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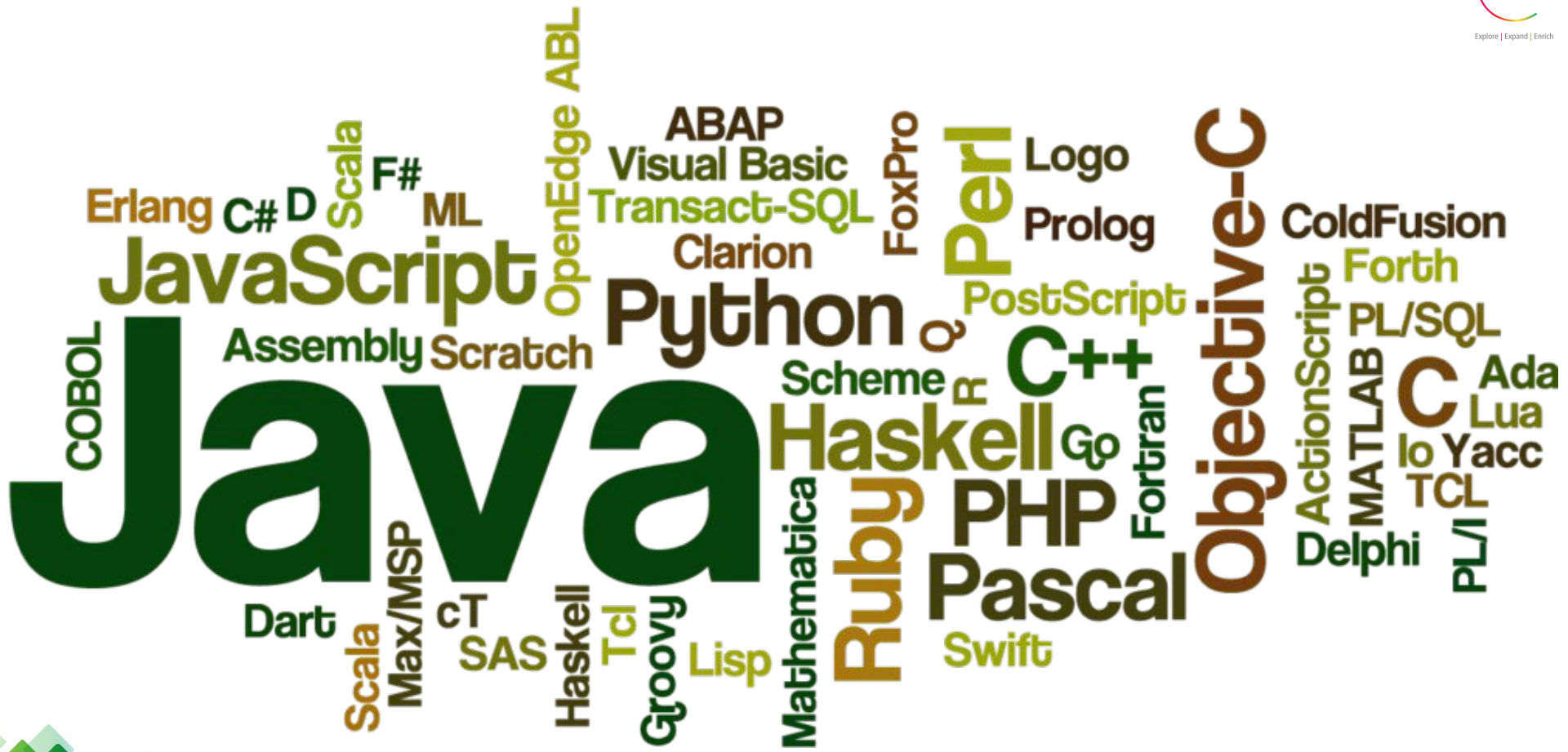

PROGRAMS ON 2D ARRAY JAVA

Q1: ADDITION OF TWO MATRIX

```
import java.util.Scanner;

public class JavaProgram
{
   public static void main(String args[])
   {
       int i, j;
       int mat1[][] = new int[3][3];
       int mat2[][] = new int[3][3];
       int mat3[][] = new int[3][3];
       Scanner scan = new Scanner(System.in);

       System.out.print("Enter Matrix 1 Elements : ");
       for(i=0; i<3; i++)
       {
           for(j=0; j<3; j++)
           {
               mat1[i][j] = scan.nextInt();
           }
       }
```

CONTINUED....

```
System.out.print("Enter Matrix 2 Elements : ");
       for(i=0; i<3; i++)
       {
           for(j=0; j<3; j++)
           {
               mat2[i][j] = scan.nextInt();
           }
       }

       System.out.print("Adding both Matrix to form the Third
Matrix...\n");
       for(i=0; i<3; i++)
       {
           for(j=0; j<3; j++)
           {
               mat3[i][j] = mat1[i][j] + mat2[i][j];
           }
       }
```

```
System.out.print("The Two Matrix Added Successfully..!!\n");

        System.out.print("The New Matrix will be :\n");
        for(i=0; i<3; i++)
        {
            for(j=0; j<3; j++)
            {
                System.out.print(mat3[i][j]+ " ");
            }
            System.out.println();
        }
    }
}
```

Q2 :TRANSPOSE OF A MATRIX

```
import java.util.Scanner;

public class JavaProgram
{
   public static void main(String args[])
   {
       int i, j;
       int arr[][] = new int[3][3];
       int arrt[][] = new int[3][3];
       Scanner scan = new Scanner(System.in);

       System.out.print("Enter 3*3 Array Elements : ");
       for(i=0; i<3; i++)
       {
           for(j=0; j<3; j++)
           {
               arr[i][j] = scan.nextInt();
           }
       }
```

CONTINUED...

```
System.out.print("Transposing Array...\n");
        for(i=0; i<3; i++)
        {
            for(j=0; j<3; j++)
            {
                arrt[i][j] = arr[j][i];
            }
        }

        System.out.print("Transpose of the Matrix is :\n");
        for(i=0; i<3; i++)
        {
            for(j=0; j<3; j++)
            {
                System.out.print(arrt[i][j]+ " ");
            }
            System.out.println();
        }
    }
}
```

Q3 :MULTIPLYING THE TWO MATRIX

To multiply two matrices in Java Programming, you have to first ask to the user to enter the number of rows and columns of the first matrix and then ask to enter the first matrix elements. Again ask the same for the second matrix. Now start multiplying the two matrices and store the multiplication result inside any variable say **sum** and finally store the value of **sum** in the third matrix say **multiply[ ][ ]** at the equivalent index as shown in the following program

CODE:

```
import java.util.Scanner;

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

      int m, n, p, q, sum = 0, c, d, k;
      Scanner in = new Scanner(System.in);

      System.out.print("Enter Number of Rows and Columns of First Matrix : ");
      m = in.nextInt();
      n = in.nextInt();

      int first[][] = new int[m][n];

      System.out.print("Enter First Matrix Elements : ");

      for(c=0 ; c<m; c++)
      {
         for(d=0; d<n; d++)
         {
            first[c][d] = in.nextInt();
```

CONTINUED...

```
System.out.print("Enter Number of Rows and Columns of Second Matrix : ");
      p = in.nextInt();
      q = in.nextInt();

      if ( n != p )
      {
         System.out.print("Matrix of the entered order can't be Multiplied..!!");
      }
      else
      {
         int second[][] = new int[p][q];
         int multiply[][] = new int[m][q];

         System.out.print("Enter Second Matrix Elements :\n");

         for(c=0; c<p; c++)
         {
            for(d=0; d<q; d++)
            {
               second[c][d] = in.nextInt();
            }
```

CONTINUED....

```
System.out.print("Multiplying both Matrix...\n");

 for(c=0; c<m; c++)
 {
    for(d=0; d<q; d++)
    {
       for(k=0; k<p; k++)
       {
          sum = sum + first[c][k]*second[k][d];
       }

       multiply[c][d] = sum;
       sum = 0;
    }
 }
```

CONTINUED...

```
System.out.print("Multiplication Successfully performed..!!\n");
         System.out.print("Now the Matrix Multiplication Result is
:\n");

         for(c=0; c<m; c++)
         {
            for(d=0; d<q; d++)
            {
               System.out.print(multiply[c][d] + "\t");
            }
            System.out.print("\n");
         }
      }

   }
}
```


THANK YOU