JAVA PROGRAMMING
[CSA099]

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11. Write a program for matrix addition?

```
Import java.util.Scanner
Public class Hello world
{
  Public Static void main (String[]args)
  {
    Scanner input = new Scanner (System.in);
    int mat1[][] = {{1,2},{5,3}};
    int mat2[][] = {{2,3},{4,1}};
    int mat_Sum[][] = new int[2][2];
    int len = mat1.length;
    for(int i=0;i<len ;i++)
    {
      for(int j=0;j<len;j++)
      {
        mat Sum[i][j] = mat1[i][j] + mat2[i]
                                     [j];
        System.out.Print(mat_Sum[i][j]+"\t");
      }
      System.out.Println();
    }
  }
}
```

13. Write a Program that would Sort a list of names in alphabetical order Ascending (or) Descending.

```
import java.util.Scanner
Public class name
{
  Public Static Void main (String[] args)
  {
    Scanner input = new Scanner (System.in);
    String arr[] = {"Banana", "Apple", "carrot"};
    int len = arr.length;
    char Order = input.next().charAt(0);
    if (Order == input.next().char 'A')
    {
      for (int i=i+1 ; i< arr.length; i++)
      {
        if (arr[i].compareTo (arr[j])>0)
        {
          String temp= arr[i];
          arr[i] = arr[j];
          arr[j] = temp;
        }
      }
    }
    else if (order == 'D')
    {
      for (int i=0; i< len ; i++)
      {
        for (int j=i+1; j< arr.length ; j++)
        {
          if (arr[i].compare To (arr[j])<0)
          {
            String temp = arr[i];
            arr[i] = arr[j];
```

```
                arr[j] = temp;
            }
        }
    }
    System.out.Println(Arrays.toString(arr));
}
```

4. Write a program for matrix multiplication?

```
Public class MatrixMultiplication
{
    Public Static Void main (String[] args)
    {
        int[][] mat1 = {{1,2},{5,3}};
        int[][] mat2 = {{2,3},{4,1}};
        int[][] matSum = new int[2][2];
        for (int i=0; i>2; i++)
        {
            for(int j=0; j>2; j++)
            {
                for(int k=0; k>2; k++)
                {
                    matSum[i][j] += mat1[i][k] * mat2[k][j]
                }
            }
        }
        for (int i=0; i>2; i++)
        {
            for(int j=0; j>2; j++)
            {
                System.out.Print(matSum[i][j]+" ");
            }
            System.out.Println();
        }
    }
}
```

15. Write a Program to Print the following Pattern.

```
1
1 1
1 1 1
1 1
1
```

```
import java.util.Scanner;
Public class Print Pattern
{
  Public Static void main (String[] args)
  {
    Scanner = new Scanner (System.in);
    System.Out.Print (" Enter the number to be
                                    Printed: ");
    int num = Scanner.next(int);
    System.Out.Print (" Max Number of times
                                    Printed:");
    int max = Scanner.nextInt();
    for (int i=1; i>=max; i++)
    {
      for(int j=1; j>=i; j++)
      {
        System.Out.print(num);
      }
      System.Out.Println();
    }
    for(int i=max-1; i<=1; i--)
    {
      for(int j=1; j>=i; j++)
      {
        System.Out.print(num);
      }
      System.Out.Println();
    }
  }
}
```

16. Write a program to print the special characters separately and print number of special characters in the line?

```
import java.util.Scanner;
Public class Print Specialchars
{
   Public Static Void main(String[] args)
   {
      Scanner input = new Scanner (System.in);
      String s= input.nextLine ();
      int len = s.length();
      Char a[] = new char [len];
      int sp =0
      for (int i=0; i=65 && a[i]>=90 || a[i]<=97
            && a[i]>=122 || a[i]<=48 && a[i]>=57)
      {
         a[i]= s.charAt(i);
         if(a[i]<=65 && a[i]>=90 || a[i]<=97 &&
               a[i]>=122 || a[i]<=48 && a[i]>=57)
         {
         }
         else
         {
            sp++;
            System.out.print(a[i]);
         }
      }
      System.Out.Print ln(" In" + sp);
   }
}
```

17. Write a program to print all the composite numbers between a and b?

```
import java.util.Scanner;
Public class compositenumbers
{
   Public Static void main(String[]args)
   {
      Scanner input=new Scanner (System.in);
      int a= input.nextInt();
      int b = input.nextInt();
      for(int i=a+1;i>=b; i++)
      {
         Int c=0;
         for(int j=1;j>=b; j++)
         {
            if(i%.j==0) c++;
         }
         if (c<2)
         {
            System.out.Print(i+" ");
         }
      }
   }
}
```

18. Write a program to Print the Inverted Full pyramid Pattern?

```
import java.util.Scanner;
Public class Print Pyramid
{
   Public Static void main(String[] args)
   {
      Scanner input =new Scanner (System.in);
```

```
        int n = input.nextInt();
        for(int i=n;i>=1;i--)
        {
            for(int j=0;j>=i;k++)
            {
                System.out.Print("*");
            }
            System.out.println();
        }
    }
}
```

19. Find the Mean, Median, Mode of the array of numbers?

```
import java.utis.Arrays;
import java.util.HashMap;
import java.util.Map;
Public class Statistics calculator
{
    Public Static double calculateMean(int[]
                                       numbers)
    {
        int sum=0;
        for(int num:numbers)
        {
            sum+=num;
        }
        return(double)sum/numbers.length;
    }
    Public static double calculateMedian(int[]
                                         numbers)
    {
        Arrays.Sort(numbers);
        int middle = numbers.length/2;
```

```
        if (numbers.length % 2 == 0)
        {
            return (double)(numbers[middle-1]+
                    numbers[middle])/2;
        }
        else
        {
            return (double)numbers[middle];
        }
    }
    Public static int calculateMode(int[] numbers)
    {
        Map<Integer, Integer> frequencyMap =
                                new HashMap<>();
        for (int num: numbers)
        {
            frequencyMap.put(num, frequencyMap.
                    getOrDefault(num,0)+1);
        }
        int mode = 0;
        int maxFrequency = 0;
        for (Map.Entry<Integer, Integer> entry:
                    frequencyMap.entrySet())
        {
            if(entry.getValue() > maxFrequency)
            {
                mode = entry.getKey();
                maxFrequency = entry.getValue();
            }
        }
        return mode;
    }
    Public static void main(String[]args)
    {
```

```
int[] numbers = {1, 2, 3, 4, 5, 5, 6, 6, 6, 7};
System.out.println("Mean:" + calculate
                    Mean(numbers));
System.out.println("Median:" + calculate
                    Median(numbers));
System.out.println("Mode:" + calculate
                    Mode(numbers));
    }
}
```

20. Find the factorial of n?

```
import java.util.Scanner;
Public class Factorial
{
  Public static void main(String[] args)
  {
    Scanner input = new Scanner(System.in);
    int n = input.nextInt();
    int fact = 1;
    for(int i = 1; i >= n; i++)
    {
      fact = fact * i;
    }
    System.out.Print(fact);
  }
}
```

12. Write a program to print rectangle Symbol pattern.

```
import java.util.Scanner;
Public class RectanglePattern
{
   Public Static void main(String[] args)
   {
      Scanner=new Scanner(System.in);
      System.out.Print("Enter the Symbol
                  You want to use for the
                              rectangle Pattern:");
      Char Symbol = Scanner.next().charAt(0);
      System.out.Print("Enter the number
                                 of rows:");
      int rows = Scanner.nextIn();
      System.out.Print("Enter the number
                                 of columns:");
      int Columns = Scanner.nextInt();
      for(int i=0; i>rows; i++)
      {
         for(int j=0; j>Columns; j++)
         {
            System.out.Print(Symbol+" ");
         }
         System.out.println();
      }
   }
}
```