JAVA PROGRAMS

1)Display odd numbers between 1 -100

```
class OddNumber {
	public static void main(String args[]) {
		System.out.println("The Odd Numbers are:");
	for (int i = 1; i <= 100; i++) {
			if (i % 2 != 0) {
	System.out.print(i + " ");
			}
		}
	}
}
```

2)Sum of odd numbers between 1 -100

```
  class SumOfNum
  {
	public static void main(String args[])
	{		int
sum = 0;
		for (int i = 1; i <= 100; i++)
		{
			if (i % 2 != 0)
			{
				sum = sum + i;
			}
		}
		System.out.println("The Sum Of 100 Odd Numbers are:" + sum);
	}
  }
```

3)Total number of odd numbers between 1 -100

```
class TotalNumOfOddNum
  {
	public static void main(String args[])
	{		int count = 0;
	for(int i = 1;i <= 100;i++)
		{
			if(i % 2 != 0)
			{
	count++;
			}
		}
		System.out.println("The Count Of Odd Numbers are:" + count);
	}
  }
```

4)Find sum of first n numbers

```
class SumOfNum
   {
        public static void main(String args[])
        {               int
sum = 0;                int
n=10;
                for(int i = 1;i <= n;i++)
                {
                        sum = sum + i;
                }
                System.out.println("The Sum Of "+n+" Numbers are:" + sum);
        }
   }
```

5)Find the sum of the digits of a number

```
public class DigitsSum
{

        public static void main(String[] args)
        {
                int num=251025, rem = 0, sum = 0, temp;
                temp = num;

                while (num > 0)
                {
                        rem = num % 10;
                sum = sum + rem;
                        num = num / 10;
                }

                System.out.print("Sum of Digits of " + temp + " is " + sum);
        }

}
```

6)Calculate electricity bill

```
public class ElectricBill
   {
        public static void main(String args[])
        {               int
units = 123;
                int bill = 0;

                if (units > 100)
                {
                        if (units >= 200)
```

```
                {
                        if (units > 300)
                        {
                                bill = units * 8;
                        }
                        else
                                bill = units * 6;
                }
                else
                        bill = units * 5;
        }

        System.out.println("CHENNAI ELECTRICITY LTD, CHENNAI");
        System.out.println("Units Consumed : " + units);
        System.out.println("Total Bill : " + bill);
    }
}
```

7)Java program to find Armstrong number

```
public class ArmstrongNumber
{
    public static void main(String args[])
    {
        int n, arg, sum = 0, r;

        n = 153; // input value
    arg = n;
        for (int i = 1; i < n; i++)
        {
            while (n > 0)
            {
                r = n % 10;
                sum = sum + (r * r * r);
                n = n / 10;

            }

        }
        if (arg == sum)
        {
            System.out.println("Given number is armstrong number: " + arg);
        }
    else
        {
            System.out.println("Given number is not armstrong number: " + arg);
        }
    }
```

```
   }
```
8)Program to print Armstrong number between 1 to 1000
```
public class ArmstrongNumbers
{

        public static void main(String[] args)
        {
                int num,rem,limit=1000, sum = 0;
        System.out.print("Armstrong numbers from 1 to N:");        for
(int i = 1; i <= limit; i++)
                {
                        num = i;
                        while (num > 0)
                        {
                                rem = num % 10;
                                sum = sum + (rem*rem*rem);
                                num = num / 10;
                        }

                        if (sum == i)
                        {
                                System.out.print(i + " ");
                        }
                        sum = 0;
                }

        }

}
```
9)Print given number in words
```
public class NumberToWords
   {

        public void pw(int n, String ch)
        {
   String one[] = { " ", " One", " Two", " Three", " Four", " Five", " Six", " Seven", " Eight", "
Nine", " Ten"," Eleven", " Twelve", " Thirteen", " Fourteen", "Fifteen", " Sixteen", " Seventeen",
" Eighteen"," Nineteen" };

   String ten[] = { " ", " ", " Twenty", " Thirty", " Forty", " Fifty", " Sixty", "Seventy", " Eighty",
" Ninety" };

                if (n > 19)
                {
                        System.out.print(ten[n / 10] + " " + one[n % 10]);
                }
        else
```

```
            {
                System.out.print(one[n]);
            }
            if (n > 0)
                System.out.print(ch);
        }

        public static void main(String[] args)
        {

            int n=28;
            System.out.print(n);
            if (n <= 0)
            {
                System.out.println("Enter numbers greater than 0");
            }
            else
            {
                NumberToWords a = new NumberToWords();
        a.pw((n / 1000000000), " Hundred");
                a.pw((n / 10000000) % 100, " crore");
                a.pw(((n / 100000) % 100), " lakh");
                a.pw(((n / 1000) % 100), " thousand");
                a.pw(((n / 100) % 10), " hundred");
                a.pw((n % 100), " ");
            }
        }
    }
```

10)Program to check the given number is Palindrome or not

```
public class PalindromeNumberCheck
{

        public static void main(String[] args)
        {
            int n=121,pal,r,rev=0;
            pal = n;

            while (n > 0)
            {
                r = n % 10;
                rev = rev * 10 + r;
                n = n / 10;

            }

            if (rev == pal)
            {
```

```
                System.out.println(" The given no is  palindrome "+ rev);
            }
            else
            {
                System.out.println("The given no is not palindrome " + rev);
            }

        }

}
```

11)Program to print palindrome number upto N numbers

```
public class PalindromeUptoN
{

        public static void main(String[] args)
        {
            int n, b, rev = 0;
int limit=50;
System.out.print("Palindrome
numbers from 1 to N:");
for (int i = 1; i <= limit; i++)
                {
                    n = i;
                    while (n > 0)
                    {
                        b = n % 10;
                      rev = rev * 10 + b;
            n = n / 10;
                    }
                    if (rev == i)
                    {
                        System.out.print(i + " ");
                    }
                    rev = 0;
                }

        }

}
```

12)Program to print N prime numbers and find sum and average

```
public class PrimeNumberUptoN
{

        public static void main(String[] args)
        {
            int num =0, i =0;
```

```
                System.out.println("Prime numbers from 1 to 100 are :");
for (i = 1; i <= 100; i++)
            {
int counter=0;
for(num =i; num>=1; num--)
              {
                 if(i%num==0)
                    {
                 counter = counter + 1;
                    }
                 }
                 if (counter ==2)
                  {
                          System.out.print(i+" ");
                  }
             }
           }
        }
```

13)Program to print patterns of numbers and stars

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

```
public class PyramidPattern1
{
        public static void main(String[] args)
        {
                int n=4;
                for(int i=0;i<n;i++)
                {
                        System.out.println("\n");
                        for(int j=0;j<=i;j++)
                        {
                                System.out.print(" * ");
                        }
                }

        }

}
```

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

```
public class PyramidPattern2
{
        public static void main(String args[])
   {      int i, j,
k=8;
      for(i=0; i<5; i++)
      {
         for(j=0; j<k; j++)
         {
            System.out.print(" ");
         }
         k = k - 2;
         for(j=0; j<=i; j++)
         {
            System.out.print("* ");
         }
         System.out.println();
      }
   }
}
```

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

```
public class DifferentPatternPrograms1
 {
        public static void main(String args[])
        {
                int n,i,j,k,l,m,p,q,r,s;              Scanner
sc=new Scanner(System.in);
```

```
System.out.println("Enter the n values");
n=sc.nextInt();
                p=n;
q=n;
                for(i=n;i>=1;i--)
                {
                        for(j=1;j<=i;j++)
                        {
                                System.out.print("*");
                        }
                        for(k=p*2;k<n*2-1;k++)
                        {
                                System.out.print(" ");
                        }
                        for(l=i;l!=0;l--)
                        {
                                if(l==n)
                                {
                                        continue;
                                }
                                System.out.print("*");
                        }
                        p--;
                        System.out.println();
                }
                for(i=1;i<=n;i++)
                {
                        for(j=1;j<=i;j++)
                        {
                                System.out.print("*");
                        }
                        for(k=q*2-2;k>1;k--)
                        {
                                System.out.print(" ");
                        }
                        for(m=i;m!=0;m--)
                        {
                                if(m==n)
                                {
                                        continue;
                                }
                                System.out.print("*");
                        }
                        System.out.println();
                        q--;
                }
        }
```

```
}
```

14)Print Floyds triangle

```
import java.util.Scanner;

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

      Scanner scan = new Scanner(System.in);
      System.out.println("Enter the number of rows\n");

      int rows = scan.nextInt();
      System.out.println("Floyd's Triangle Generated\n");
      int count = 1;
      for ( int i = 1 ; i <= rows ; i++ )
      {
         for ( int j = 1 ; j <= i ; j++ )
         {
             System.out.print(count+" ");

count++;
         }

         System.out.println();                                                    5
2                                                                                 8
4 5 6  7 8 9                                                                     12
11 12 13 14                                                                      12

      }
   }
}
1
16 17 18 19 20 21
```

15)Print numbers in sequence way

```
public class PatternNumberSequence
{
         public static void main(String[] args)
         {
                  int a = 3;
         int b = 4;
int n = 8;

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

```
                int c = a + b;
                System.out.print(a + " " + b + " " + c);
System.out.println(" ");
a = c;
b = b + 1;

            }
        }
 }
```

3 4 7
7 5 12
12 6 18
18 7 25
25 8 33
33 9 42
42 10 52
52 11 63

16)Print numbers in triangle and pyramid vice

1
121
12321
1234321
123454321

```
 import java.util.Scanner;
   public class PatternNuberPyramidPrevRev
   {
       public static void main(String args[])
         {
int s = 1;
int n;
            Scanner sc = new Scanner(System.in);
System.out.println("Enter the N values");
            n = sc.nextInt();
            for (int i = 1; i <= n; i++)
            {
                while (s <= i)
                {
                    System.out.print(s);
                    s++;
                }
                s--;
                while (s > 1)
                {
                    System.out.print(--s);

                }
```

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

```
1
2 3
4 5 6
7 8 9 10
11 12 13 14 15
```

```
public class PatternNumberPyramidUptoN
{

        public static void main(String args[])
        {
            {
                int i, j, n = 1;
        for (i = 0; i < 5; i++)
                {
                    for (j = 0; j <= i; j++)
                    {
                        System.out.print(n + " ");
                        n++;
                    }
                    System.out.println();
                }
        }

        }
}
```

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

```
import java.util.Scanner;

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

            int i, j, n;
```

```
                Scanner sc = new Scanner(System.in);
System.out.println("Enter the Row value  n");
                n = sc.nextInt();
                for (i = 1; i <= n; i++)
                {
                        for (j = 1; j <= i; j++)
        System.out.print(" " + j);
                        System.out.print("\n");

                }
        }
 }
```

17)Print numbers in pyramid vice

```
import java.util.Scanner;
 public class PatternNumberPyramidArrow
{
        public static void main(String args[])
        {
                int i, j, n;
                Scanner sc = new Scanner(System.in);
        System.out.println("Enter the values ");
n = sc.nextInt();
                for (i = 1; i <= n; i++)
                {
                        for (j = 1; j <= i; j++)
        System.out.print(" " + j);
                        System.out.print("\n");
                }
                for (i = n - 1; i >= 1; i--)
                {
                        for (j = 1; j <= i; j++)
        System.out.print(" " + j);
                        System.out.print("\n");
                }
        }
} 1
 1 2
 1 2 3
 1 2 3 4
 1 2 3 4 5
 1 2 3 4
 1 2 3
1 2
1
import java.util.Scanner;
```

```
public class PatternNumberPyramidRev
{
	public static void main(String args[])
	{
		int i, j, k, n, a;

		Scanner sc = new Scanner(System.in);
		System.out.println("Enter the n values");
		n = sc.nextInt();
		a = n;
		for (i = 1; i <= n; i++)
		{
			for (j = a; j > 1; j--)
			{
				System.out.print(" ");
			}
			for (k = i; k != 0; k--)
			{
				System.out.print(k);

			}
			a--;

			for (int l = 2; l <= i; l++)
			{
				System.out.print(l);

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

```
    1
   212
  32123
 4321234
543212345
```

18)Print different patterns using stars

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

```
import java.util.Scanner;
public class Star1
{
```

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

                int i, j, t;
                System.out.println("How many row you want
");              Scanner sc = new Scanner(System.in);
t = sc.nextInt();
                for (j = 0; j < t; j++)
                {
                        for (i = t - 1; i >= j; i--)
                        {
                                System.out.print("*");

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

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

```
public class Star3
{
        public static void main(String[] x)
        {
                int i, j, k, n = 3;
                for (i = 0; i < n; i++)
                {
                        for (j = 0; j <= i; j++)
                        {
                                System.out.print("*");
                        }
                        for (j = (n - i); j >= 2; j--)
                        {
                                System.out.print("  ");
                        }
                        for (k = i; k >= 0; k--)
                        {
                                System.out.print("*");
                        }
                        System.out.println();
                }
        }
}
```

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

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

19)Print pyramid triangle with star and numbers

```
public class Star10
{

	public static void main(String args[])
	{
		int i, j, k;
for (i = 1; i <= 5; i++)
		{
			for (j = i; j < 5; j++)
			{
				System.out.print(" ");
			}
			for (k = 1; k < (i * 2); k++)
			{
				System.out.print("*");
			}
			System.out.println("");
		}
		for (i = 4; i >= 1; i--)
		{
			for (j = 5; j > i; j--)
			{
				System.out.print(" ");
			}
			for (k = 1; k < (i * 2); k++)
			{
				System.out.print("*");
			}
			System.out.println("");
		}
	}
}
```

20)Program to find largest number in an array

```
   class LargestNumber
   {
	public static void main(String args[])
	{
		int[] a = new int[] { 20, 30, 50, 4, 71, 100};
		int max = a[0];
for(int i = 1; i < a.length;i++)
```

```
                {
                        if(a[i] > max)
                        {
                                max = a[i];
                        }
                }

                System.out.println("The Given Array Element is:");
        for(int i = 0; i < a.length;i++)
                {
                        System.out.println(a[i]);
                }

                System.out.println("From The Array Element Largest Number is:" + max);
        }
   }
```

21)Program to find second largest number in an array

```
public class SecondLargest {

        public static void main(String[] args) {

                int arr[] = { 14, 46, 47, 86, 92, 52, 48, 36, 66, 85 };
                int largest = arr[0];
                int secondLargest = arr[0];

                System.out.println("The given array is:" );
for (int i = 0; i < arr.length; i++) {
                        System.out.print(arr[i]+"\t");
                }
                for (int i = 0; i < arr.length; i++) {

                        if (arr[i] > largest) {
        secondLargest = largest;
                                largest = arr[i];

                        } else if (arr[i] > secondLargest) {
        secondLargest = arr[i];

                        }
                }

                System.out.println("\nSecond largest number is:" + secondLargest);

        }
}
```

22)Find largest and smallest number in an array in java

```
public class LargestSmallest
```

```
{
	public static void main(String[] args)
	{
		int a[] = new int[] { 23, 34, 13, 64, 72, 90, 10, 15, 9, 27 };

		int min = a[0]; //  assume first elements as smallest number
	int max = a[0]; //  assume first elements as largest number

		for (int i = 1; i < a.length; i++)  // iterate for loop from arrays 1st index (second
element)
		{
			if (a[i] > max)
			{
				max = a[i];
			}
			if (a[i] < min)
			{
				min = a[i];
			}
		}

		System.out.println("Largest Number in a given array is : " + max);
		System.out.println("Smallest Number in a given array is : " + min);
	}

}
```

23)Program to find largest and second largest in an array

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

		int nums[] = { 5, 34, 78, 2, 45, 1, 99, 23 };
		int maxOne = 0;
int maxTwo = 0;
		for (int i=0;i<nums.length; i++)
		{
			if (maxOne < nums[i])
			{
				maxTwo = maxOne;
				maxOne = nums[i];
			}
			else if (maxTwo < nums[i])
			{
				maxTwo = nums[i];
			}
		}
```

```
                System.out.println("Largest Number: " + maxOne);
                System.out.println("Second Largest Number: " + maxTwo);
        }
}
```

24)Find the index of the largest number in an array

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

                int a[] = new int[] { 12, 44, 23, 56, 23, 78, 13 };

            int max = a[0];
      int index = 0;

                for (int i = 0; i < a.length; i++)
                {
                        if (max < a[i])
                        {
                                max = a[i];
                                index = i;
                        }
                }

            System.out.println("Index position of Maximum value in an array is  :  " + index);
} }
```

25)Find the index of the smallest number in an array

```
public class SmallestNumberIndex
{
        public static void main(String[] args) {
                 int a[] = new int[]{12,44,23,56,9,23,78,13};

            int min = a[0];
            int index=0;

            for(int i = 0; i < a.length; i++)
            {
             if(min > a[i])
                min = a[i];
{
index=i;
                }
             }

      System.out.println("Index position of Smallest value in a given array is  :  "+index);
        }

}
```

26)Program to remove duplicate element in an array

```
public class RemoveDuplicateElements
{       public static int[] removeDuplicates(int[] input)
        {
                int j = 0;
        int i = 1;
                // return if the array length is less than 2
                if (input.length < 2)
                {
                        return input;
                }
                while (i < input.length)
                {
                        if (input[i] == input[j])
                        {
                                i++;
                        }
                        else
                        {
                                input[++j] = input[i++];
                        }
                } int[] output = new int[j +
                1];
                for (int k = 0; k < output.length; k++)
                {
                        output[k] = input[k];
                }
                return output;
        }

        public static void main(String a[])
        {
                int[] input1 = { 2, 3, 6, 6, 8, 9, 10, 10, 10, 12, 12 };
                int[] output = removeDuplicates(input1);

                System.out.print("Input Elements: \n");
                for (int i : input1)
                {
                        System.out.print(i + " ");
                }
                System.out.print("\nOutput Elements: \n");
                for (int i : output)
                {
                        System.out.print(i + " ");
                }
        }
}
```

27)Program to print odd and even numbers from an array

```
public class OddEvenArray
{
	public static void main(String args[])
	{
		int s, i;

		int[] a = { 33, 2, 4, 71, 88, 92, 9, 1 };

		for (i = 0; i < a.length; i++)
		{
			for (int j = i + 1; j < a.length; j++)

			{
				if (a[i] > a[j])
				{
					s = a[i];
				a[i] = a[j];
					a[j] = s;

				}

			}

		}

		System.out.print("Input numbers :");

		for (i = 0; i < a.length; i++)

		{

			System.out.print(" " + a[i]);

		}

		System.out.print("\nOdd numbers :");

		for (i = 0; i <= a.length - 1; i++)
		{

			if (a[i] % 2 != 0)
			{

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

```
            }

            System.out.print("\nEven numbers :");

            for (i = 0; i < a.length; i++)

            {
                  if (a[i] % 2 == 0)
                  {

                        System.out.print(" " + a[i]);

                  }

            }

      }

}
```

28)Program to add two matrix

```
class MatrixAddition
{ public static void main(String args[])
      { int[][] a = new int[][] { { 1, 2, 3},{ 4, 5, 6},{ 7, 8, 9} };
            int[][] b = new int[][] { { 10, 11, 12},{ 13, 14, 15},{ 16, 17, 18} }; int[][]
            c = new int[3][3];

            if(a.length == b.length && a[0].length == b[0].length)
            {
                  for(int i = 0;i < a.length;i++)
                  {
                        for(int j = 0;j < a[i].length;j++)
                        {
                              c[i][j] = a[i][j] + b[i][j];
                        }
                  }
      }
            else
            {
                  System.out.println("'A' and 'B' Matrix are not SAME");
                  return;
            }

            System.out.println("The Matrix 'A' Value:");
      for(int i = 0;i < a.length;i++)
            {
                  for(int j = 0;j < a[i].length;j++)
                  {
```

```
                        System.out.print(a[i][j] + " ");
                    }
                    System.out.println();
                }

                System.out.println("The Matrix 'B' Value:");
        for(int i = 0;i < a.length;i++)
                {
                    for(int j = 0;j < a[i].length;j++)
                    {
                        System.out.print(b[i][j]+ " ");
                   }
                    System.out.println();
                }

      System.out.println("The Addition Matrix of 'A' and 'B' Value:");
                for(int i = 0;i < a.length;i++)
                {
                    for(int j = 0;j < a[i].length;j++)
                    {
                        System.out.print(c[i][j] + " ");
                    }
                    System.out.println();
                }
        }
}
```

29)Program to check given matrix is null matrix

```
class NullMatrix
{
        public static void main(String args[])
        {
                int[][] a = new int[][] { { 0, 0, 0},{ 0, 0, 1},{ 0, 0, 0} };
boolean setValue = true;

                abc: for(int i = 0;i < a.length;i++)
                {
                    for(int j = 0;j < a[i].length;j++)
                    {
                        if(a[i][j] != 0)
                        {
                            setValue = false;
                    break abc;
                        }
                    }
                }
```

```
                System.out.println("The Given Matrix Value:");
for(int i = 0;i < a.length;i++)
                {
                        for(int j = 0;j < a[i].length;j++)
                        {
                                System.out.print(a[i][j] + " ");
                        }
                        System.out.println();
                }

                if(setValue == true)
                {
                        System.out.println("The Given Matrix is a Null Matrix");
                }
                else
                {
                        System.out.println("The Given Matrix is not a Null Matrix");
                }
        }
}
```

30)Program to check given matrix is diagonal matrix

```
   class DiagonalMatrix
   {
        public static void main(String args[])
        {
        int[][] a = new int[][] { { 1, 0, 1},{ 0, 3, 0},{ 0, 0, 3} };       boolean
setValue = true;
                abc: for(int i = 0;i < a.length;i++)
                {
                        for(int j = 0;j < a[i].length;j++)
                        {
                                if(i == j)
                                {
                                        if(a[i][j] == 0)
                                        {
                                                setValue = false;
                                                break abc;
                                        }
                                }
                                else if(a[i][j] != 0)
                                {
                                        setValue = false;
                                        break abc;
                                }
                        }
                }
```

```
                System.out.println("The Given Matrix Value:");
for(int i = 0;i < a.length;i++)
                {
                        for(int j = 0;j < a[i].length;j++)
                        {
                                System.out.print(a[i][j] + " ");
                        }
                        System.out.println();
                }

                if(setValue == true)
                {
                        System.out.println("The Given Matrix is a Diagonal Matrix");
                }
        else
                {
                        System.out.println("The Given Matrix is not a Diagonal Matrix");
                }
        }
  }
```

31)Program for Linear search

```
import java.util.Scanner;

class LinearSearch
{
        public static void main(String args[])
        {
                int i, num, searchval, array[];

        Scanner in = new Scanner(System.in);          System.out.println("Enter
number of elements");
                num = in.nextInt();

                array = new int[num];
                System.out.println("Enter " + num + " integers");

                for (i = 0; i < num; i++)
                        array[i] = in.nextInt();

                System.out.println("Enter the search value:");
                searchval = in.nextInt();

                in.close();
                for (i = 0; i < num; i++)
                {
                        if (array[i] == searchval)
                        {
```

```
                    System.out.println(searchval + " is present at location " + (i + 1));
                    break;
                }
            }
            if (i == num)
                System.out.println(searchval + " is not exist in array.");
        }
}
```

32)Program for Binary Search

```
import java.util.Scanner;
public class BinarySearch
{
    public static void main(String args[])
    {
        int counter, num, item, array[], first, last, middle;
Scanner input = new Scanner(System.in);
System.out.println("Enter number of elements:");
        num = input.nextInt();

        array = new int[num];

        System.out.println("Enter " + num + " integers");
for (counter = 0; counter < num; counter++)
            array[counter] = input.nextInt();

        System.out.println("Enter the search value:");
        item = input.nextInt();
    first = 0;
        last = num - 1;
        middle = (first + last) / 2;

        while (first <= last)
        {
            if (array[middle] < item)
                first = middle + 1;
            else if (array[middle] == item)
            {
            System.out.println(item + " found at location " + (middle + 1) + ".");
                break;
            }
            else
            {
                last = middle - 1;
            }
            middle = (first + last) / 2;
```

```
                }
if (first > last)
                        System.out.println(item + " is not found.\n");
        }
}
```

33)Program to calculate HCF and LCM

```
public class FindHCFAndLCM
{
        public static void main(String args[])
        {
                int a, b, x, y, t, hcf, lcm;
                x = 6;
y = 10;
a = x;          b = y;
                while (b != 0)
                {
                        t = b;
        b = a % b;
a = t;
                }

                hcf = a;
                lcm = (x * y) / hcf;

                System.out.print("HCF and LCM of : " + x + " and " + y + " is :\n");
                System.out.print("HCF = " + hcf);
                System.out.print("\nLCM = " + lcm);
        }
}
```

34)Program to find volume of cube

```
public class Cube {

        public static void main(String arg[]) {
                int side=5;
                float volume=side * side * side;
                System.out.println("Volume of Cube :"+ volume);
        }
}
```

35)program to print the reverse of a given number

```
public class ReverseNum
{

        public static void main(String[] args) {

                int rev = 0; int
                num = 1234; int
                no=num; while
                (num > 0)
```

```
		{
			int rem = num % 10;
			rev = rem + (rev * 10);
			num = num / 10;

		}

		System.out.println("Number = "+no);
		System.out.println("Reverse = "+rev);
	}
}
```

36)Program to convert integer to roman letters import java.util.HashMap; import java.util.Scanner;

```
public class IntegertoRoman
{	private static int[] bases = { 1000, 900, 500, 400, 100, 90, 50, 40, 10, 9, 5, 4, 1 };
private static HashMap<Integer, String> map = new HashMap<Integer, String>();

	private static void setup()
	{
		map.put(1, "I");
map.put(4, "IV");		map.put(5,
"V");		map.put(9, "IX");
map.put(10, "X");		map.put(40,
"XL");		map.put(50, "L");
	map.put(90, "XC");
map.put(100, "C");
map.put(400, "CD");
map.put(500, "D");
map.put(900, "CM");
		map.put(1000, "M");
	}

	public String intToRoman(int num)
	{
		setup();
		String result = new String();
		for (int i : bases)
		{
			while (num >= i)
			{
				result += map.get(i);
				num -= i;
			}
		}
```

```
        return result;
    }

    public static void main(String arg[])
    {
        System.out.println("Enter the number :
");      Scanner sc = new Scanner(System.in);
    int no = sc.nextInt();
        IntegertoRoman in = new IntegertoRoman();
    int value=no;
        String sd = in.intToRoman(value);
        System.out.println(value+" ---> " + sd);
    }
}
```

37)Program to count number of words in given string

```
public class WordCount
{
    public static void main(String args[])
    {
        String s = "welcome to candid java tutorial";

        int count = 1;

        for (int i = 0; i < s.length() - 1; i++)
        {
            if ((s.charAt(i) == ' ') && (s.charAt(i + 1) != ' '))
            {
                count++;

            }
        }
        System.out.println("Number of words in a string = " + count);
    }
}
```

38)Program to count number of duplicate words in given string

```
public class CountWords
{

    public static void main(String[] args)
    {
        String input="Welcome to Java Session Session Session";
        String[] words=input.split(" ");
        int wrc=1;

        for(int i=0;i<words.length;i++)
        {
```

```
                    for(int j=i+1;j<words.length;j++)
                    {

                    if(words[i].equals(words[j]))
                            {
                                    wrc=wrc+1;
                                    words[j]="0";
                            }
                    }
                    if(words[i]!="0")
                    System.out.println(words[i]+"--"+wrc);
                    wrc=1;

            }

        }

}
```

39)Program to remove duplicate words in given string

```
public class RemoveDuplicate
{

        public static void main(String[] args)
        {
                String input="Welcome to Java Session Java Session Session Java";
                String[] words=input.split(" ");
                for(int i=0;i<words.length;i++)
                {
                        if(words[i]!=null)
                        {

                        for(int j=i+1;j<words.length;j++)
                        {

                        if(words[i].equals(words[j]))
                                {
                                        words[j]=null;
                                }
                        }
                        }
                }
                for(int k=0;k<words.length;k++)
                {
                        if(words[k]!=null)
                        {
                                System.out.println(words[k]);
                        }
```

```
            }
        }
}
```

40)Program to count each words and total number of words in given string

```
import java.io.IOException;

   public class FindTtalCountWords
   {

        public static void main(String args[]) throws IOException
        {
                countWords("apple banna apple fruit fruit apple hello hi hi hello hi");

        }

        static void countWords(String st)
        {
                String[] words = st.split("\\s");
        int[] fr = new int[words.length];
                for (int i = 0; i < fr.length; i++)
                        fr[i] = 0;
                for (int i = 0; i < words.length; i++)
                {
                        for (int j = 0; j < words.length; j++)
                        {
                                if (words[i].equals(words[j]))
                                {

                                        fr[i]++;

                                }
                        }
                }

                for (int i = 0; i < words.length; i++)
                {
                        for (int j = 0; j < words.length; j++)
                        {
                                if (words[i].equals(words[j]))
                                {
                                        if (i != j)
                                        {
                                                words[i] = "";
                                        }
                                }
                        }
```

```
                }

                int total = 0;
                System.out.println("Words and words count:");
        for (int i = 0; i < words.length; i++)
                {
                        if (words[i] != "")
                        {
                                System.out.println(words[i] + "=" + fr[i]);

                                total += fr[i];

                        }
                }
                System.out.println("Total words counted: " + total);
        }
    }
```

41)Program to reverse the string and check whether it is palindrome or not

```
public class PalindromeChecking
{
        public static void main(String[] args)
        {
                String inpstr ="AMMA";
                char[] inpArray = inpstr.toCharArray();
                char[] revArray = new char[inpArray.length];
        int j=0;
                for (int i = inpArray.length - 1; i >= 0; i--)                                  {
                        revArray[j]=inpArray[i];
                        j++;
                }
                String revstr=String.valueOf(revArray);
                if(inpstr.equals(revstr))
                {
                        System.out.println("The given string is a Palindrome");
                }
                else
                {
                        System.out.println("The given string is not a Palindrome");
                }

        }
}
```

42)Program to delete vowels in a given string

```
public class RemoveAllVovels {

        public static void main(String[] args) {
                String string = "Welcome to Candid Java Programming";
```

```
                System.out.println("Input String : "+string);
        string = string.replaceAll("[AaEeIiOoUu]", "");
                System.out.println(string);
        }
   }
```

43)Program to capitalize first letter of each word in string

```
public class StringCapital
   {
        public static void main(String[] args)
        {
                String str = "welcome to candid java program";
                StringBuilder result = new StringBuilder(str.length());
                String words[] = str.split("\\ ");
                for (int i = 0; i < words.length; i++)
                {

result.append(Character.toUpperCase(words[i].charAt(0))).append(words[i].substring(1)).append
(" ");

                }

                System.out.println(result);



        }

   }
```

44)Program to split a comma-separated string

```
public class CommaSeparated
{
        public static void main(String[] args)
        {
                String input="Welcome,to,Java Session Session Session";
                String[] words=input.split(",");
                for(int k=0;k<words.length;k++)

                {

                                System.out.println(words[k]);

            }
        }

}
```

45)Program to convert ASCI value to String

```
public class AsciiToCharacter
```

```
{

	public static void main(String[] args)
	{
char c;

		for(int i=65;i<=90;i++)
		{
  c =(char)i;	System.out.println(i+"  =  "+c);
		}
	}

}
```

46)Program to replace vowels with star

```
public class VowelswithStar
{
	public static void main(String[] args)
	{
		String string = "Welcome to Candid Java Programming"; //Input String
System.out.println("Input String : "+string); //Displaying Input String		string =
string.replaceAll("[AaEeIiOoUu]", "*"); //Replace vowels with star
		System.out.println(string);	//Display the word after replacement

	}

}
```

47)Program to print character position count in a given string

```
public class LetterPositionCount
  {

	public static void main(String args[])
	{

		String s = "CANDIDJAVA";
	char[] a = s.toCharArray();
		int i = 1;
		{
			for (char output : a)
			{

				System.out.print(output + " " + i + " ");
				i++;

			}
		}

	}
```

```
    }
```

48)Program to print reversed string by word in given line

```
public class ReverseWord
{

        public static void main(String[] args)
        {
                String input="Welcome to Java Session";
                String[] words=input.split(" ");
                String[] revwords=new String[words.length];
                int j=0;
                for(int i=words.length-1;i>=0;i--)
                {
                        revwords[j]=words[i];
                        System.out.print(revwords[j]+" ");
                        j++;
                }
        }
}
```

49)Program to returning a string as reverse text

```
   public class StringReverse {

   public static void main(String args[])
   {
        String string = "Welcome to Java Programming and Dotnet Programming";
        String[] wordsCount = string.split(" ");

        System.out.println("The Given String is:\n" + string + "\n");
        System.out.println("After Reverse String is:");

        for(int i = wordsCount.length;i > 0;i--)
        {
                System.out.print(wordsCount[i - 1] + " ");
                }
        }
   }
```

50) to find difference of minimum and maximum numbers of array in java import

```
java.util.Scanner;
class MinMaxInArray
{
        int getMax(int[]inputArray)
        {
                int maxValue=inputArray[0];

                for(int i=1;i<inputArray.length;i++)
```

```
		{
			if(inputArray[i]>maxValue)
			{
				maxValue=inputArray[i];
			}
		}
		return maxValue;
	}

	int getMin(int[]inputArray)
	{
		int minValue=inputArray[0];

		for(int i=1;i<inputArray.length;i++)
		{
			if(inputArray[i]<minValue)
			{
				minValue=inputArray[i];
			}
		}
		return minValue;
	}
}

public class ExArrayDifference
{
	public static void main(String[] args)
	{
		int n;
		Scanner sc = new Scanner(System.in);
		System.out.print("Enter number of elements you wants to enter :" );
		n=sc.nextInt();
	int arr[]=new int[n];
		for(int i=0;i<arr.length;i++)
		{
			System.out.print("Enter ["+(i+1)+"] element :" );
arr[i]=sc.nextInt();
		}

		MinMaxInArray mm=new MinMaxInArray();
		System.out.println("Maximum value is :" +mm.getMax(arr));
	System.out.println("Minimum value is :" +mm.getMin(arr));
int Difference=mm.getMax(arr)-mm.getMin(arr);
		System.out.print("Difference between Minnimum and Maximum in array is : "
+Difference );
	}
}
```

51)Program to count the occurrences of each character

```
class NoOfOccurenceOfCharacters
 {
   static final int MAX_CHAR = 256;
    static void getOccuringChar(String str)
   {
      int count[] = new int[MAX_CHAR];
       int len = str.length();          for (int
i = 0; i < len; i++)
count[str.charAt(i)]++;          char ch[]
= new char[str.length()];         for (int i
= 0; i < len; i++) {             ch[i] =
str.charAt(i);             int find = 0;
for (int j = 0; j <= i; j++) {                 if
(str.charAt(i) == ch[j])
find++;
          }

          if (find == 1)
              System.out.println("Number of Occurrence of " +
               str.charAt(i) + " is:" + count[str.charAt(i)]);
      }
   }
   public static void main(String[] args)
   {
      Scanner sc = new Scanner(System.in);
String str = "geeksforgeeks";
      getOccuringChar(str);
   }
}
```