("number of 10 notes="+n10);
    }
    if(amt>=5)
    {
      n5=amt/5;
      amt=amt-n5*5;
      System.out.println("number of 5 notes="+n5);
    }
    System.out.println("total no of notes="+(n2000+n500+n200+n100+n50+n20+n10+n5));
  }
}
```

33.Write a JAVAprogram to input marks of five subjects Physics, Chemistry, Biology, Mathematics and Computer. Calculate percentage and grade according to following:
Percentage >= 90% : Grade A
Percentage >= 80% : Grade B
Percentage >= 70% : Grade C
Percentage >= 60% : Grade D
Percentage >= 40% : Grade E
Percentage < 40% : Grade F

```
import java.util.Scanner;
class Grade{
  public static void main(String args[]){
    double phy,chem,maths,bio,comp,percentage;
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter the marks of five subjects");
    phy=sc.nextDouble();
```

```
    chem=sc.nextDouble();
    maths=sc.nextDouble();
    bio=sc.nextDouble();
    comp=sc.nextDouble();
    percentage=((phy+chem+maths+bio+comp)/500)*100;
    System.out.println(percentage);
    if(percentage >= 90){
      System.out.println("grade A");
    }
    else if((percentage >= 80) && (percentage < 90)){
      System.out.println("grade B");
    }
    else if((percentage >= 70) && (percentage < 80)){
      System.out.println("grade C");
    }
    else if((percentage >= 60) && (percentage < 70)){
      System.out.println("grade D");
    }
    else if((percentage >= 40) && (percentage < 60)){
      System.out.println("grade E");
    }
    else{
      System.out.println("graden F");
    }
  }
}
```

34. Write a JAVAprogram to input basiJAVAsalary of an employee and calculate its Gross salary according to following:
BasiJAVASalary <= 10000 : HRA = 20%, DA = 80%
BasiJAVASalary <= 20000 : HRA = 25%, DA = 90%
BasiJAVASalary > 20000 : HRA = 30%, DA = 95%

```
import java.util.Scanner;
class GrossSalary{
  public static void main(String args[]){
    Scanner sc=new Scanner(System.in);
    System.out.println("Enter your salary");
    double basicSalary=sc.nextDouble();
    double DA,HRA,grossSalary;
    if(basicSalary<= 10000){
      DA=basicSalary * 0.8;
      HRA= basicSalary * 0.2;
    }
    else if(basicSalary<= 20000 && basicSalary>10000){
      DA=basicSalary*0.9;
      HRA=basicSalary*0.25;
    }
    else{
      DA=basicSalary*0.95;
```

```
      HRA=basicSalary*0.3;

   }
    grossSalary = HRA+DA+basicSalary;
    System.out.println("Gross Salary is = "+ grossSalary);



  }
}
```

35.Write a JAVAprogram to input electricity unit charges and calculate total electricity bill according to the given condition:
For first 50 units Rs. 0.50/unit
For next 100 units Rs. 0.75/unit
For next 100 units Rs. 1.20/unit
For unit above 250 Rs. 1.50/unit
An additional surcharge of 20% is added to the bill

```
import java.util.Scanner;

public class ElectricityBillCalculator {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter the number of units consumed: ");
        int unitsConsumed = scanner.nextInt();

        double billAmount = calculateElectricityBill(unitsConsumed);
        double totalBill = billAmount + (billAmount * 0.20);

        System.out.println("Total electricity bill: Rs. " + totalBill);
    }

    private static double calculateElectricityBill(int unitsConsumed) {
        double totalBill = 0;

        if (unitsConsumed <= 50) {
            totalBill = unitsConsumed * 0.50;
        } else if (unitsConsumed <= 150) {
            totalBill = 50 * 0.50 + (unitsConsumed - 50) * 0.75;
        } else if (unitsConsumed <= 250) {
            totalBill = 50 * 0.50 + 100 * 0.75 + (unitsConsumed - 150) * 1.20;
        } else {
            totalBill = 50 * 0.50 + 100 * 0.75 + 100 * 1.20 + (unitsConsumed - 250)
* 1.50;
        }

        return totalBill;
    }
```

```
}
```

36.Write a JAVAprogram to print day of week name using switch case.

```
import java.util.Scanner;

public class DayOfWeek {
    public static void main(String[] args) {
        Scanner scanner = new Scanner(System.in);

        System.out.print("Enter a number (1-7) representing the day of the week: ");
        int dayOfWeek = scanner.nextInt();

        String dayName;
        switch (dayOfWeek) {
            case 1:
                dayName = "Sunday";
                break;
            case 2:
                dayName = "Monday";
                break;
            case 3:
                dayName = "Tuesday";
                break;
            case 4:
                dayName = "Wednesday";
                break;
            case 5:
                dayName = "Thursday";
                break;
            case 6:
                dayName = "Friday";
                break;
            case 7:
                dayName = "Saturday";
                break;
            default:
                dayName = "Invalid day of week";
                break;
        }

        System.out.println("Day of the week: " + dayName);
    }
}
```