—1.WAP to read one integer value from user. And print that integer is a special 2 digit or not.

(ab=a+b+(a*b)=ab , ex: 59=5+9+5*9=59)

```java
import java.util.Scanner;

public class practicep {
    public static void main (String args[])
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter a two digit number:");
        int num = s.nextInt();
        int a=num%10;
        int b=num/10;
        int c = a+b+a*b;
        if(num==c)
            System.out.println(num+ " is a special 2 digit number");
        else
            System.out.println(num+ " is not a special 2 digit number");

    }
}
```
Op:

```
Enter a two digit number:
59
59 is a special 2 digit number
```

2. WAP read 3 integer value from user print biggest of the integer by using simple if.

```java
import java.util.Scanner;

public class practicep {
    public static void main (String args[])
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter three integer:");
        int a = s.nextInt();
        int b = s.nextInt();
        int c = s.nextInt();
```

```java
            int big = a;
            if(b>big)
                big=b;
            if(c>big)
                big=c;
            System.out.println("The biggest number is
:"+big);

        }
}
```

Op:
Enter three integer:
8
7
5
The biggest number is :8

28. WAP to return true if the number is strong number otherwise return false.

```java
import java.util.Scanner;

public class StrongNumber
{
    static int fc(int n)
    {
        int f=1;
        while(n>1) {
            f*=n;
            n--;
        }
        return f;
    }
    static boolean sn(int a)
    {
        int t=a;
        int sum=0;
        do {
            int r =a%10;
            sum+=fc(r);
            a/=10;
        }while(a!=0);
        a=t;
```

```java
            if(sum==a)
                return true;
            else
                return false;

    }
    public static void main(String args[])
    {
    Scanner s = new Scanner (System.in);
    System.out.println("Enter a number:");
    int num = s.nextInt();
    boolean result = sn(num);
    if(result==true)
    System.out.println(num+" is a strong number.");
    else
        System.out.println(num+" is not a strong
number");

    }

}
```

Op

```
Enter a number:
40585
40585 is a strong number.
```

29. Define a method to return the sum of square of digits. (ex: 23. 2^+3^=23)

```java
import java.util.Scanner;

public class SquareOfDigits {
    static int square(int sq) {
        sq=sq*sq;
        return sq;
    }
    public static void main(String args[])
    {
    Scanner s= new Scanner (System.in);
```

```java
        System.out.println("Enter a number: ");
        int num = s.nextInt();
        int result = sum(num);
        System.out.println("The sum of square digits
is:"+result);

    }
     static int sum(int n)
     {
    int sm=0;
    while(n!=0)
    {
        int rem = n%10;
        sm = sm+square(rem);
        n=n/10;
    }
    return sm;
     }
}
```

30. Define a method to return product of digits (23-> 2*3=6)

```java
import java.util.Scanner;

public class ProductOfDigits {

    public static void main(String args[])
    {
    Scanner s= new Scanner (System.in);
    System.out.println("Enter a number: ");
    int num = s.nextInt();
    int result = product(num);
    System.out.println("The product of digits
is:"+result);
```

```java
        }
         static int product(int n)
        {
        int pd=1;
        while(n!=0)
        {
            int rem = n%10;
            pd = pd*rem;
            n=n/10;
        }
        return pd;
         }
}
```

OP:

Enter a number:
56
The product of digits is:30

31. Define a method to return true, if the number is AMSTRONG. Other wise return false.

(An AMSTRONG number is one whose sum of digits raised to the power three equals the number itself. EX: 371; 3**3+7**3+1**3=371)

```java
import java.util.Scanner;

public class CheckAmstrong1 {
        static int amstrong(int n)
        {
            int m=n;
            int sum = 0;
            while(n!=0)
        {
            int rem = n%10;
            sum++;
            n=n/10;
        }
            int s=0;
            n=m;
        while(n!=0)
```

```java
        {
             int rem = n%10;
             int l=1;
             for(int i=1;i<=sum;i++)
             {
                    l=l*rem;
             }
             s=s+l;
             n=n/10;

        }
        return s;
         }


        public static void main(String args[])
        {
          Scanner s= new Scanner (System.in);
          System.out.println("Enter a number: ");
          int num = s.nextInt();
          int result = amstrong(num);
          System.out.println(result);
          if(num == result)
          System.out.println(num+ " is a AMSTRONG number");
          else
          System.out.println(num+" is not a AMSTRONG
number");

        }

}

// ANOTHER LOGIC

import java.util.Scanner;

public class CheckAmstrong {
        static int count(int a)//142
        {
             int c=0;
             do {
                   a=a/10;
```

```java
                    c++;
            }while(a!=0);
            return c;


    }
    static int pow(int n,int p) {
        int pw=1;
        while(p>0)
        {
                pw=pw*n;
                p--;
        }
        return pw;
    }


     static boolean amstrong(int n)
        {
                int temp=n;
                int ct=count(n);
        int sum=0;
        while(n!=0)
        {
                int rem = n%10;
                sum= sum+pow(rem,ct);
                n=n/10;
        }
        return sum==temp;
         }


    public static void main(String args[])
    {
     Scanner s= new Scanner (System.in);
     System.out.println("Enter a number: ");
     int num = s.nextInt();
     boolean result = amstrong(num);
     if(result==true)
     System.out.println(num+ " is a AMSTRONG number");
     else
     System.out.println(num+" is not a AMSTRONG
number");


    }
```

```
}
```

Op:

```
Enter a number:
153
153 is a AMSTRONG number
```

ANOTHER LOGIC FOR 3 GIDIT

```java
static boolean amstrong(int a)
    {
        int sum=0;
        int t=a;
        do {
            int rem=a%10;
            sum=sum+rem*rem*rem;
            a=a/10;

        }while(a!=0);
        if(t==sum)

            return true;
        else
            return false;

    }
```

32. Define a method to return reverse of the number.

```java
import java.util.Scanner;

public class Reverse {
        static int reverse(int n)
    {
        int reverse = 0;
        while(n!=0)
    {
        int rem = n%10;
        reverse= reverse*10+rem;
        n=n/10;
    }
```

```java
        return reverse;
     }


     public static void main(String args[])
    {
      Scanner s= new Scanner (System.in);
      System.out.println("Enter a number: ");
      int num = s.nextInt();
      int result = reverse(num);
      System.out.println("The reverse number
is:"+result);


     }
}
```
Op:

Enter a number:
58794331
The reverse number is:13349785

```java
||using do while loop:
do {
            int rem=n%10;
            rev=rev*10+rem;
            n=n/10;
        }while(n!=0);
```


33. Define a method to return true, if the number is palindrome. Otherwise return false.

(A palindrome number is a number that remains the same when its digits are reversed.)

```java
import java.util.Scanner;

public class Reverse {
        static boolean reverse(int n)
    {
        int m=n;
        int reverse = 0;
        while(n!=0)
      {
```

```java
            int rem = n%10;
            reverse= reverse*10+rem;
            n=n/10;
        }
        n=m;
        if(n==reverse)         //return n==reverse;
            return true;
        else
            return false;

    }

     public static void main(String args[])
     {
       Scanner s= new Scanner (System.in);
       System.out.println("Enter a number: ");
       int num = s.nextInt();
       boolean result = reverse(num);
       if(result == true)
           System.out.println(num +" is a palindrome");
       else
            System.out.println(num+" is not a palindrome");

     }
}
```

Op:

Enter a number:
121
121 is a palindrome

34. WAP TO DEFINE A METHOD IS TRUE IF THE NUMBER IS DISERIUM. OTHERWISE RETURN FALSE.

(154=1^1+5^2+4^3)

```java
import java.util.Scanner;

public class CheckAmstrong {
      static int count(int a)//for counting the how many
number
      {
```

```java
        int c=0;
        do {
            a=a/10;
            c++;
        }while(a!=0);
        return c;

    }
    static int pow(int n,int p) // find the power of the
digits
    {
        int pw=1;
        while(p>0)
        {
            pw=pw*n;
            p--;
        }
        return pw;
    }

     static boolean diserium(int n) //return method
        {
            int temp=n;
            int ct=count(n);
        int sum=0;
        while(n!=0)
        {
            int rem = n%10;
            sum= sum+pow(rem,ct);
            ct--;
            n=n/10;
        }
        return sum==temp;
        }

    public static void main(String args[])
    {
     Scanner s= new Scanner (System.in);
     System.out.println("Enter a number: ");
     int num = s.nextInt();
     boolean result = diserium(num);//calling method
     if(result==true)
```

```java
        System.out.println(num+ " is a DISERIUM number");
        else
        System.out.println(num+" is not a DISERIUM
number");

    }

}
```

35.Define a method to return true, if the number is happy number otherwise return false.
(In <u>number theory</u>, a **happy number** is a number which eventually reaches 1 when replaced by the sum of the square of each digit. For instance, 13 is a happy number
Because 1^2+3^2=10, and 1^2+0^2=1)

```java
import java.util.Scanner;

public class practicep {

    static boolean happy(int n)
    {
        while(n>9)
            {
            int sum=0;
                    do {
                            int r=n%10;
                            sum=sum+r*r;
                            n/=10;
                    }while(n!=0);
                n=sum;
            }
        return n==1||n==7;
    }
    public static void main (String args[])
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter number:");//49
        int num = s.nextInt();
        boolean result=happy(num);
        if(result==true)
            System.out.println(num+" is a happy
number");
        else
        System.out.println(num+" is not a happy number");
```

```
        }
}
```

36.Define a method to return "xylem" if the number is xylem other wise return "phloem".

(34326: 3+6=9 ,4+3+2=9 so 9=9(xylem) [A number N will be xylem number if the sum of its extreme (first&last) digit is equal to the sum of mean (all digit except first and las]

```java
import java.util.Scanner;

public class xylem {
    static String xp(int n)
    {      int temp=n;
            int sum=0;
        do {
            int rem=n%10;//6
            sum=sum+rem;//0+6
            n=n/10;//3432
        }while(n!=0);

        n=temp;//3432
        int rev=0;
        do {
            int rem=n%10;
            rev=rev*10+rem;//2343
            n=n/10;234
        }while(n!=0);

        n=temp;//234
        int a=rev%10;//3
        int b=n%10;//234
        int mean=sum-(a+b);//18-3+6=9
        int ex=a+b;

        if(ex==mean)
         return "xylem";
        else
         return "phloem";
```

```java
        }

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter a number:");//34326
        int num = s.nextInt();
        String result = xp(num);
        if(result=="xylem")
            System.out.println(num+" is a xylem
number");
        else
            System.out.println(num+" is a phloem
number");
        // TODO Auto-generated method stub

    }

}
```

Op:

```
Enter a number:
34326
34326 is a xylem number
```

37.define a method to return avg. of digits

```java
import java.util.Scanner;

public class avgnum
{
    static double aN(int a)
    {
        int temp=a;
        int count=0;
        do {
            int r=a%10;
            count++;
            a=a/10;
        }while(a!=0);
```

```java
            a=temp;
            double number=a/count;
            return number;
        }
    public static void main(String args[])
    {
    Scanner s = new Scanner (System.in);
    System.out.println("Enter a number:");//9787456
    int num = s.nextInt();
    double avNum=aN(num);
    System.out.println("The avg. number of"+num+"
is:"+avNum);

    }

}
```

Op:

```
Enter a number:
9787456
The avg. number of9787456 is:1398208.0
```

38.Define a method to return the difference of biggest digits and smallest digits.

39. Define a method to return the difference of sum of even digits and sum of odd digits,

(EX:2342: even:2+4+2 =8,odd:3 diff-8-3=5)

```java
import java.util.Scanner;

public class dodd {
    static int diff(int n)
    {       int e=0,o=0;

            do{
                int r=n%10;

                if(r%2==0)
                    e+=r;
                else
```

```java
                    o+=r;

                n/=10;

            }while(n!=0);

        return e-o;
    }

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
            System.out.println("Enter a number:");//5987
            int num = s.nextInt();
            int result=diff(num);
            System.out.println("The difference between
sum of odd and even digit is:"+result);
        }
    }
```

Op:

```
Enter a number:
5987
The difference between sum of odd and even digit is:-13
```

40.WAJP to print prime number within N.

```java
import java.util.Scanner;

public class primeNumber  {
    static boolean isPrime(int n)
    {
        for(int i=2;i<=n/2;i++)
        {
            if(n%i==0)
                return false;
        }
        return true;
    }
    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter the range:");
```

```java
            int num = s.nextInt();
            for(int i=1;i<=num;i++)
            {
                    boolean r = isPrime(i);
                    if(r)
                            System.out.print(i+" ");
            }
        }
 }


Op:
Enter the range:
100
1 2 3 5 7 11 13 17 19 23 29 31 37 41 43 47 53 59 61 67 71
73 79 83 89 97
```

41.Define a method return how many prime number present with in N.

```java
import java.util.Scanner;

public class CountPrime
{
    static boolean isPrime(int n)
    {
        for(int i=2;i<=n/2;i++)
        {
            if(n%i==0)
                    return false;
        }
        return true;
    }
    static int count(int n)
    {   int count = 0;
        for(int i=1;i<=n;i++)
        {
            boolean r= isPrime(i);
            if(r)
                    count++;
        }
        return count;
    }
```

```java
    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter the range:");
        int num = s.nextInt();
        int r=count(num);
        System.out.print("The number of prime numbers
with in"+num+" is: "+r);

    }
 }
```

Op:
Enter the range:
100
The number of prime numbers with in100 is: 26

42.WAJP to print prime number between M and N


```java
import java.util.Scanner;

public class CountPrime
{
    static boolean isPrime(int n)
    {
        for(int i=2;i<=n/2;i++)
        {
            if(n%i==0)
                return false;
        }
        return true;
    }

    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter the range:");
        int m= s.nextInt();
        int n=s.nextInt();
        for(int i=m;i<=n;i++) {
        boolean r=isPrime(i);
```

```java
            if(r==true)
            System.out.print(i+" ");
            }
        }
    }
```

Op:

```
Enter the range:
100
200
101 103 107 109 113 127 131 137 139 149 151 157 163 167
173 179 181 191 193 197 199
```

43.WAJP to print first n prime number.

```java
import java.util.Scanner;

public class FirstNPrime
{
    static boolean isPrime(int n)
    {
        for(int i=2;i<=n/2;i++)
        {
            if(n%i==0)
                return false;
        }
        return true;
    }

    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter the value for N:");
        int n=s.nextInt();
        for(int i=1;n>0;i++)
        {
        boolean r=isPrime(i);
        if(r==true)
        {
        System.out.print(i+" ");
        n--;
        }
    }
```

```
        }
    }
```

Op:

Enter the value for N:
10
1 2 3 5 7 11 13 17 19 23

44.WAJP to define a method to return the sum of prime
number within N.


```java
import java.util.Scanner;

public class FirstNPrime
{
    static boolean isPrime(int n)
    {
        for(int i=2;i<=n/2;i++)
        {
            if(n%i==0)
                return false;
        }
        return true;
    }

    static int sumPrime(int n)
    {
        int sum =0;
        for(int i=1;i<=n;i++)
        {
            boolean r=isPrime(i);
            if(r)
                sum+=i;
        }
        return sum;

    }
    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
```

```java
        System.out.println("Enter the value for N:");
        int n=s.nextInt();
        System.out.println("Sum of prime number
is:"+sumPrime(n));
    }
}
```

Op:

Enter the value for N:
20
Sum of prime number is:78

45.WAJP to print the strong number with in N.

```java
import java.util.Scanner;

public class StrongNumberN
{
    static int fac(int n)
    {
        int fc=1;
        for(int i=2;i<=n;i++)
        {
            fc*=i;
        }
        return fc;
    }

    static boolean strongNumber(int n)
    {
        int t=n;
        int sum=0;
        do {
            int rem=n%10;
            sum+=fac(rem);
            n=n/10;
        }while(n!=0);
        n=t;
        return sum==n;

    }
```

```java
    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter the value for N:");
        int n=s.nextInt();
        for(int i=1;i<=n;i++)
        {
            boolean r= strongNumber(i);
            if(r)
                System.out.println(i+" ");
        }
    }
}
```

Op:

Enter the value for N:
1000000
1
2
145
40585

46. WAJP to print first N armstrong Number.

```java
import java.util.Scanner;

public class armStrongNumber
{

    static int count(int a)
    {
        int c=0;
        do {
            a=a/10;
            c++;
        }while(a!=0);
        return c;

    }
    static int pow(int n,int p)
    {
        int pw=1;
        while(p>0)
        {
            pw=pw*n;
            p--;
```

```java
            }
            return pw;
        }

    static boolean am(int n)
        {
            int temp=n,sum=0;
            int ct=count(n);

        do {
            int rem = n%10;
            sum= sum+pow(rem,ct);
            n=n/10;
        }while(n!=0);

        return sum==temp;
        }


    public static void main(String[] args)
    {
            Scanner s = new Scanner (System.in);
            System.out.println("Enter the range of N");
            int num = s.nextInt();

            for(int i=1;num>0;i++)
            {
                boolean re = am(i);
                if(re==true)
                {
                    System.out.print(i+" ");
                    num--;
                }
            }
    }
}
```

Op:

Enter the range of N
30
1 2 3 4 5 6 7 8 9 153 370 371 407 1634 8208 9474 54748 92727 93084
548834 1741725 4210818 9800817 9926315 24678050 24678051 88593477
146511208 472335975 534494836

47.WAJP to print how many happy number with in N.

```java
import java.util.Scanner;

public class HappyNumber {
    static boolean happy(int n)
    {
        while(n>9) {
        int sum=0;
        do {
        int rem=n%10;
        sum=sum+rem*rem;
        n=n/10;
        }while(n!=0);
        n=sum;
        }
        return n==1 || n==7;
    }
    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter a number for N");
        int num = s.nextInt();
        int t=num;
        int c=0;
        for(int i=1;i<=num;i++)
        {
            boolean re = happy(i);
            if(re==true)
            {
                System.out.print(i+" ");
                num--;
                c++;
            }
        }
        System.out.println();
        num=t;
        System.out.println(c+" happy number within "+num);
    }

}
```

Op:

```
Enter a number for N
50
1 7 10 13 19 23 28 31 32
9 happy number within 50
```

48.WAJP to print the disarium number in 1000.

```java
import java.util.Scanner;

public class disarium1000 {
    static int count(int a)
    {
        int co=0;
        do {
          a=a/10;
          co++;

        }while(a!=0);
        return co;
    }

    static int p(int b,int d)
    {
        int e=1;
        while(d>0)
        {
            e=e*b;
            d--;
        }
        return e;
    }
    static boolean disarium(int n)
    {
      int t=n;
      int sum =0;
      int c=count(n);

      do{
            int rem =n%10;
            sum=sum+p(rem,c);
            n=n/10;
            c--;
    }while(n!=0);

      return sum==t;
    }
    public static void main(String[] args)
    {
```

```java
        for(int i=1;i<=1000;i++)
        {
                boolean re = disarium(i);
                if(re==true)
                {
                        System.out.print(i+" ");
                }
        }
     }
    }
}
```

Op:

1 2 3 4 5 6 7 8 9 89 135 175 518 598

49.WAJP to calculate the sum of perfect number within N.

(
)

```java
import java.util.Scanner;

public class perfectNumberN {
    static boolean pf(int j)
    {
        int sum=0;
        for(int i=1;i<=j/2;i++)
        {
            if(j%i==0)
            {
                sum=sum+i;
            }
        }
        return sum==j;
    }
    public static void main(String[] args) {
        Scanner s= new Scanner(System.in);
        System.out.println("Enter a number for N");
        int num = s.nextInt();
        int sum=0;
```

```java
        for(int i=1;i<=num;i++)
        {
                boolean result=pf(i);
                if(result==true)
                {
                        sum+=i;
                }
        }
        System.out.println("The sum of perfect number within "+num+" is :"+sum);

        }
}
```

Op:

```
Enter a number for N
10000
The sum of perfect number within 10000 is :8658
```

NUMBER CONVERSION

1.BINARY NUMBER

>A binary number consists of two numbers 0s and 1s

2.OCTAL NUMBER

>

3.DECIMAL NUMBER

4.HEXADECIMAL NUMBER

- Binary to Decimal Number System
- Decimal to Binary Number System
- Octal to Binary Number System
- Binary to Octal Number System
- Binary to Hexadecimal Number System
- Hexadecimal to Binary Number System

Get the pdf of number system with a brief description in it. The general representation of number systems are;

Decimal Number – Base 10 – N_{10}

Binary Number – Base 2 – N_2

Octal Number – Base 8 – N_8

Hexadecimal Number – Base 16 – N_{16}

50.Define a method to convert decimal to binary, to octal and to hexadecimal number.

```java
//String st="";
        for(int i=1;i<=5;i++)
        {
                st=st+i;//"12345"
        }
        System.out.println(st);

\\

    String st="";
        for(int i=1;i<=5;i++)
        {
                st=i+st;//"54321"
        }
        System.out.println(st);

//



import java.util.Scanner;

public class BinaryConversion {
    String decToBin(int dec)
    {
            String bin="";
            do {
                int b=dec%2;
                bin=b+bin;
                dec=dec/2;
            }while(dec!=0);
            return bin;
    }

    String decToOct(int dec)
    {
            String oct="";
            do {
                int b=dec%8;
                oct=b+oct;
                dec=dec/8;
```

```java
        }while(dec!=0);
        return oct;
    }

    String decToHex(int dec)
    {
        String hex="";
        do {
            int b=dec%16;
            if(b<10)
            hex=b+hex;
            else if(b==10)
                hex='A'+hex;
            else if(b==11)
                hex='B'+hex;
                else if(b==12)
                    hex='C'+hex;
                    else if(b==13)
                        hex='D'+hex;
                        else if(b==14)
                            hex='E'+hex;
                            else if(b==15)
                                hex='F'+hex;
                    // OR if(b<10)
                    //hex=b+hex;
                    //else
                    //hex=(char)(b+55)+hex;
                    //dec=dec/16;


            dec=dec/16;
        }while(dec!=0);
        return hex;
    }

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter a DECIMAL NUMBER :");
        int dec = s.nextInt();
        BinaryConversion con = new BinaryConversion();
        System.out.println("Equivalent Binary
is:"+con.decToBin(dec));
```

```java
        System.out.println("Equivalent Octal
is:"+con.decToOct(dec));
        System.out.println("Equivalent HexaDecimal
is:"+con.decToHex(dec));


    }

}
```

Op:

Enter a DECIMAL NUMBER :
93
Equivalent Binary is:1011101
Equivalent Octal is:135
Equivalent HexaDecimal is:5D

51.Define a method Enter binary number to octal and octal to decimal.

```java
public int binToDec(int bin)
    {
        int pw=1,dec=0;
        do {
            int r=bin%10;
            dec=dec+r*pw;//13
            pw=pw*2;
            bin = bin/10;
        }while(bin!=0);
        return dec;

        }

    public int octToDec(int oct)
    {
        int pw=1,dec=0;
        do {
            int r=oct%10;
            dec=dec+r*pw;//13
            pw=pw*8;
            oct = oct/10;
        }while(oct!=0);
        return dec;

        }
```

```java
public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
BinaryConversion con = new BinaryConversion();

    System.out.println("Enter a binary number:");
        int bin=s.nextInt();
        System.out.println("decimal equalent is:"
+con.binToDec(bin));


        System.out.println("Enter octal number:");
        int oct=s.nextInt();
        System.out.println("decimal equalent is:"
+con.octToDec(oct));


    }

}
```

Op:
Enter a binary number:
101110
decimal equalent is:46
Enter octal number:
25476
decimal equalent is:11070

PATTERNS
1:
Enter the number for N:
5
*****
*****
*****
*****
*****

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the number for N:");
        int n = s.nextInt();
```

```java
        for(int i=1;i<=n;i++)//row number
        {
        for(int j=1;j<=n;j++)//no of star in each line
        {
                System.out.print("*");
        }
            System.out.println();
        }
    }

}
```

2:

```
Enter the number for N:
5
*
**
***
****
*****
```

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the number for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=i;j++)
            {
                System.out.print("*");
            }
            System.out.println();
        }
    }

}
```

3:

Enter the value for N:
5
*****
****
***
**
*

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=n;i>=1;i--)//no. of rows
        {
            for(int j=1;j<=i;j++)//no. of star in each
line
            {
                System.out.print("*");
            }
            System.out.println();
        }
    }

}
```

4:

Enter the value for N:
6
1 2 3 4 5 6
1 2 3 4 5 6
1 2 3 4 5 6

```
1 2 3 4 5 6
1 2 3 4 5 6
1 2 3 4 5 6


import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
for(int i=1;i<=n;i++)
{
    for(int j=1;j<=n;j++)//no. of element in each line
        {
                System.out.print(j+" ");
        }
        System.out.println();
    }
}

}


5:

Enter the value for N:
7
1 1 1 1 1 1 1
2 2 2 2 2 2 2
3 3 3 3 3 3 3
4 4 4 4 4 4 4
5 5 5 5 5 5 5
6 6 6 6 6 6 6
7 7 7 7 7 7 7


import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
```

```java
        int n = s.nextInt();
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {
                System.out.print(i+" ");
            }
            System.out.println();
        }
    }

}
```

6:

Enter the value for N:
5
1 0 1 0 1
1 0 1 0 1
1 0 1 0 1
1 0 1 0 1
1 0 1 0 1

Logic-1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {
                if(j%2!=0)
                System.out.print(1+" ");
                else
                    System.out.print(0+" ");
```

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

    }

}

Logic-2

import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {

                System.out.print(j%2+" ");

            }
            System.out.println();
        }
    }

}
```

7:

Enter the value for N:
6

```
1 1 1 1 1 1
0 0 0 0 0 0
1 1 1 1 1 1
0 0 0 0 0 0
1 1 1 1 1 1
0 0 0 0 0 0
```

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {

                System.out.print(i%2+" ");

            }
            System.out.println();
        }
    }

}
```

8:

```
Enter the value for N:
5
A A A A A
B B B B B
C C C C C
D D D D D
E E E E E
```

```java
import java.util.Scanner;

public class patterns {
```

```java
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {

                System.out.print((char)(64+i)+" ");

            }
            System.out.println();
        }
    }

}
```

Logic-2

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        char c='A';
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {

                System.out.print(c+" ");

            }
            System.out.println();
            c++;
        }
    }
```

```
}

9:

1 2 3 4 5

1 2 3 4

1 2 3

1 2

1


import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=n;i>=1;i--)//no. of lines
        {
            for(int j=1;j<=i;j++)//no. of element in
each line
            {

                System.out.print(j+" ");

            }
            System.out.println();

        }
    }

}

Enter the value for N:
5
1 2 3 4 5
1 2 3 4
1 2 3
```

1 2
1

10:

A B C D E

A B C D

A B C

A B

A

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=n;i>=1;i--)//no. of lines
        {
            for(int j=1;j<=i;j++)//no. of element in
each line
            {

                System.out.print((char)(64+j)+" ");

            }
            System.out.println();

        }
    }

}
```

Enter the value for N:
5
A B C D E
A B C D
A B C
A B
A

11:

5 4 3 2 1

5 4 3 2 1

5 4 3 2 1

5 4 3 2 1

5 4 3 2 1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=n;j>=1;j--)//no. of element in
each line
            {

                System.out.print(j+" ");

            }
            System.out.println();

        }
    }

}
```

```
Enter the value for N:
5
5 4 3 2 1
5 4 3 2 1
5 4 3 2 1
5 4 3 2 1
5 4 3 2 1
```

12:

1 2 3 4 5

2 3 4 5

3 4 5

4 5

5

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=i;j<=n;j++)//no. of element in
each line
            {

                System.out.print(j+" ");

            }
            System.out.println();

        }
    }

}
```

Enter the value for N:
5
1 2 3 4 5
2 3 4 5
3 4 5
4 5
5

13:
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=i;j++)//no. of element in
each line
            {

                System.out.print(j%2+" ");

            }
            System.out.println();

        }
    }

}
```

```
Enter the value for N:
5
1
1 0
1 0 1
1 0 1 0
1 0 1 0 1
```

14:

1

0 0

1 1 1

0 0 0 0

1 1 1 1 1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=i;j++)//no. of element in
each line
            {

                System.out.print(i%2+" ");

            }
            System.out.println();

        }
    }

}
```

```
Enter the value for N:
5
1
0 0
1 1 1
0 0 0 0
1 1 1 1 1
```

15:

1

2 1

3 2 1

4 3 2 1

5 4 3 2 1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=i;j>=1;j--)//no. of element in
each line
            {

                System.out.print(j+" ");

            }
            System.out.println();

        }
    }

}
```

```
Enter the value for N:
5
1
2 1
3 2 1
4 3 2 1
```

5 4 3 2 1

1 0 1 0 1

0 1 0 1 0

1 0 1 0 1

0 1 0 1 0

1 0 1 0 1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {

                System.out.print((i+j+1)%2+" ");

            }
            System.out.println();

        }
    }

}
```

Or logic-2:
```java
Int x=1;
For()
For()
{
```

```
Sop((x%2)+" ");
X++;
}
```

Op:
Enter the value for N:
5
1 0 1 0 1
0 1 0 1 0
1 0 1 0 1
0 1 0 1 0
1 0 1 0 1

17:

1 2 3 4 5

6 7 8 9 1

2 3 4 5 6

7 8 9 1 2

3 4 5 6 7

Enter the value for N:
5
1 2 3 4 5
6 7 8 9 1
2 3 4 5 6
7 8 9 1 2
3 4 5 6 7

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
```

```java
        int limit=10;
        int m=1;
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=n;j++)//no. of element in
each line
            {

                System.out.print(m+" ");
                m++;
                if(limit==m)
                {
                    m=1;
                }

            }

            System.out.println();

        }
    }
}
```

Or:

```java
Int x=0;

For()

For()

{

Sop(x%9+1+" ")

X++;

}
```

18:

1

0 1

0 1 0

1 0 1 0

1 0 1 0 1

```java
import java.util.Scanner;

public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        int l=1;
        for(int i=1;i<=n;i++)//no. of lines
        {

            for(int j=1;j<=i;j++)//no. of element in
each line
            {

                System.out.print(l%2+" ");
                l++;

            }

            System.out.println();

        }
    }
}
```

Op:

Enter the value for N:
5
1
0 1
0 1 0
1 0 1 0
1 0 1 0 1

19:

5 4 3 2 1

4 3 2 1

3 2 1

2 1

1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=n;i>=1;i--)//no. of lines
        {
            for(int j=i;j>=1;j--)//no. of element in
each line
            {

                System.out.print(j+" ");


            }

            System.out.println();

        }
    }

}


Enter the value for N:
5
```

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

20:

5

5 4

5 4 3

5 4 3 2

5 4 3 2 1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        int m=n;
        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=1;j<=i;j++)//no. of element in
each line
            {

                System.out.print(m+" ");
                m--;

            }
            m=n;
            System.out.println();

        }
    }
}
```

Or:

For(int i=n;i>=1;i++)

```
{
Fro(int j=n;j>=I;j--)
{
Sop(j+" ");
}
}
```

```
Enter the value for N:
5
5
5 4
5 4 3
5 4 3 2
5 4 3 2 1
```

21:

5 4 3 2 1

5 4 3 2

5 4 3

5 4

5

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=1;i<=n;i++)//no. of lines
        {
            for(int j=n;j>=i;j--)//no. of element in
each line
            {
```

```java
                        System.out.print(j+" ");
                }

                System.out.println();

            }
        }
}
```
Enter the value for N:
5
5 4 3 2 1
5 4 3 2
5 4 3
5 4
5

1 1 1 1 1

0 0 0 0

1 1 1

0 0

1

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=n;i>=1;i--)//no. of lines
        {
            for(int j=1;j<=i;j++)//no. of element in
each line
            {
```

```java
                            System.out.print((i)%2+" ");

                    }

                    System.out.println();

            }
    }
}
```

Enter the value for N:
5
1 1 1 1 1
0 0 0 0
1 1 1
0 0
1

23:

1 0 1 0 1

1 0 1 0

1 0 1

1 0

1

```java
import java.util.Scanner;

public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        int m=n;
        for(int i=n;i>=1;i--)//no. of lines
        {
        for(int j=1;j<=i;j++)//no. of element in each
line
```

```
                    {
                            System.out.print(j%2+" ");

                    }
                    System.out.println();

            }
        }
}
```

```
Enter the value for N:
5
1 0 1 0 1
1 0 1 0
1 0 1
1 0
1
```

24:

1

2 6

3 7 10

4 8 11 13

5 9 12 14 15

```java
import java.util.Scanner;

public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=1;i<=n;i++)//no. of lines
        {
```

```java
                int d=i;
                for(int j=1;j<=i;j++)//no. of element in
each line
                {

                        System.out.print(d+" ");
                        d=d+n-j;
                }

                System.out.println();

            }
        }
}
```

```
Enter the value for N:
5
1
2 6
3 7 10
4 8 11 13
5 9 12 14 15
```

25:

5

4 5

3 4 5

2 3 4 5

1 2 3 4 5

```java
import java.util.Scanner;

public class patterns {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
```

```java
            int n = s.nextInt();

            for(int i=n;i>=1;i--)//no. of lines
            {
                for(int j=i;j<=n;j++)//no. of element in
each line
                {

                    System.out.print(j+" ");


                }

                System.out.println();

            }
        }
}
```

Enter the value for N:
5
5
4 5
3 4 5
2 3 4 5
1 2 3 4 5

26:

a

b a

c b a

d c b a

e d c b a

```java
import java.util.Scanner;

public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
```

```
        System.out.println("Enter the value for N:");
        int n = s.nextInt();
        for(int i=1;i<=n;i++)//no. of lines
        {
                for(int j=1;j<=i;j++)//no. of element in
each line
                {
        System.out.print((char)(97+i-j)+" ");

                }

                System.out.println();

        }
    }
}
```

Or:

```
For(int i=1;i<=n;i++)

For(int j=I;j>=I;j--)

Sop((char)(j+96));
```

Enter the value for N:
5
a
b a
c b a
d c b a
e d c b a

27:
```
    *
   **
  ***
 ****
*****
```
....

```
import java.util.Scanner;
```

```java
public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=1;i<=n;i++)//no. of lines
        {

            for(int j=1;j<=n-i;j++)//no. of space in
each line
            {
                System.out.print(" ");
            }
            for(int j=1;j<=i;j++)//no. of star in each
line
            {

                System.out.print("*");
            }

            System.out.println();

        }
    }
}
```

Enter the value for N:
5
```
    *
   **
  ***
 ****
*****
```

28:
```
    *
   ***
  *****
```

****

```java
import java.util.Scanner;

public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=1;i<=n;i++)//no. of lines
        {

            for(int j=1;j<=n-i;j++)//no. of space in
each line
            {
                System.out.print(" ");
            }
            for(int j=1;j<=2*i-1;j++)//no. of star in
each line
            {

                System.out.print("*");
            }

            System.out.println();

        }
    }
}
```

Op:

```
Enter the value for N:
5
    *
   ***
  *****
 *******
*********
```

29:
```
*****
 ****
  ***
   **
    *
```

```java
import java.util.Scanner;

public class patterns
{
    public static void main(String[] args)
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the value for N:");
        int n = s.nextInt();

        for(int i=n;i>=1;i--)//no. of lines
        {

            for(int j=1;j<=n-i;j++)//no. of space in
each line
            {
                System.out.print(" ");
            }
            for(int j=1;j<=i;j++)//no. of star in each
line
            {

                System.out.print("*");
            }

            System.out.println();

        }
    }
}
```

Op:

Enter the value for N:

```
5
*****
 ****
  ***
   **
    *
```

30.
```
        1
      1 2 3
    1 2 3 4 5
  1 2 3 4 5 6 7
1 2 3 4 5 6 7 8 9
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        for(int i=1;i<=5;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print(" ");
            }
            for(int j=1;j<=2*i-1;j++)
            {
                System.out.print(j);
            }
            System.out.println();
        }
    }
}
```

31.

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

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        for(int i=1;i<=5;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=2*i-1;j++)
            {
                System.out.print(x+" ");
                if(j<i)
                    x++;
                else
                    x--;
            }
            System.out.println();
        }
    }
}
```

32.

```
        1
      2 1 2
```

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

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        for(int i=1;i<=5;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=i;
            for(int j=1;j<=2*i-1;j++)
            {
                System.out.print(x+" ");
                if(j<i)
                    x--;
                else
                    x++;
            }
            System.out.println();
        }
    }
}
```

33.

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

```
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        for(int i=1;i<=5;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }

            for(int j=1;j<=i;j++)
            {
                System.out.print(j+" ");
                if(j<i)
                    System.out.print("*"+" ");

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

34.
5
```
        1
      0 1 0
    1 0 1 0 1
  0 1 0 1 0 1 0
1 0 1 0 1 0 1 0 1
```

```
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
```

```java
            int n = s.nextInt();
            int x=1;
            for(int i=1;i<=5;i++)
            {
                for(int j=1;j<=n-i;j++)
                {
                    System.out.print("  ");
                }

                for(int j=1;j<=2*i-1;j++)
                {
                    System.out.print(x%2+" ");
                    x++;
                }
                System.out.println();
            }
        }
    }
}
```

35.

5
```
        A
      B A B
    C B A B C
  D C B A B C D
E D C B A B C D E
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        for(int i=1;i<=5;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
```

```java
            int x=i;
            for(int j=1;j<=2*i-1;j++)
            {
                System.out.print((char)(64+x)+" ");
                if(j<i)
                    x--;
                else
                    x++;
            }
            System.out.println();
        }
    }
}
```

36.

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

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int x=1;
        for(int i=n;i>=1;i--)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }

            for(int j=1;j<=2*i-1;j++)
            {
```

```java
                        System.out.print(x+" ");
                        if(j<i)
                                x++;
                        else
                                x--;
                }
                System.out.println();
                x+=2;
            }
        }
}
```

Another logic:

```java
for(int i=1;i<=n;i++)
        {
                for(int j=1;j<=i-1;j++)
                {
                        System.out.print("   ");
                }
                int x=i;
                for(int j=1;j<=2*(n-1)+1;j++)
                {
                        System.out.print(x+" ");
                        if(j<=n-i)
                        x++;
                        else
                                x--;
                }
```

37.

```
5
1 0 1 0 1 0 1 0 1
  1 0 1 0 1 0 1
    1 0 1 0 1
      1 0 1
        1
```

```java
import java.util.Scanner;
```

```java
class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=n;i>=1;i--)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=2*i-1;j++)
            {

                System.out.print(x%2+" ");
                x++;
            }

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

38.
5
5 4 3 2 1 2 3 4 5
  4 3 2 1 2 3 4
    3 2 1 2 3
      2 1 2
        1

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
```

```java
        for(int i=n;i>=1;i--)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=i;
            for(int j=1;j<=2*i-1;j++)
            {

                System.out.print(x+" ");
                if(j<i)
                    x--;
                else
                    x++;
            }

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

39.

```
5
A B C D E D C B A
  A B C D C B A
    A B C B A
      A B A
        A
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=n;i>=1;i--)
        {
            for(int j=1;j<=n-i;j++)
            {
```

```java
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=2*i-1;j++)
            {
                System.out.print((char)(64+x)+" ");
                if(j<i)
                    x++;
                else
                    x--;
            }

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

40.
5
```
1 * 2 * 3 * 4 * 5
  1 * 2 * 3 * 4
    1 * 2 * 3
      1 * 2
        1
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=n;i>=1;i--)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=2*i-1;j++)
```

```java
                {
                    if(j%2==0)
                    {
                        System.out.print("*"+" ");
                    }
                    else
                    {
                        System.out.print(x+" ");
                        x++;
                    }
                }

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

41.

5

```
        A
      A B A
    A B C B A
  A B C D C B A
A B C D E D C B A
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=2*i-1;j++)
```

```java
            {
                System.out.print((char)(64+x)+" ");
                if(j<i)
            x++;
                else
                    x--;

            }

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

42.

5

```
        1
      2 3 4
    5 6 7 8 9
  1 2 3 4 5 6 7
8 9 1 2 3 4 5 6 7
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int x=1;
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }

            for(int j=1;j<=2*i-1;j++)
            {
                System.out.print(x+" ");
```

```
                x++;
                    if(x>9)
                        x=1;


            }

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

43.

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

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=i-1;j++)
            {
                System.out.print("  ");
            }
            int x=i;
            for(int j=i;j<=n;j++)
            {
                System.out.print(x+" ");

                x++;
            }
```

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

44.

Pascal triangle

5

```
          1
       1     1
    1     2     1
  1     3     3     1
1     4     6     4     1
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=n-i;j++)
            {
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=i;j++)
            {
                System.out.print(x+"    ");
                x=x*(i-j)/j;

            }

            System.out.println();
        }

    }
}
```

45.
7
```
      *
    * * *
  * * * * *
* * * * * * *
  * * * * *
    * * *
      *
```

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=n/2,st=1;
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
            }

            for(int j=1;j<=st;j++)
            {
                System.out.print("* ");
            }

            if(i<=n/2)
            {
                sp--;
                st+=2;
            }else {
                sp++;
                st-=2;
            }

            System.out.println();
```

```
            }

        }
}
```

46.

7
```
      *  *  *  *  *  *  *
        *  *  *  *  *
          *  *  *
             *
          *  *  *
        *  *  *  *  *
      *  *  *  *  *  *  *
```
```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=0,st=n;
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
            }

            for(int j=1;j<=st;j++)
            {
                System.out.print("* ");
            }
                if(i<=n/2)
```

```
                    {
                            sp++;
                            st-=2;
                    }else {
                            sp--;
                            st+=2;

                    }


                System.out.println();
            }

        }
}


47.

7
1 2 3 4 3 2 1
  1 2 3 2 1
    1 2 1
      1
    1 2 1
  1 2 3 2 1
1 2 3 4 3 2 1


import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=0,st=n;
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
```

```java
                }
                int x=1;
                for(int j=1;j<=st;j++)
                {
                        System.out.print(x+" ");
                        if(j<=st/2)
                        x++;
                        else
                            x--;
                }
                        if(i<=n/2)
                        {
                                sp++;
                                st-=2;
                        }else {
                                sp--;
                                st+=2;

                        }

                System.out.println();
            }

        }
}
```

48.

7
```
            1
        1 2 1
      1 2 3 2 1
    1 2 3 4 3 2 1
      1 2 3 2 1
        1 2 1
            1
```

```java
import java.util.Scanner;

class patterns
{
```

```java
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=n/2,st=1;
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
            }
            int x=1;
            for(int j=1;j<=st;j++)
            {
                System.out.print(x+" ");
                if(j<=st/2)
                x++;
                else
                    x--;
            }
            if(i<=n/2)
            {
                sp--;
                st+=2;

            }else {

                sp++;
                st-=2;
            }



        System.out.println();
        }

    }
}


49.

7
```

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

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=n/2,st=1;

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
            }
            int x=st/2+1;
            for(int j=1;j<=st;j++)
            {
                System.out.print(x+" ");
                if(j<=st/2)
                    x--;
                else
                    x++;

            }
            if(i<=n/2)
            {
                sp--;
                st+=2;

            }else {

                sp++;
                st-=2;
```

```
                }


            System.out.println();
        }

    }
}
```

50.

7

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

```java
import java.util.Scanner;

class patterns
{
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=n/2,st=1;

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
            }
            int x=sp+1;
            for(int j=1;j<=st;j++)
            {
                System.out.print(x+" ");
                if(j<=st/2)
                    x++;
                else
```

```java
                                x--;
                    }

                    if(i<=n/2)
                    {
                            sp--;
                            st+=2;

                    }else {

                            sp++;
                            st-=2;
                    }


            System.out.println();
        }

    }
}
```

51.

<pre>
7
* * * * * * *
* *   * *
*   *   *   *
*   *   *
*   *   *   *
* *   * *
* * * * * * *
</pre>

```java
import java.util.Scanner;

public class starpatterns {

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

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

```java
        {
            for(int j=1;j<=n;j++)
            {
                if(i==1 || i==n || j==1 || j==n ||
i==j || i+j==n+1)
                    System.out.print("*"+" ");
                else
                    System.out.print("  ");

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

52.

```
7
* * * * * * *
*     *     *
*     *     *
* * * * * * *
*     *     *
*     *     *
* * * * * * *
```

```java
import java.util.Scanner;

public class starpatterns {

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=n;j++)
            {
                if(i==1 || i==n || j==1 || j==n ||
i==n/2+1 || j==n/2+1 )
                    System.out.print("*"+" ");
                else
```

```java
                       System.out.print("  ");

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

53.

7
```
*       *       *
  *     *     *
    * * *
* * * * * * *
    * * *
  *     *     *
*       *       *
```

```java
import java.util.Scanner;

public class starpatterns {

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();

        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=n;j++)
            {

                if(    i==j || i+j==n+1 || i==n/2+1 ||
j==n/2+1 )

                    System.out.print("*"+" ");
                else
```
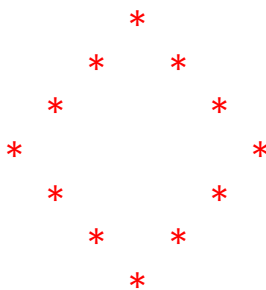
```
                          System.out.print("  ");
                }
                System.out.println();
            }
        }
    }
```

54.

8

```
        *
      *   *
    *       *
  *           *
    *       *
      *   *
        *
```

```java
import java.util.Scanner;

public class starpatterns {

    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        int n = s.nextInt();
        int sp=n/2,st=1;
        for(int i=1;i<=n;i++)
        {
            for(int j=1;j<=sp;j++)
            {
                System.out.print("  ");
            }
            for(int j=1;j<=st;j++)
            {

                if(j==1 || j==st)
                    System.out.print("*"+" ");
                else
```

```java
                System.out.print("   ");
        }
        if(i<n/2)
        {
            sp--;
            st+=2;
        }else {
            sp++;
            st-=2;
        }
        System.out.println();
    }
}
}
```

ARRAY

- in java array is a object to represent a group of element in same name. allocate memory in heap area.

  - ➢ It is fixed size. After size declaration we can change the size
  - ➢ int x[]={15,255,9};
  - ➢ if we access by using reference, we get only address . this reason we have to use index for access the value of array. Like sopln(x[1]);//255
  - ➢ for accessing all element of array we use for loop. Like:for(int i=o;i<x.length;i++){ sopln(x[i]+" ");}
  - ➢ array size and index always int type.
  - ➢ Array in java have default value but not in c and c++.

> Length is variable not a method.(.length).
> int ar[];//declaration
> ar=new int[5];//allocation //or// for(int i=0;i<=ar.length;i++)//allocation
> int ar[]=new int[5];//declaration as well as allocation.
> ar[0]=28;//initialization

1. input taken by user in array:

```java
import java.util.Iterator;
import java.util.Scanner;

public class Array {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the size for arraay");
        int size=s.nextInt();
        int[] array=new int[size];
        System.out.println("Enter "+size+" integer values:");
        for(int i=0;i<array.length;i++)
        {
         array[i]=s.nextInt();
        }
        System.out.println("user enter value for array are: ");
        for(int i=0;i<array.length;i++)
        {
         System.out.print(array[i]+" ");
        }

    }

}
```

2. WAJP to read n product price and print the average price?

```java
import java.util.Iterator;
import java.util.Scanner;

public class Array {
    public static void main(String[] args) {
        Scanner s = new Scanner (System.in);
```

```java
                    System.out.println("Enter the range for n:");
                    int n=s.nextInt();
                    float[] array=new float[n];
                    System.out.println("Enter the product price
            base the no of product:");
                        for(int i=0;i<array.length;i++)
                        {
                          array[i]=s.nextFloat();
                        }
                        float sum=0;

                        for(int i=0;i<array.length;i++)
                        {
                            sum=sum+array[i];
                        }
                        System.out.println("the average price is:
            "+sum/n);
                    }
                }
                Op:
```

Enter the range for n:
4
Enter the product price base the no of product:
5.6
45
63.66
79.56
the average price is: 48.454998

3.WAJP to read n names from the user and print highest length of name.

```java
import java.util.Scanner;


public class Array {
    public static void main(String[] args) {


        Scanner s =new Scanner (System.in);

        System.out.println("Enter the range for n:");

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

```java
        String[] arr=new String[n];
        System.out.println("Enter the names");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.next();


        }
        int r=0;
        for(int j=0;j<arr.length;j++)
        {
            if(arr[r].length()<arr[j].length())
                r=j;
        }
        System.out.println("The biggest length of the name
is:"+arr[r]);
    }
}
```

Or: by using calling method

```java
static String highestName(String[] a)
    {
        String name=a[0];
        for(int i=1;i<a.length;i++)
        {
            if(a[i].length()>name.length())
                name=a[i];
        }
        return name;

    }
```

```
    Op: Enter the range for n:
4
Enter the names
apple
orange
```

```
pineapple
grapes
The biggest length of the name is:pineapple
```

```java
import java.util.Scanner;

public class sumIntArray {
    public static void main(String[] args) {
        Scanner s= new Scanner (System.in);
        System.out.println("Enter the size of array");
        int sz=s.nextInt();
        int[] arr = new int[sz];
        System.out.println("Enter the integer for array:");
        for(int i=0;i<arr.length;i++)
        {
            arr[i]=s.nextInt();
        }
        int big=arr[0];
        for(int i=0;i<arr.length;i++) {
            if(big<arr[i])
                big=arr[i];
        }
        System.out.println("the biggest integer of array is:"+big);
    }

}
```

Or: by using method calling

```java
import java.util.Scanner;

public class Array {
    static int biggest(int[] a)
    {
        int big=a[0];
        for(int i=1;i<a.length;i++)
```

```java
        {
            if(big<a[i])
                big=a[i];
        }
        return big;

    }
    public static void main(String[] args) {
        Scanner s= new Scanner (System.in);
        System.out.println("Enter the size of array");
        int sz=s.nextInt();
        int[] arr = new int[sz];
        System.out.println("Enter the integer for
array:");
        for(int i=0;i<arr.length;i++)
        {
            arr[i]=s.nextInt();
        }
        int big=biggest(arr);
        System.out.println("the biggest integer of array
is:"+big);
    }

}
```

Op:

```
Enter the size of array
4
Enter the integer for array:
56
89
41
2
the biggest integer of array is:89
```

5.WJPT print the sum of integer array element.

```java
import java.util.Scanner;

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

```java
            Scanner s= new Scanner (System.in);
            System.out.println("Enter the size of array");
            int sz=s.nextInt();
            int[] arr = new int[sz];
            System.out.println("Enter the integer for
array:");
            for(int i=0;i<arr.length;i++)
            {
                arr[i]=s.nextInt();
            }
            int sum=0;
            for(int i=0;i<arr.length;i++) {
                sum+=arr[i];
            }
            System.out.println("The sum of the integer
is:"+sum);
        }

}
```

Op:

Enter the size of array
5
Enter the integer for array:
25
663
3
25
255
The sum of the integer is:971

6.WJPT print how many even and odd integer in a array.

```java
import java.util.Scanner;

public class sumIntArray {
    public static void main(String[] args) {
        Scanner s= new Scanner (System.in);
        System.out.println("Enter the size of array");
        int sz=s.nextInt();
        int[] arr = new int[sz];
```

```java
        System.out.println("Enter the integer for
array:");
        for(int i=0;i<arr.length;i++)
        {
            arr[i]=s.nextInt();
        }
        int even=0,odd=0;
        for(int i=0;i<arr.length;i++) {
            if(arr[i]%2==0)
                even++;
            else
                odd++;
        }
        System.out.println("The number of even the
integer in array is:"+even);
        System.out.println("The number of odd the integer
in array is:"+odd);
    }

}


//ANOTHER LOGIC


import java.util.*;

public class Array {
    static int[] readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter integer for array ");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
        }
        return arr;
    }
    static int[] count(int ar[])
    {
```

```
        int c[]= {0,0};
        for(int i=0;i<ar.length;i++)
        {
            c[ar[i]%2]++;
        }
        return c;
    }

    public static void main(String[] args) {
    int a[]=readArray();
    int b[]=count(a);
    System.out.println("The number of even number"+b[0]);
    System.out.println("The number of odd number"+b[1]);

    }

}
```

Op:

```
Enter the size of array
5
Enter the integer for array:
23
2
56
2
5
The number of even the integer in array is:3
The number of odd the integer in array is:2
```

7.read two array element from the user and merge into single array.

```
import java.util.Scanner;

public class Array {
    static int[] readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter the names");
```

```java
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
        }
        return arr;
    }
    static void displayArray(int arr[])
    {
        for(int i=0;i<arr.length;i++)
        {
            System.out.print(arr[i]);
        }
        System.out.println();
    }
    static int[] mergeArray(int[] a, int[] b)
    {
        int[] c=new int[a.length+b.length];
        for(int i=0;i<a.length;i++)
        {
            c[i]=a[i];
        }
        for(int i=0;i<b.length;i++)
        {
            c[a.length+i]=b[i];
        }
        return c;
    }

    public static void main(String[] args) {
        System.out.println("Read the first array");
        int x[]=readArray();
        System.out.println("Read the second array");
        int y[]=readArray();
        System.out.println("user entered first array");
        displayArray(x);
        System.out.println("user entered second array");
        displayArray(y);

        int z[]=mergeArray(x,y);
        System.out.println("merged array:");
        diplayArray(z);
    }
```

```
        }
```

8.define a method to return how many prime numbers present in a array.

```java
import java.util.Scanner;

public class Array {
    static int[] readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter integer for array");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
        }
        return arr;
    }
    static int cont(int a[])
    {
        int c=0;
        for(int i=0;i<a.length;i++)
        {
            boolean r=isprime(a[i]);
            if(r)
                c++;
        }
        return c;
    }
    static boolean isprime(int a)
    {
        for(int i=2;i<a/2;i++)
        {
         if(i%2==0)
            return false;
        }
        return true;
    }

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

```java
        int[] a=readArray();
        int count=cont(a);
        System.out.println("The number of prime number in
array is:"+count);
    }

}
```

```
Enter the range for n:
5
Enter integer for array
5
6
3
4
7
The number of prime number in array is:3
```

9.WAJPT merge two array element in single array in zigzag order.

```java
import java.util.*;

public class Array {
    static int[] readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter integer for array ");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
        }
        return arr;

    }
    static int[] merge(int[] k1,int[] k2)
    {
        int[] m=new int[k1.length+k2.length];
        int i=0,j=0;
```

```java
        while(i<k1.length && i<k2.length)
        {
            m[j]=k1[i];
            j++;
            m[j]=k2[i];
            i++;
            j++;
        }
        while(i<k1.length)
        {
            m[j]=k1[i];
                    i++;
            j++;
        }
        while(i<k2.length)
        {
            m[j]=k2[i];
                    i++;
            j++;
        }
        return m;
    }

    public static void main(String[] args) {
        int a1[]=readArray();
        int a2[]=readArray();

        int[] c=merge(a1,a2);
        for(int i=0;i<c.length;i++)
        {
        System.out.print(c[i]+" ");
        }

    }

}
```

Op:
Enter the range for n:
5
Enter integer for array
1

```
5
68
8
6
Enter the range for n:
3
Enter integer for array
1
65
8
1 1 5 65 68 8 8 6
```

10.Merge two shorted array element into single array in shorted format.

```java
import java.util.*;

public class Array {
    static int[] readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter integer for array ");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
        }
        return arr;

    }
    static int[] merge(int[] k1,int[] k2)
    {
        int[] m=new int[k1.length+k2.length];
        for(int i=0;i<k1.length;i++)
        {
            m[i]=k1[i];
        }
        for(int i=0;i<k2.length;i++)
        {
            m[k1.length+i]=k1[i];
```

```java
            }
            return m;
        }

    public static void main(String[] args) {
            int a1[]=readArray();
            int a2[]=readArray();
            Arrays.sort(a1);
            Arrays.sort(a2);
            int[] c=merge(a1,a2);
            Arrays.sort(c);
            for(int i=0;i<c.length;i++)
            {
            System.out.print(c[i]+" ");
            }

    }

}
```

Op:

Enter the range for n:
3
Enter integer for array
3
6
9
Enter the range for n:
2
Enter integer for array
6
3
3 3 6 6 9

//ANOTHER LOGIC


```java
import java.util.*;

public class Array {
```

```java
static int[] readArray()
{
    Scanner s =new Scanner (System.in);
    System.out.println("Enter the range for n:");
    int n = s.nextInt();
    int[] arr=new int[n];
    System.out.println("Enter integer for array ");
    for(int i=0;i<arr.length;i++){
        arr[i]=s.nextInt();
    }
    return arr;

}
static int[] merge(int[] k1,int[] k2)
{
    int[] m=new int[k1.length+k2.length];
    int i=0,j=0,l=0;
    while(i<k1.length && i<k2.length)
    {
        if(k1[i]<k2[j])
            m[l]=k1[i++];
        else
            m[l]=k2[j++];

        l++;
    }
    while(i<k1.length)
    {
        m[l++]=k1[i++];
    }
    while(j<k2.length)
    {
        m[l++]=k2[j++];
    }
    return m;
}

public static void main(String[] args) {
    int a1[]=readArray();
    int a2[]=readArray();
```

```java
            int[] c=merge(a1,a2);
            for(int i=0;i<c.length;i++)
            {
            System.out.print(c[i]+" ");
            }

        }

}


Op:

Enter the range for n:
3
Enter integer for array
2
3
4
Enter the range for n:
5
Enter integer for array
6
7
89
94
95
2 3 4 6 7 89 94 95
```

11.define a method to return smallest element from the array

```java
import java.util.*;

public class Array {
    static int[] readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter integer for array ");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
```

```java
            }
            return arr;

        }
        static int smallE(int[] ar)
        {
            int s=ar[0];
            for(int i=1;i<ar.length;i++)
            {
                if(s>ar[i])
                s=ar[i];

            }
            return s;
        }

        public static void main(String[] args) {
            int a[]=readArray();
            System.out.println(a[3]);
            int small=smallE(a);
            System.out.println("Smallest element is:"+small);

        }

}
```

Op:

Enter the range for n:
5
Enter integer for array
-15
25
-95
-96
1
-96
Smallest element is:-96

12.Define a method to return how many odd and even number present in the array.

```java
import java.util.*;

public class Array {
    static int[] readarray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter size for array");
        int n=s.nextInt();
        int a[]=new int[n];
        System.out.println("Enter value for array");
        for(int i=0;i<a.length;i++)
        {
            a[i]=s.nextInt();
        }
        return a;
    }
    static void check(int[] a)
    {
        int even=0,odd=0;
        for(int i=0;i<a.length;i++)
        {
            if(a[i]%2==0)
                even++;
            else
                odd++;
        }
        System.out.println("Number of even number
is:"+even);
        System.out.println("Number of odd number
is:"+odd);
    }
    public static void main(String[] args) {
    int[] v=readarray();
    check(v);

    }

}
```

Op:

Enter size for array

```
5
Enter value for array
6
9
3
4
2
Number of even number is:3
Number of odd number is:2
```

13.Define a method to reverse the array element.

```java
import java.util.*;

public class Array {
    static void readArray()
    {
        Scanner s =new Scanner (System.in);
        System.out.println("Enter the range for n:");
        int n = s.nextInt();
        int[] arr=new int[n];
        System.out.println("Enter integer for array ");
        for(int i=0;i<arr.length;i++){
            arr[i]=s.nextInt();
        }
        reverseArray(arr,arr.length);
    }
    static void reverseArray(int arr[],int n)
    {
        int[] b=new int[n];
        int j=n;
        for(int i=0;i<n;i++)
        {
            b[j-i]=arr[i];
            j--;
        }
        for(int k=0;k<n;k++)
        {
            System.out.print(b[k]);
        }
    }
```

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

        }


}
//
static int[] reverse(int ar[])
        {
            int i=0,j=ar.length-1;
            while(i<j)
            {
                int t=ar[i];
                ar[i]=ar[j];
                ar[j]=t;
                i++;
                j--;
            }
            return ar;
```

14.WAJP to define a method to insert the element in the specified index.

```java
public class Array {
    static int[] insert(int array[],int ele, int ins)
    {
        if(ins<0 || ins>array.length)
        {
            System.out.println("index is not found");
            return array;
        }
        int ne[]=new int[array.length+1];
        ne[ins]=ele;
        for(int i=0;i<array.length;i++)
        {
            if(i<ins)
            {
```

```java
                    ne[i]=array[i];
                }else {
                    ne[i+1]=array[i];
                }
            }
            return ne;
        }
    public static void main(String[] args) {
        int a[]= {2,3,5,6,8};
        a=insert(a,10,2);
                for(int i=0;i<a.length;i++)
                {
                    System.out.print(a[i]+" ");
                }
    }
}
```

Op:

2 3 10 5 6 8

15. define a method to delete a element in array

Enter the size of array
5
Enter the value for array
2
5
8
36
6
2 5 36 6

```java
import java.util.Scanner;

public class array2 {
    static int[] readArray()
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the size of array");
        int size=s.nextInt();
        int a1[]=new int[size];
        System.out.println("Enter the value for array");
        for(int i=0;i<a1.length;i++)
```

```java
                {
                    a1[i]=s.nextInt();
                }
                return a1;

        }
        static int[] delete(int ar[],int in)
        {
            if(in<0 || in>=ar.length)
            {
                System.out.println("index not in array");
                return ar;
            }
            int rs[]=new int[ar.length-1];
            for(int i=0;i<rs.length;i++)
            {
                if(i<in)
                    rs[i]=ar[i];
                else
                    rs[i]=ar[i+1];
            }
            return rs;
        }
        public static void main(String[] args) {
            int a[]=readArray();
            a=delete(a, 2);
            for(int i=0;i<a.length;i++)
            {
                System.out.print(a[i]+" ");
            }

        }

}
```

16.define a method to insert one array element inside another array from the specified index.

```java
import java.util.Scanner;
```

```java
public class array2 {
    static int[] readArray()
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the size of array");
        int size=s.nextInt();
        int a1[]=new int[size];
        System.out.println("Enter the value for array");
        for(int i=0;i<a1.length;i++)
        {
            a1[i]=s.nextInt();
        }
        return a1;

    }
     static int[] insert(int[] a, int[] b, int i) {
        if(i<0 || i>a.length)
        {
            System.out.println("index is not in array");
            return a;
        }
        int rs[]=new int[a.length+b.length];
        for(int k=0;k<b.length;k++)
        {
            rs[i+k]=b[k];
        }
        for(int l=0;l<a.length;l++)
        {
            if(l<i)
                rs[l]=a[l];
            else
                rs[l+b.length]=a[l];
        }

        return rs;
    }

    public static void main(String[] args) {
        int a[]=readArray();
        int b[]=readArray();
        a=insert(a,b, 2);
        for(int i=0;i<a.length;i++)
```

```java
        {
            System.out.print(a[i]+" ");
        }

    }

}

17. define a method to return nth biggest element.

import java.util.Scanner;

public class array2 {
    static void readArray()
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the size of array");
        int size=s.nextInt();
        int a1[]=new int[size];
        System.out.println("Enter the value for array");
        for(int i=0;i<a1.length;i++)
        {
            a1[i]=s.nextInt();
        }
    System.out.println("Enter value for N ");
    int n=s.nextInt();

        int b=nthBiggest(a1,n);

            System.out.print("the biggest"+n+" number
is"+b+" ");

    }
    static int nthBiggest(int[] ar, int n)
    {
        for(int i=0;i<ar.length;i++)
        {
            int count=0;
            for(int j=0;j<ar.length;j++)
            {
                if(ar[j]>ar[i])
                    count++;
```

```java
                }
                if(count==n-1)
                {
                        return ar[i];
                }
            }
            System.out.println("biggest is not there..");
            return 0;
        }
    public static void main(String[] args) {
        readArray();

    }

}
```

Op:

Enter the size of array
5
Enter the value for array
2
5
8
6
7
Enter value for N
3
the biggest3 number is6

18. define a method to return nth smallest element in a array.


```java
import java.util.Scanner;

public class array2 {
    static void readArray()
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the size of array");
```

```java
        int size=s.nextInt();
        int a1[]=new int[size];
        System.out.println("Enter the value for array");
        for(int i=0;i<a1.length;i++)
        {
            a1[i]=s.nextInt();
        }
    System.out.println("Enter value for N ");
    int n=s.nextInt();

        int b=nthBiggest(a1,n);

            System.out.print("the smallesrt"+n+" number
is:"+b);

    }
     static int nthBiggest(int[] ar, int n)
     {
         for(int i=0;i<ar.length;i++)
         {
             int count=0;
             for(int j=0;j<ar.length;j++)
             {
                 if(ar[j]<ar[i])
                     count++;
             }
             if(count==n-1)
             {
                 return ar[i];
             }
         }
         System.out.println("smallest is not there..");
         return 0;
     }
    public static void main(String[] args) {
        readArray();

    }

}


Op: Enter the size of array
```

```
5
Enter the value for array
56
48
23
98
45
Enter value for N
3
the smallesrt3 number is:48
```

19.WAJP to print the frequency of each array element

```java
import java.util.Scanner;

public class array2 {
    static int[] readArray()
    {
        Scanner s = new Scanner (System.in);
        System.out.println("Enter the size of array");
        int size=s.nextInt();
        int a1[]=new int[size];
        System.out.print("Enter the value for array");
        for(int i=0;i<a1.length;i++)
        {
            a1[i]=s.nextInt();
        }
     return a1;
    }
    static void frequency(int[] ar) {
     boolean rs[]=new boolean[ar.length];
     for(int i=0;i<ar.length;i++)
     {
        if(rs[i]==false)
        {
            int count=1;
            for(int j=i+1;j<ar.length;j++)
            {
                if(ar[i]==ar[j])
                {
                    count++;
                    rs[j]=true;
                }
```

```java
                    }
                    System.out.println(ar[i]+"----->"+count);
                }
            }

        }

        public static void main(String[] args) {
            int ar[]=readArray();
            frequency(ar);

        }

}
```

Enter the size of array
10
Enter the value for array11
55
85
85
55
11
85
85
69
96
11----->2
55----->2
85----->4
69----->1
96----->1

20. enter the size :

5

1

2

1

2

3

1 2 1 2 3

1 2

2 2

3 1

enter the size :

5

1

2

1

2

3

1 2 1 2 3

1 2

2 2

3 1

```java
import java.util.Scanner;

public class ArrarBig {
    static int[]readArray()
    {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter the size : ");
        int sr= sc.nextInt();
        int[] array=new int[sr];
//        int n=sc.nextInt();
        for (int i=0;i<array.length;i++)
        {
            array[i]=sc.nextInt();
        }
        return array;
    }
    static void display(int[] a)
    {
        for (int i=0;i<a.length;i++)
        {
            System.out.print(a[i]+" ");
        }
        System.out.println();
    }
    static  void printFrequnchy(int[] a)
    {
```

```java
        int big=a[0];
        for (int i=0;i<a.length;i++)
        {
            if (a[i]>big)
                big=a[i];
        }
        int count[]=new  int[big+1];
        for (int i=0;i<a.length;i++)
        {
            count[a[i]]++;
        }
        for (int i=0;i<a.length;i++)
        {
            if (count[i]!=0)
                System.out.println(i+" "+count[i]);
        }

    }
    public static void main(String[] args) {
        int[]a=readArray();
        display(a);
        printFrequnchy(a);

    }
}
```

String

String s=new String("rajesh");

String s2="rajesh";

System.out.print(s1.length());//6

Char ch[]={'a',}

```java
public class Sttring {
    public static void main(String[] args) {
        String  s1=new String("rajesh");
        String s2="ramesh;";
        System.out.println(s1.length());//6
        char ch[]={'a','b','c','d','e'};
        System.out.println(ch.length);
        System.out.println(s1.chaAt(0));
        System.out.println(s1.chaAt(2));
     // System.out.println(s1.chaAt(7));cte
        System.out.println(ch[0]);
        System.out.println(ch[2]);
     // System.out.println(ch[7]; cte

    }
}
```

```
class Main{
public static void main(String [] arg)
{
String s1="Ramesha"
System.out.println(s1.indexOf('a'));//1
System.out.println(s1.indexOf('m'));//2
System.out.println(s1.indexOf('d'));//-1
System.out.println(s1.indexOf('A'));//-1
System.out.println(s1.lastIndexOf('a'));//6
System.out.println(s1.indexOf('m',3));//-1
System.out.println(s1.indexOf('a',3));//6
}
}
```

String all method all ?

1. toCharArray(); ->String into to char array.

```
public class String2 {
    public static void main(String[] args) {
        String str="java";
        char ch[]=str.toCharArray();//{'j','a','v','a'}string into char
        for (int i=0;i<ch.length;i++)
        {
            System.out.println(i+"->"+ch[i]);
        }
        char mych[]={'j','a','v','a'};
        String st= new String(mych);//char array to String
        System.out.println(st);//java
    }

}
```

```
public class String2 {
    public static void main(String[] args) {
        String2 ms=new String2();
        System.out.println(ms);
        System.out.println(ms.toString());
        String sc=new String("rajesh");
        System.out.println(sc);
    }

}
public class String2 {
    public static void main(String[] args) {
        String2 ms=new String2();
        System.out.println(ms);
```

```
        System.out.println(ms.toString());
        String sc=new String("rajesh");
        System.out.println(sc);
    }

}
```

2. wajpt to count how many upper case later lower case later digit and special present in the string

```
3. import java.util.Scanner;

   public class String2 {
       public static void main(String[] args) {

           Scanner sc= new Scanner(System.in);
           System.out.println("enter the sentence");
           String str= sc.nextLine();//rajeshkumaejena332@gmail.com
           int uc=0,lc=0,nm=0,sp=0;
           for (int i=0;i<str.length();i++)
           {
               char ch=str.charAt(i);
               if (ch>='A'&&ch<='Z')//65-90
                   uc++;
               else if (ch>='a'&&ch<='z')//97-122
               {
                lc++;
               } else if (ch>='0'&&ch<='9')//48-57
               {
                   nm++;
               } else
                   sp++;

           }
           System.out.println(uc+" "+lc+" "+nm+" "+sp);
            //uc= upper case
            //lc=lower cASE
       }

}
```

the out put are->

rajeshkumarjena332@gmil.com

0 22 3 2

3.WAJPT count how many vowels and consonant present in the string

```
import java.util.Scanner;

public class String2 {
    public static void main(String[] args) {

        Scanner sc= new Scanner(System.in);
        System.out.println("enter the sentence");
        String str= sc.nextLine();//rajeshkumaejena332@gmail.com
        int vc=0,cc=0;
        for (int i=0;i<str.length();i++)
```

```
        {
            char ch=str.charAt(i);
            if (ch>='A'&&ch<='Z')//65-90
            {
                if (ch=='A'||ch=='E'||ch=='I'||ch=='O'||ch=='U')
                    vc++;
                else
                    cc++;
            }
            else if (ch>='a'&&ch<='z')//97-122
            {
             if (ch=='a'||ch=='e'||ch=='i'||ch=='o'||ch=='u')
                vc++;
             else
                cc++;
            }
        }
        System.out.println("vowel is"+vc);
        System.out.println("consonant is"+cc);
    }

}
```

The out put is->

enter the sentence :

Rahjesh

vowel is2

consonant is5

3.tocharArray()->

How maney digit present in String

```
import java.util.Scanner;

public class String2 {
    public static void main(String[] args) {

        Scanner sc= new Scanner(System.in);
        System.out.println("enter the   :");
        String str= sc.nextLine();//rajeshkumaejena332@gmail.com

        char ch[]=str.toCharArray();
        int dg=0;
        for (int i=0;i<ch.length;i++)
        {
            if (ch[i]>='0' && ch[i]<='9')
                dg++;
        }
        System.out.println("digit is "+dg);

    }

}
```

The out put is->

enter the   :

rah123

digit is 3

4.WAJPT calculate the sum of digit in String

```java
import java.util.Scanner;
public class String2 {
    public static void main(String[] args) {

        Scanner sc= new Scanner(System.in);
        System.out.println("enter the   :");
        String name= sc.nextLine();
        char ch[]=name.toCharArray();
        int sum=0;
        for (int i=0;i<ch.length;i++)
        {
            if (ch[i]>='0' && ch[i]<='9')
            {
                int d = (int)( ch[i]-48);
                sum = sum + d;
            }
        }
        System.out.println("digit is "+sum);
    }


}
```

enter the   :

rajesh123

digit is 6

5.WAJPT HOW MANY miscellaneous Character (special character)

```java
import java.util.Scanner;
public class String2 {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the NAME IS :");
        String name= sc.nextLine();
        int sp=0;
        for (int i=0;i<name.length();i++)
        {
            char c=name.charAt(i);
            if ((c >= '0' && c<= '9') || c>= 'A' && c <= 'Z' || c>= 'a' &&
c <= 'z')
            {}
            else
                sp++;
        }
        System.out.println("the special character is :"+sp);
    }
}
```

enter the NAME IS :

jintu@##$

the special character is :4

6. WAJPT convert all the character in the string to lower case we thought inbuild method

```java
import java.util.Scanner;

public class String2 {
    public static void main(String[] args) {

        Scanner sc= new Scanner(System.in);
        System.out.println("enter the  :");
        String name= sc.nextLine();
        String c=name.toLowerCase();//or=> name=name.toLowerCase();
        System.out.println(c);

    }
}
```

```java
import java.util.Scanner;
public class String2 {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the NAME IS :");
        String name= sc.nextLine();
        char ch[]=name.toCharArray();
        for (int i=0;i<ch.length;i++)
        {
            if (ch[i]>='A'&&ch[i]<='Z')
                ch[i]=(char)(ch[i]+32);
        }
        String r=new String(ch);
        System.out.println(r);
    }
}
```

enter the :

RAJ

raj

7.WAJPT print how many wards present in sentence

```java
import java.util.Scanner;

public class String2 {
    public static void main(String[] args) {
```

```
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the   :");
        String name= sc.nextLine();
        char ch[]=name.toCharArray();
        int wd=0;
        for (int i=0;i<ch.length;i++)
        {
          char c=name.charAt(i);
          if (c!=0)
             wd++;
        }
        System.out.println("digit is "+wd);

    }

}
```

enter the   :

raj

digit is 3

8. WAJPT convert every ward first character capital remaning is small

```
import java.util.Scanner;
public class String2 {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the NAME IS :");
        String name= sc.nextLine();
        char ch[]=name.toCharArray();
        if (ch[0]>='a'&&ch[0]<='z')
            ch[0]=(char) (ch[0]-32);
        for (int i=0;i<ch.length;i++)
        {
            if (ch[i]==' ')
                ch[i+1]=(char)(ch[i+1]-32);
        }
        String r=new String(ch);
        System.out.println(r);
    }
}
```

```
import java.util.Scanner;
public class String2 {
    static  String initCaps(String str)
    {
        char ch[]=str.toCharArray();
        for (int i=0;i<ch.length;i++)
        {
            if (i==0&&ch[i]!=' '||ch[i]!=' '&&ch[i-1]==' ')
            {
                if(ch[i]>='a'&&ch[i]<='z' )
                    ch[i]=(char)(ch[i]-32);
            }
            else if (ch[i] >= 'A' && ch[i] <= 'Z')
                {
```

```
                }
                ch[i] = (char) (ch[i] + 32);

            }
        return  new String(ch);
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the NAME IS :");
        String str= sc.nextLine();
        str=initCaps(str);
        System.out.println(str);
    }
}
```

enter the NAME IS :

RAJESH kumar

Rajesh Kumar

9. WAJPT to cavort every last character into capital remaining are into small.

```
import java.util.Scanner;
public class String2 {
    static  String initCaps(String str)
    {
        char ch[]=str.toCharArray();
        for (int i=0;i<ch.length;i++)
        {
            if (i==ch.length-1&&ch[i]!=' '||ch[i]!=' '&&ch[i+1]==' ')
            {
                if(ch[i]>='a'&&ch[i]<='z')
                    ch[i]=(char)(ch[i]-32);
            }
            else if (ch[i]>='A'&&ch[i]<='Z')
            {
                ch[i] = (char) (ch[i] + 32);
            }
        }
        return  new String(ch);
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the name :");
        String str= sc.nextLine();
        str=initCaps(str);
        System.out.println(str);
    }
}
```

jhdb bcj

jhdB bcJ

10.To count how many ward in sentence .

```java
import java.util.Scanner;
public class String2 {
    static  String isinCapital(String str)
    {
        char ch[]=str.toCharArray();
        for (int i=0;i<ch.length;i++)
        {
            if (i==ch.length-1&&ch[i]!=' '||ch[i]!=' '&&ch[i+1]==' ')
            {
                if(ch[i]>='a'&&ch[i]<='z')
                    ch[i]=(char)(ch[i]-32);
            }
            else if (ch[i]>='A'&&ch[i]<='Z')
            {
                ch[i] = (char) (ch[i] + 32);
            }
        }
        return  new String(ch);

    }
    static int countWard(String str)
    {
        char ch[]=str.toCharArray();
        int count=0;
        for (int i=0;i<ch.length;i++)
        {
            if (i==0&&ch[i]!=' '||ch[i]!=' '&&ch[i-1]==' ')
                count++;
        }
        return count ;
    }
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("enter: ");
        String str=sc.nextLine();
        str=isinCapital(str);
        System.out.println(str);
        int wc=countWard(str);
        System.out.println( "number of word is"+wc);
    }

}
```

The out put is=>

jhdb bcj

jhdB bcJ

number of word is 2

11.WAJPT define a method to swipe every ward first character to last character.

```java
import java.util.Scanner;

public class String3 {
```

```java
    static String swipe(String str)
    {
        char ch[]=str.toCharArray();
        int f=0;
        for (int i=0;i<ch.length;i++)
        {
            if ( i==0 &&ch[i]!=' '||ch[i]!=' '&& ch[i-1]==' ')
            {
                f=i;
            }
            else if (i==ch.length-1&&ch[i]!=' '||ch[i]!=' '&&ch[i+1]==' ')
            {
                char t=ch[i];
                ch[i]=ch[f];
                ch[f]=t;
            }
        }
        return  new String(ch);
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the value : ");
        String str=sc.nextLine();
        str=swipe(str);
        System.out.println(str);
    }
}
```

12. Reverse ward from the sentence.

```java
import java.util.Scanner;

public class String3 {
    static String swipe(String str)
    {
        char ch[]=str.toCharArray();
        str="";
        for (int i=0;i<ch.length;i++)
        {
            int f=i;
            while (i<ch.length&&ch[i]!=' ')
            {
                i++;
            }
            int l=i-1;
            while (l>=f)
            {
                str=str+ch[l];
                l--;
            }
            if(i<ch.length)
                str=str+ch[i];
        }
        return  str;
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the value : ");
        String str=sc.nextLine();
        str=swipe(str);
```

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

enter the value :

abcde fgh

edcba hgf

13.WAJPT reverse the sentence.

```
import java.util.Scanner;
public class String3 {
    static String swipe(String str)
    {
        char ch[]=str.toCharArray(); //abcde fghijk lmnopqr stuvwxyz
        str="";
        for (int i=ch.length-1;i>=0;i--)
        {
            int l=i;
            while (i>=0&&ch[i]!=' ')
            {
                i--;
            }
            int f=i+1;
            while (f<=l)
            {
                str=str+ch[f];
                f++;
            }
            if(i>=0)
                str=str+ch[i];
        }
        return  str;
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the value : ");
        String str=sc.nextLine();
        str=swipe(str);
        System.out.println(str);
    }
}
```

enter the value :

abcde fghijk lmnopqr stuvwxyz

stuvwxyz lmnopqr fghijk abcde

14.WAJPT to print the frequency of each character in given string.

```
import java.util.Scanner;
public class String3 {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the Santance : ");
        String str=sc.nextLine();//we can write 128 cherarctor
```

```
        int count[]=new  int[128];
        for(int i=0;i<str.length();i++)
        {
            char ch=str.charAt(i);
            count[ch]++;
        }
        for (int i=0;i<count.length;i++)
        {
            if (count[i]!=0)
                System.out.println((char )i+"->"+count[i]);
        }

    }
}
```

rahs@123

1->1

2->1

3->1

@->1

a->1

h->1

r->1

s->1

15.WAJPT to print the frequency of each alphabet in respective of the alphabet

```
import java.util.Scanner;
public class String3 {
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the Santance : ");
        String str=sc.nextLine();//AAAAAAaabbbbBBB
        int count[]=new  int[26];
        for(int i=0;i<str.length();i++)
        {
            char ch=str.charAt(i);
            if (ch>'A'&&ch<='Z')
            count[ch-65]++;
            else if (ch>='a'&&ch<='z')
                count[ch-97]++;
        }
        for (int i=0;i<count.length;i++)
        {
            if (count[i]!=0)
                System.out.println((char )(i+65)+"->"+count[i]);
        }

    }
}
```

16.Check user enter string is pangram or not

```java
import java.util.Scanner;
public class String3 {
    static  boolean isPanagram(String str)
    {
        if (str.length()<26)
        return  false;
        int count[]=new int[26];
        for (int i=0;i<str.length();i++) {
            char ch=str.charAt(i);
            if (ch > 'A' && ch <= 'Z')
                count[ch - 65]++;
            else if (ch >= 'a' && ch <= 'z')
                count[ch - 97]++;
        }
        for (int i=0;i<count.length;i++)
        {
            if (count[i]==0)
                return  false;
        }
        return true;
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the Santance : ");
        String str=sc.nextLine();//AAAAAAaabbbbBBB
        //String str1=sc.nextLine();
        boolean rs=isPanagram(str);
        if (rs)
            System.out.println("String is pangram");
        else
            System.out.println("not a pangram");
    }
}
```

(or)

```java
import java.util.Scanner;
public class String3 {
    static  boolean isPanagram(String str)
    {
        if (str.length()<26)
        return  false;
        str=str.toLowerCase();
        for (char ch='a';ch<='z';ch++)
        {
            if (str.indexOf(ch)==-1)
                return  false;
        }
        return true;
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the Santance : ");
```

```
        String str=sc.nextLine();//AAAAAAaabbbbBBB
        //String str1=sc.nextLine();
        boolean rs=isPanagram(str);
        if (rs)
            System.out.println("String is pangram");
        else
            System.out.println("not a pangram");
    }
}
```

enter the Santance :

abcdefghijklmnopqrstuvwxyz

String is pangram

Anagram Words

LISTEN - SILENT

TRIANGLE - INTEGRAL

17. WAJPT check whether two String are anagram or not

18. Check whether two String is Anagram or not.

```
import java.util.Scanner;
public class String3 {
    static  int[] countFrequAlpha(String st) {
        int count[] = new int[26];
        for (int i = 0; i < st.length(); i++) {
            char ch = st.charAt(i);
            if (ch > 'A' && ch <= 'Z')
                count[ch - 65]++;
            else if (ch >= 'a' && ch <= 'z')
                count[ch - 97]++;

        }
        return count;
    }
    static  boolean isPanagram(String str,String str1)
    {
        int c1[]=countFrequAlpha(str);
        int c2[]=countFrequAlpha(str1);
        for (int i=0;i<26;i++)
        {
            if (c1[i]!=c2[i])
                return false;
        }
        return true;
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the Santance : ");
        String str=sc.nextLine();//AAAAAAaabbbbBBB
        String str1=sc.nextLine();
        boolean rs=isPanagram(str,str1);
        if (rs)
            System.out.println("String is pangram");
        else
            System.out.println("not a pangram");
    }
}
```

app

ppa

String is pangram

19. WAJPT checks whether the String is palindrome or not we thought to reverse the string.

```java
import java.util.Scanner;

public class String4 {
    static boolean isPalindrom(String str)
    {
     String temp=str;
        String r="";
        boolean b=false;
        int sr=str.length();
        {
        for (int i=(sr-1);i>=0;i--)
            r=r+str.charAt(i);
            if (str.equals(r))
            {
                b=true;
            }
        }
        return b;
    }
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("entre the text : ");
        String str=sc.nextLine();
        boolean str1=isPalindrom(str);
        if (str1==true) {
            System.out.println( "it is plindram"+str);
        }
        else
            System.out.println("not");
    }
```

The outpputis=>entre the text :

rar

it is palindrome string :rar

STRING

String is also know as comparable method to compare the toString

Serialise is a markup language

String is a final class.

Object class some method is String class

Final – is cant over ride

toString, eqal, HashCode – not final it can cange and it can be genetrat in object

Array→

```
Pon P1= new Pon();

Pon P2= new Pon();

Pon P3= new Pon();

Now we can righrt

Pon p[]={p1,p2,p3}


int a[]={ 23,45,56}

int b[]={ 35,42,58}

int c[]={ 23,44,59}

int[] or[]={a,b,c}
```

set of single dimensions array we can initialize at declaration

```
int[] or[]={{22,52,45},{45,48,45},{85,52,69}};
```

2d Array→

```
Int[] ar[]={{1,2,3},{4,5},{6,7,8}};

s.o.pln(ar.length);//3

s.o.pln(ar[0].length);//3

s.o.pln(ar[1].length);//2

s.o.pln(ar[0][0]);//1

s.o.pln(ar[0][2]);3

s.o.p(ar[3][2]);//8
```

the output it can be declare in

```
int a[][];

int[][] a;

int [][]a;

int []a[];
```

1) WAJPT print the value matrix values and print Metrix

```java
import java.util.Scanner;

public class String5 {
    public static void main(String[] args) {
        Scanner sc=new Scanner(System.in);
        System.out.println("entre the size  name");
        int row=sc.nextInt();//3
        int col=sc.nextInt();//4
        int mat[][]=new  int[row][col];
        System.out.println("entre "+row*col+" element in row wise");
        for ( int i=0;i<mat.length;i++)
        {
            for (int j=0;j<mat[i].length;j++)
            {
                mat[i][j]=sc.nextInt();
            }
        }
        System.out.println("user metrix is the : ");
        for ( int i=0;i<mat.length;i++) //no off row
        {
            for (int j=0;j<mat[i].length;j++)// no of column
            {
                System.out.print(mat[i][j]+" ");
            }
            System.out.println();
        }

    }
}
```

The output is=>

entre the size name

3

4

entre 12 element in row wise

1 2 3 4 5 6 7 8 9 10 11

12

user Metrix is the :

1 2 3 4

5 6 7 8

   9 10 11 12

2) Define method (read, display, biggest, smallest, count even and odd, transpose, add two matrix) the line by line presents

```java
package mypack;
import java.util.Scanner;
public class Main {
    int[][] readMat() {
        Scanner sc = new Scanner(System.in);
        System.out.println("entre the size  name");
        int row = sc.nextInt();//3
        int col = sc.nextInt();//4
        int mat[][] = new int[row][col];
        System.out.println("entre " + row * col + " element in row wise");
        for (int i = 0; i < mat.length; i++) {
            for (int j = 0; j < mat[i].length; j++) {
                mat[i][j] = sc.nextInt();
            }
        }
        return mat;
    }

    void disMat(int[][] mat) {

        System.out.println("user metrix is the : ");
        for (int i = 0; i < mat.length; i++) //no off row
        {
            for (int j = 0; j < mat[i].length; j++)// no of column
            {
                System.out.print(mat[i][j] + "   ");
            }
            System.out.println();
        }

    }
    public  int bigBiggest(int [][]mat)
    {
        int big=mat[0][0];
        for (int i = 0; i < mat.length; i++) //no off row
        {
            for (int j = 0; j < mat[i].length; j++)// no of column
            {
                if (mat[i][j]>big)
                    big=mat[i][j];
            }

        }
        return  big;

    }
    public  int smolSolest(int [][]mat)
    {
        int sm=mat[0][0];
        for (int i = 0; i < mat.length; i++) //no off row
        {
            for (int j = 0; j < mat[i].length; j++)// no of column
            {
                if (mat[i][j]<sm)
                    sm=mat[i][j];
```

```java
                }

        }
        return  sm;

    }
    int[]  countEo(int [][]mat)
    {
        int ec=0,oc=0;
        for (int i = 0;  i < mat.length;  i++) //no off row
        {
            for (int j = 0;  j < mat[i].length;  j++)// no of column
            {
                if (mat[i][j]%2==0)
                    ec++;
                else
                    oc++;
            }

        }
        return  new int[]{ec,oc};

    }
    public  int[][]transpose(int[][] mat)
    {
        int tra[][]=new  int[mat[0].length][mat.length];
        for (int i=0;i<mat.length;i++)
        {
            for (int j=0;j<mat[i].length;j++)
            {
                tra[j][i]=mat[i][j];
            }
        }
        return tra;
    }
    public  int[][] addMat(int[][] x,int[][] y)
    {
        if ( x.length!=y.length||x[0].length!=y[0].length)
        {
            System.out.println("order the most be same");
            return  null;
        }
        int z[][]=new  int[x.length][x[0].length];
                for (int i=0;i<z.length;i++)
                {
                    for ( int j=0;j<z[i].length;j++)
                    {
                        z[i][j]=x[i][j]+y[i][j];
                    }
                }
                return z;

    }
}
```

```java
package mypack;

public class Drive {
    public static void main(String[] args) {
        Main mt=new Main();
        int x[][]=mt.readMat();// it used for read the matrix
        // 1st matrix input
        System.out.println("user enter matrix of 1st : ");
        mt.disMat(x);//it used to display the matrix
        // 2nd matrix input
        System.out.println("user enter matrix  of 2nd: ");
        int y[][]=mt.readMat();
        mt.disMat(y);
        //Transpose the 1st matrix
        int r[][]=mt.transpose(x);
        System.out.println("After transpose the matrix : ");
        mt.disMat(r);
        //the output of Big value of 1st matrix
         int big =mt.bigBiggest(x);//big integer value
        System.out.println("biggest is: "+big);
        // The output of Small of 1st integer value
        System.out.println("smallest is : "+mt.smolSolest(x));//small value
out put
         //The give the even number  snd odd number
         int[] ct=mt.countEo(x);// count the all 1st integer value
        System.out.println("The even number of :"+ct[0]);// it Will be
print in Even Number
        System.out.println("The even number of :"+ct[1]);//It will be print
in Odd number
        //The place used to add the two matrix
        System.out.println("User enter first matrix : ");
        mt.disMat(x);
        System.out.println("User enter of 2nd matrix: ");
        mt.disMat(y);
        int z[][]= mt.addMat(x,y);// Add the two matrix
        if(z==null)//if the two input matrix is row and column is same then
it will be add
            System.out.println("Addition faild");
        else
            System.out.println("Addition matrix is : ");
        mt.disMat(z);//Give the output of addition value
    }
}
```

The out put of all the method is=>

entre the size   name

3

3

entre 9 element in row wise

1 2 3 4 5 6 7 8 9 10

user enter matrix of 1st :

user metrix is the :

1 2 3

4 5 6

7 8 9

user enter matrix of 2nd:

entre the size name

3

3

entre 9 element in row wise

9 8 7 6 5 4 3 2 1

user metrix is the :

9 8 7

6 5 4

3 2 1

After transpose the matrix :

user metrix is the :

1 4 7

2 5 8

3 6 9

biggest is: 9

smallest is : 1

The even number of :4

The even number of :5

User enter first matrix :

user metrix is the :

1 2 3

4 5 6

7 8 9

User enter of 2nd matrix:

user metrix is the :

9 8 7

6 5 4

3 2 1

Addition matrix is :

user metrix is the :

10 10 10

10 10 10

10 10 10

3) Define a method to return row wise biggest element

```java
package mypack;

import java.util.Scanner;

public class matrix {
    int[][] readMat() {
        Scanner sc = new Scanner(System.in);
        System.out.println("entre the size  name");
        int row = sc.nextInt();//3
        int col = sc.nextInt();//4
        int mat[][] = new int[row][col];
        System.out.println("entre " + row * col + " element in row wise");
        for (int i = 0; i < mat.length; i++) {
            for (int j = 0; j < mat[i].length; j++) {
                mat[i][j] = sc.nextInt();
            }
        }
        return mat;
    }
    void disMat(int[][] mat) {

        System.out.println("user metrix is the : ");
        for (int i = 0; i < mat.length; i++) //no off row
        {
            for (int j = 0; j < mat[i].length; j++)// no of column
            {
                System.out.print(mat[i][j] + "   ");
            }
            System.out.println();
        }

    }
    public void   bigRow(int[][] mat)
    {
        int big=0;
```

```
        for (int i=0;i<mat.length;i++)
        {
            for ( int j=0;j<mat[i].length;j++)
            {
                for (int k=0;k<mat.length;k++)
                {
                    if (mat[i][j] > big)
                        big = mat[i][j];
                }

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

the drive class is

```
package mypack;

public class Drive2 {
    public static void main(String[] args) {
        matrix m=new matrix();
        int x[][]=m.readMat();
        System.out.println("user enter matrix of 1st : ");
        m.disMat(x);
        System.out.println("The biggest number in row is : ");
        m.bigRow(x);
    }
}
```

entre the size name
3
3
entre 9 element in row wise
1 2 3 4 5 6 7 8 9
user enter matrix of 1st :
user metrix is the :
1 2 3
4 5 6
7 8 9
The biggest number in row is :
3
6
9
4) Define a method to return column wise biggest

```
package mypack;

import java.util.Scanner;

public class matrix {
```

```java
    int[][] readMat() {
        Scanner sc = new Scanner(System.in);
        System.out.println("entre the size  name");
        int row = sc.nextInt();//3
        int col = sc.nextInt();//4
        int mat[][] = new int[row][col];
        System.out.println("entre " + row * col + " element in row wise");
        for (int i = 0; i < mat.length; i++) {
            for (int j = 0; j < mat[i].length; j++) {
                mat[i][j] = sc.nextInt();
            }
        }
        return mat;
    }
    void disMat(int[][] mat) {

        System.out.println("user metrix is the : ");
        for (int i = 0; i < mat.length; i++) //no off row
        {
            for (int j = 0; j < mat[i].length; j++)// no of column
            {
                System.out.print(mat[i][j] + "  ");
            }
            System.out.println();
        }

    }
    public void   bigCal(int[][] mat)
    {

        for (int i=0;i<mat.length;i++)
        {
            int big=mat[0][i];
            for ( int j=0;j<mat[i].length;j++)
            {
                for (int k=0;k<mat.length;k++)//4*4=16-(4-3)=13,3*3=9-(3-
2)=7

                {
                    if (mat[j][i] > big)
                        big = mat[j][i];
                }
            }
            System.out.print(big+" ");
        }
        System.out.println();
    }
}
```

the drive class is

```java
package mypack;

public class Drive2 {
    public static void main(String[] args) {
        matrix m=new matrix();
        int x[][]=m.readMat();
        System.out.println("user enter matrix of 1st : ");
        m.disMat(x);
        System.out.println("The biggest number in column is : ");
        m.bigCal(x);
```

```
        }
}
```

entre the size name
3
3
entre 9 element in row wise
1 2 3 4 5 6 7 8 9
user enter matrix of 1st :
user metrix is the :
1 2 3
4 5 6
7 8 9
The biggest number in column is :
7 8 9

5) Define a method to row-wise reverse

```java
package mypack;

import java.util.Scanner;

public class matrix {
    int[][] readMat() {
        Scanner sc = new Scanner(System.in);
        System.out.println("entre the size  name");
        int row = sc.nextInt();//3
        int col = sc.nextInt();//4
        int mat[][] = new int[row][col];
        System.out.println("entre " + row * col + " element in row wise");
        for (int i = 0; i < mat.length; i++) {
            for (int j = 0; j < mat[i].length; j++) {
                mat[i][j] = sc.nextInt();
            }
        }
        return mat;
    }
    void disMat(int[][] mat) {

        System.out.println("user metrix is the : ");
        for (int i = 0; i < mat.length; i++) //no off row
        {
            for (int j = 0; j < mat[i].length; j++)// no of column
            {
                System.out.print(mat[i][j] + "  ");
            }
            System.out.println();
        }

    }
        void bigCal(int[][] mat)
    {
        for (int i=0;i<mat.length;i++)
        {
            for ( int j =mat.length-1;j>=0;j--)
```

```java
            {
                System.out.print(mat[i][j]+" ");


            }
            System.out.println();
        }
    }

    public static void main(String[] args) {
        matrix m=new matrix();
        int x[][]=m.readMat();
        System.out.println("user enter matrix of 1st : ");
        m.disMat(x);
        System.out.println("The biggest number in column is : ");
        m.bigCal(x);

    }
}
```

```java
    void bigCal(int[][] mat)
{
    for (int i=0;i<mat.length;i++)
    {
        for ( int j =0;j<mat[i].length/2;j++)
        {
            int temp= mat[i][j];
            mat[i][j]=mat[i][mat[i].length-1-j];
            mat[i][mat[i].length-1-j]=temp;


        }
    }
}
```

```
    entre the size  name
    2
    2
    entre 4 element in row wise
    1 2 3 4
    user enter matrix of 1st :
    user metrix is the :
    1  2
    3  4
    The biggest number in column is :
    2 1
    4 3
```
6) Define a method to column return wise reverse

```java
void calWiserev(int[][] mat)
{
    for (int i=0;i<mat.length/2;i++)
    {
        for ( int j =0;j<mat[i].length/2;j++)
        {
            int temp= mat[i][j];
            mat[i][j]=mat[mat.length-1-j][j];
```

```
        mat[mat.length-1-j][j]=temp;

        }
    }
}
```

7) Define a method return diagonal wise biggest

```
void diagonalWise(int[][] mat)
{
    for (int i=0;i<mat.length/2;i++)
    {
        int temp=mat[i][i];
        mat[i][i]=mat[mat.length-1-i][mat.length-1-i];
        mat[mat.length-1-i][mat.length-1-i]=temp;

        temp= mat[i][mat.length-1-i];
        mat[i][mat.length-1-i]=mat[mat.length-1-i][i];
        mat[mat.length-1-i][i]=temp;
    }
}
```

8) Diagonal wise big number of matrix

```
int[] diagonalBig(int[][]mat)
{
    int pbig=mat[0][0],sbig=mat[0][mat.length-1];
    for (int i=0;i<mat.length;i++)
    {
        if (mat[i][i]>pbig)
            pbig=mat[i][i];
        if (mat[i][mat.length-1-i]>sbig)
            sbig=mat[i][mat.length-1-i];
    }
    return  new  int[]{pbig,sbig};
}
```

9) Rotaterd matrix element tha 90 degery left tp 90 degery right

```
void rowWiseReverse(int[][] mat)
{
    for (int i=0;i<mat.length;i++)
    {
        for ( int j =0;j<mat[i].length/2;j++)
        {
            int temp= mat[i][j];
            mat[i][j]=mat[i][mat[i].length-1-j];
            mat[i][mat[i].length-1-j]=temp;

        }
    }
}
void calWiserev(int[][] mat)
```

```
{
    for (int i=0;i<mat.length/2;i++)
    {
        for ( int j =0;j<mat[i].length/2;j++)
        {
            int temp= mat[i][j];
            mat[i][j]=mat[mat.length-1-j][j];
            mat[mat.length-1-j][j]=temp;


        }
    }
}
public  int[][]transpose(int[][] mat)
{
    int tra[][]=new  int[mat[0].length][mat.length];
    for (int i=0;i<mat.length;i++)
    {
        for (int j=0;j<mat[i].length;j++)
        {
            tra[j][i]=mat[i][j];
        }
    }
    return tra;
}
int[][] rotated90Left(int mat[][])
{
   mat=transpose(mat);
   calWiserev(mat);
   return  mat;

}
int[][] rotated90Right(int mat[][])
{
    mat=transpose(mat);
    rowWiseReverse(mat);
    return mat;

}
```

10)   Multiply two matrix

```
int[][]multiPly(int a[][],int b[][])
{
    if (a.length!=b[0].length||a[0].length!=b.length)
    {
        System.out.println("not posibule to muliply");
        return  null;
    }
    int c[][]= new  int[a.length][b[0].length];
    for (int i=0;i<a.length;i++)
    {
        for ( int j=0;j<b[0].length;j++)
        {
            for ( int k=0;k<b.length;k++)
            {
                c[i][j]=c[i][j]+a[i][k]*b[k][j];
            }
        }
    }
    return c;
```

```
}
```

11) Spiralmatrix clockwise

```java
void printSprial(int mul[][])
{
    int n=mul.length;
    for (int i=0,j=n-1;i<j;i++,j--)
    {
        for (int k=0;k<j;k++)
        {
            System.out.println(mul[i][k]+" ");
        }
        for (int k=i;k<j;k++)
        {
            System.out.println(mul[k][j]+" ");
        }
        for (int k=j;k>i;k--)
        {
            System.out.println(mul[j][k]+" ");
        }
        for (int k=j;k>i;k--)
        {
            System.out.println(mul[k][i]+" ");
        }
        if (n%2==1)
            System.out.println((mul[n/2][n/2]));
    }
}
```

12) Anti clock wise matrix

```java
void printSprial(int mul[][])
{
    int n=mul.length;
    for (int i=0,j=n-1;i<j;i++,j--)
    {
        for (int k=0;k<j;k++)
        {
            System.out.println(mul[k][i]+" ");
        }
        for (int k=i;k<j;k++)
        {
            System.out.println(mul[j][k]+" ");
        }
        for (int k=j;k>i;k--)
        {
            System.out.println(mul[k][j]+" ");
        }
        for (int k=j;k>i;k--)
        {
            System.out.println(mul[i][k]+" ");
        }
        if (n%2==1)
            System.out.println((mul[n/2][n/2]));
    }
}
```

13)WAJP TO read the number from the user and print the number in term of word

```java
import java.util.Scanner;

public class NumberU {
    static  void  nw(int x,String st)
    {
        String
one[]={"","one","two","three","four","five","six","seven","eight","nine",
"ten","eleven"

,"twelve","thirteen","fourteen","fifteen","sixteen","seventeen","eighteen",
"nineteen"};
        String
two[]={"","","twenty","thirty","forty","fifty","sixty","seventy","eighty","
ninety"};
        if (x<20)
            System.out.println(one[x]);
        else
            System.out.println(two[x/10]+one[x%10]);
        if (x!=0)
            System.out.println(st+" ");
    }
    public static void main(String[] args) {
        Scanner sc= new Scanner(System.in);
        System.out.println("enter the number :");
        int n= sc.nextInt();

        nw(n/10000000,"crore");
        nw(n/100000%100,"lakh");
        nw(n/1000%100,"thousand");
        nw(n/100%10,"hundred");
        nw(n%100,"");
    }
}
```

14) WAJPT print number of day between the days