

Write a program to input the age of a person and find out whether they are eligible for voting or not.

```
import java.util.*;
```

```
class Vote
```

```
{
```

```
    public static void main (String args [])
```

```
    {
```

```
        Scanner sc = new Scanner(System.in)
```

```
        System.out.println("Enter age: ");
```

```
        int age = sc.nextInt();
```

```
        if (age >= 18)
```

```
            System.out.println("Eligible to vote.");
```

```
        else
```

```
            System.out.println("Not eligible to vote.");
```

```
    }
```

```
}
```

```
}
```

② Write a program to enter three numbers and find out the greatest out of the three.

```
import java.util.*;  
class Greatest  
{
```

```
    public static void main (String args [])  
    {
```

```
        Scanner sc = new Scanner (System.in)
```

```
        System.out.println ("Enter three numbers");
```

```
        int a = sc.nextInt();
```

```
        int b = sc.nextInt();
```

```
        int c = sc.nextInt();
```

```
        if (a > b && a > c)
```

```
            System.out.println ("The greatest number is: " + a);
```

```
        else if (b > a && b > c)
```

```
            System.out.println ("The greatest number is: " + b);
```

```
        else
```

```
            System.out.println ("The greatest number is: " + c);
```

```
    }
```

③ Write a program to calculate the area of the following figures as per the users choice

- 1) square
- 2) rectangle
- 3) circle

```
import java.util.*;  
class Calculate  
{
```

```
    public static void main (String args [])  
    {
```

```
        Scanner sc = new Scanner(System.in);
```

```
        System.out.println("Enter 1 for calculating the area of a square");
```

```
        System.out.println("Enter 2 for calculating the area of a rectangle");
```

```
        System.out.println("Enter 3 for calculating the area of a circle");
```

```
        System.out.println("Enter your choice");
```

```
        int ch = sc.nextInt();
```

```
        switch (ch)
```

```
        {
```

```
            Case 1: System.out.println("Enter side:");
```

```
                double side = sc.nextDouble();
```

```
                double area = side * side;
```

```
                System.out.println("The area of square is " + area);
```

```
                break;
```

```
            Case 2: System.out.println("Enter length:");
```

```
                double l = sc.nextDouble();
```

```
                System.out.println("Enter breadth:");
```

```
                double b = sc.nextDouble();
```

```
                double area = l * b;
```

```
                System.out.println("The area of rectangle is " + area);
```

```
                break;
```

```
            Case 3: System.out.println("Enter radius");
```

```
double n = sc.next Double ();
```

```
double area = 3.14 * n * n;
```

```
System.out.println ("The area of circle " + area);  
break;
```

```
default: System.out.println ("wrong choice.");
```

```
}
```

```
}
```

```
}
```

(4)

Enter the name and kilometers travelled from the user and calculate the amount that has to be paid as under:-

kilometers travelled	Rate /-km
≤ 1 km	25
$1 < \text{km} \leq 6$	10
$6 < \text{km} \leq 12$	15
$12 < \text{km} \leq 18$	20
> 18 km	25

```
import java.util.*;
class Travelling
{
    public static void main(String args[])
    {
        Scanner sc = new Scanner(System.in)
        System.out.println("Enter name:");
        String n = sc.nextLine();
        System.out.println("Enter kms. travelled");
        double kms = sc.nextDouble();
        double amt = 0;
        if (kms <= 1)
            amt = 25 * kms;
        else if (kms > 1 && kms <= 6)
            amt = 25 + (kms - 1) * 10;
        else if (kms > 6 && kms <= 12)
            amt = 25 + 50 + (kms - 6) * 15;
        else if (kms > 12 && kms <= 18)
            amt = 25 + 50 + 90 + (kms - 12) * 20;
        else
            amt = 25 + 50 + 90 + 120 + (kms - 18) * 25;
        System.out.println("Name \t Kilometers \t Amount");
    }
}
```

```
System.out.println(h + "\t" + kms + "\t" + amt);
```

```
}
```

```
}
```

Q5 Enter a number and find out whether it is automorphic number or not.

```
import java.util.*;
```

```
class Auto
```

```
{
```

```
    public static void main (String args [])
```

```
    {
```

```
        Scanner sc = new Scanner (System.in)
```

```
        int n = sc.nextInt();
```

```
        int sqm = n*n
```

```
        int c = 0, t = n;
```

```
        while (t > 0)
```

```
        {
```

```
            c++;
```

```
            t = t/10;
```

```
        }
```

```
        int div = (int) Math.pow(10, c);
```

```
        int rem = sqm % div;
```

```
        if (rem == n)
```

```
            System.out.println ("The number is automorphic");
```

```
        else
```

```
            System.out.println ("The number is not automorphic");
```

```
    }
```

```
}
```

⑥ Enter a number and find out whether it is a buzz number or not

```
import java.util.*;
```

```
class Buzz
```

```
{
```

```
    public static void main (String args[])
```

```
    {
```

```
        Scanner sc = new Scanner (System.in);
```

```
        int n = sc.nextInt();
```

```
        int l = n%10;
```

```
        int d = n%7;
```

```
        int sum = 0, h = 0;
```

```
        while (n != 0)
```

```
        {
```

```
            h = n%10;
```

```
            sum = sum+h;
```

```
            n = n/10;
```

```
        }
```

```
        int c = sum%7;
```

```
        if (l == 7 || d == 0 || c == 0)
```

```
            System.out.println ("Buzz no.");
```

```
        else
```

```
            System.out.println ("Not a Buzz no.");
```

```
    }
```

```
}
```

⑦ Enter a no. and find out the factorial of that no.

```
import java.util.*;  
class Factorial  
{
```

```
    public static void main (String args[])  
    {
```

```
        Scanner sc = sc.next new Scanner (System.in)
```

```
        int n = sc.nextInt();
```

```
        int i = 0, f = 1;
```

```
        for (i = 1; i <= n; i++)  
        {
```

```
            f = f * i;  
        }
```

```
        System.out.println("The factorial of the no. is: " + f);  
    }
```

```
}
```

⑧ Enter 2 numbers and find out the HCF and LCM of these numbers

```
import java.util.*;
```

```
class HCF_LCM
```

```
{
```

```
    public void main (String args [])
```

```
    {
```

```
        Scanner sc = new Scanner (System.in);
```

```
        int a = sc.nextInt();
```

```
        int b = sc.nextInt();
```

```
        int min = Math.min(a, b);
```

```
        int i = 0, hcf = 0;
```

```
        for (i = min; i >= 1; i--)
```

```
        {
```

```
            if (a%i == 0 && b%i == 0)
```

```
            {
```

```
                hcf = i;
```

```
                break;
```

```
            }
```

```
        }
```

```
        int lcm = (a*b)/hcf;
```

```
        System.out.println("The HCF is: " + hcf);
```

```
        System.out.println("The LCM is: " + lcm);
```

```
    }
```

⑨ Write a java program to print the following series :
1 + 2 + 4 + 7 + 11 + 16 nth term.

```
import java.util.*;
```

```
class Series
```

```
{
```

```
    public static void main (String args[])
```

```
    {
```

```
        int i = 0, sum = 0, t = 1;
```

```
        for (i = 1; i <= n
```

```
            Scanner sc = new Scanner(System.in)
```

```
            int n = sc.nextInt();
```

```
            int i = 0, sum = 0, t = 1;
```

```
            for (i = 1; i <= n; i++)
```

```
            {
```

```
                sum = sum + t;
```

```
                t = t + i;
```

```
            }
```

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

```
        }
```

```
    }
```

⑩ Write a program to print the following series:
 $x^1 + x^3 + x^5 + x^7 \dots$ nth terms.
 2 1 1 1 6 1 8 1

```
import java.util.*;
class Sum
{
    public static void main (String args[])
    {
        Scanner sc = new Scanner (System.in)
        int u = sc.nextInt();
        int n = sc.nextInt();
        int i = 0, j = 0, t = 1, d = 2, f = 1;
        double sum = 0;
        for (i = 1; i <= n; i++)
        {
            f = 1;
            double p = Math.pow (u, t);
            for (j = 1; j <= d; j++)
            {
                f = f * j;
            }
            sum = sum + p/f;
            d = d + 2;
            t = t + 2;
        }
        System.out.println ("The sum is : " + sum);
    }
}
```

⑫ Write a program to print the following pattern:

```
1
1 2
1 2 3
1 2 3 4
1 2 3 4 5
```

```
import java.util.*;
```

```
class Pattern
```

```
{
```

```
    public static void main (String Args[])
```

```
    {
        int i = 0, j = 0;
        for (i = 1; i <= 5; i++)
```

```
        {
            for (j = 1; j <= i; j++)
```

```
                System.out.print(j);
```

```
                System.out.println();
```

```
        }
```

```
    }
```

```
}
```

- ⑫ Write a program making a class having a function to find the sum of 2 integers and return it.

```
import java.util.*;
```

```
class Addition
```

```
{
```

```
    public int sum(int a, int b)
```

```
    {
```

```
        int s = a + b;
```

```
        return (s);
```

```
    }
```

```
}
```

```
class Demo
```

```
{
```

```
    public void main (int x, int y)
```

```
    {
```

```
        Addition obj = new Addition();
```

```
        int s = obj.sum(x, y);
```

```
        System.out.println ("The sum is: " + s);
```

```
    }
```

```
}
```

13) Make a class having n as a integer data member and make the following functions:

- i) input()
- ii) print fact() (to print the factors of the number)
- iii) sumDigits (to find out the sum of the digits and return it)
- iv) reverse() (to reverse the number and return it)

```
import java.util.*;
```

```
class Following
```

```
{
```

```
    int n;
```

```
    public void input(n)
```

```
    {
```

```
        n = x;
```

```
    }
```

```
    public void printfact()
```

```
    {
```

```
        int i = 0;
```

```
        for (i = 1; i <= n; i++)
```

```
        {
```

```
            if (n % i == 0)
```

```
                System.out.println(i);
```

```
        }
```

```
    }
```

```
    public int sumDigits();
```

```
    {
```

```
        int temp = n, H = 0, sum = 0;
```

```
        while (temp != 0)
```

```
        {
```

```
            H = temp % 10;
```

```
            sum = sum + H;
```

```
            temp = temp / 10;
```

```
        }
```

```
return (rev);
```

```
}
```

```
class Demo
```

```
{
```

```
    public static void main (String args [])
```

```
    {
```

```
        Following obj = new Following();
```

```
        obj.input(20);
```

```
        obj.printfact();
```

```
        obj.input(1234);
```

```
        int n = obj.reverse();
```

```
        System.out.println("The reversed no is: " + n);
```

```
        int s = obj.sumDigits();
```

```
        System.out.println("The sum is: " + s);
```

```
        obj.input(20);
```

```
        obj.printfact();
```

```
    }
```

```
}
```

- (14) Make a class having x as an integer data member and make the following functions:
- input()
 - isPrime()

```
import java.util.*;
```

```
class Functions
```

```
{
```

```
    int x;
```

```
    public void input(int x)
```

```
    {
```

```
        x = x;
```

```
    }
```

```
    public boolean isPrime()
```

```
    {
```

```
        int i = 0, c = 0;
```

```
        for (i = 1; i <= x; i++)
```

```
        {
```

```
            if (x % i == 0)
```

```
                c++;
```

```
        }
```

```
        if (c == 2)
```

```
            return (true);
```

```
        else
```

```
            return (false);
```

```
    }
```

```
class Demo
```

```
{
```

```
    public void main (int x)
```

```
    {
```

```
        Functions obj = new Functions();
```

```
        obj.input(x);
```

```
boolean o = obj.isPrime();
```

```
if (o == true)
```

```
    System.out.println("It is Prime");
```

```
else
```

```
    System.out.println("Not Prime");
```

```
}
```

```
}
```

15) Make a class having 2 integer data members. Make a function to double the values of the data members and display the result in the main function.

```
import java.util.*;
```

```
class DoubleNumber
```

```
{
```

```
    int a;
```

```
    int b;
```

```
    public DoubleNumber (int x, int y)
```

```
    {
```

```
        a = x;
```

```
        b = y;
```

```
    }
```

```
    public void display ()
```

```
    {
```

```
        System.out.println ("a = " + a);
```

```
        System.out.println ("b = " + b);
```

```
    }
```

```
    public void values (DoubleNumber obj)
```

```
    {
```

```
        obj.a = obj.a * 2;
```

```
        obj.b = obj.b * 2;
```

```
    }
```

```
}
```

```
class Demo
```

```
{
```

```
    public static void main (String args[])
```

```
    {
```

```
        DoubleNumber obj = new DoubleNumber (10, 20);
```

```
        obj.display ();
```

```
        obj.values (obj);
```

```
        obj.display ();
```

- (16) Make a class volume to calculate the volume of the following figures using function overloading
- (i) cube $\rightarrow s^3$
 - (ii) cuboid $\rightarrow l b h$
 - (iii) sphere $\rightarrow \frac{4}{3} \pi r^3$

```
import java.util.*;  
class volume  
{
```

```
    public int vol(int a)  
    {
```

```
        int v = a * a * a;  
        return(v);  
    }
```

```
    public int vol(int l, int b, int h)  
    {
```

```
        int v = l * b * h;  
        return(v);  
    }
```

```
    public double vol(double r)  
    {
```

```
        double v = 4/3.0 * 3.14 * r * r * r;  
        return(v);  
    }
```

```
}
```

```
import java.util.*;
```

```
class Demo
```

```
{
```

```
    public static void main (String args [])  
    {
```

```
        public static void main
```

```
        volume obj = new volume();
```

```
Scanner sc = new Scanner(System.in);  
System.out.println("Enter 1 for volume of cube");  
System.out.println("Enter 2 for volume of cuboid");  
System.out.println("Enter 3 for volume of sphere");  
System.out.println("Enter choice");  
int ch = sc.nextInt();
```

```
switch (ch)
```

```
{
```

```
case 1: System.out.println("Enter side");
```

```
int d = sc.nextInt();
```

```
int v = obj.vol(d);
```

```
System.out.println("The volume is : " + v);
```

```
break;
```

```
case 2: System.out.println("Enter length");
```

```
int l = sc.nextInt();
```

```
System.out.println("Enter breadth");
```

```
int b = sc.nextInt();
```

```
int v = obj.vol(l, b);
```

```
System.out.println("The volume is : " + v);
```

```
break;
```

```
case 3: System.out.println("Enter radius");
```

```
double r = sc.nextDouble();
```

```
double v = obj.vol(r);
```

```
System.out.println("The volume is : " + v);
```

```
break;
```

```
default: System.out.println("Wrong choice entered");
```

```
}
```

```
}
```

```
}
```

(17) Print all the perfect numbers from 1 $\rightarrow$ 1000

```
import java.util.*;
```

```
class Perfect
```

```
{
```

```
    public static void main (String args [])
```

```
    {
```

```
        int i = 0, j = 0, sum = 0;
```

```
        for (i = 1; i <= 1000; i++)
```

```
        {
```

```
            sum = 0;
```

```
            for (j = 1; j < i; j++)
```

```
            {
```

```
                if (i % j == 0)
```

```
                {
```

```
                    sum += j;
```

```
                }
```

```
            }
```

```
            if (sum == i)
```

```
                System.out.println(i);
```

```
            }
```

```
        }
```

```
    }
```

Q Print the fibonacci series :
0, 1, 1, 2, 3, 5, 8, 13 - - - - nth term.

```
import java.util.*;
```

```
class Fibonacci
```

```
{
```

```
    public void main (int n)
```

```
    {
```

```
        int a = 0, b = 1, d = 0, i = 0;
```

```
        System.out.print(a + " " + b);
```

```
        for (i = 1; i <= n - 2; i++)
```

```
        {
```

```
            d = a + b;
```

```
            System.out.print(d + " ");
```

```
            a = b;
```

```
            b = d;
```

```
        }
```

```
    }
```

```
}
```

19 Define a class Reliance as follows:

Class Name: Reliance

name

cost

disc

amt

input()

discount()

Amount of purchase

Rs. 0 to Rs. 500

Rs. 501 to Rs. 1000

Above Rs. 1000

Discount %

5%

10%

20%

calc()

display()

```
import java.util.*;
```

```
class Reliance
```

```
{
```

```
String name; double cost; double disc; double amt;
```

```
public void input()
```

```
{
```

```
Scanner sc = new Scanner(System.in)
```

```
System.out.println("Enter your name:");
```

```
name = sc.nextLine();
```

```
System.out.println("Enter the cost of items to be paid:");
```

```
cost = sc.nextDouble();
```

```
}
```

```
public discount()
```

```
{
```

```
if (cost > 0 && cost <= 500)
```

```
disc = (5/100) * cost;
```

```
else if (cost > 500 && cost <= 1000)
```

```
    disc = (10/100) * cost;
```

```
    else
```

```
        disc = (20/100) * cost;
```

```
    }
```

```
public void calc()
```

```
{
```

```
    amt = cost - disc;
```

```
}
```

```
public void display()
```

```
{
```

```
    System.out.println("The Name of the customer: " + name);
```

```
    System.out.println("The discount applied: " + disc);
```

```
    System.out.println("The amount to be paid: " + amt);
```

```
}
```

```
public static void main (String args [])
```

```
{
```

```
    Reliance obj = new Reliance();
```

```
    obj.input();
```

```
    obj.discount();
```

```
    obj.calc();
```

```
    obj.display();
```

```
}
```

```
}
```