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**DEPT:ECE-'A'**

# JAVA PROGRAMMING

TASK→2

**PROGRAM:2**

**SOURCE CODE:**

```
//TO FIND THE CORRELATION MATRIX
import java.lang.*;
import java.io.*;
import java.io.BufferedReader;
import java.io.FileReader;
import java.io.IOException;
import java.util.*;
public class Matrix
{
public static void main(String arg[]) throws IOException,FileNotFoundException{
   int i,j,temp,k;
      BufferedReader br=new BufferedReader(new FileReader("input.txt"));
      int covariantMatrix[][];
      covariantMatrix=new int[3][3];
      for(i=0;i<3;i++){
         for(j=0;j<3;j++){
            covariantMatrix[i][j]=Integer.parseInt(br.readLine());
         }
```

```
    }
int standardDeviation[][]={{0,0,0},{0,0,0},{0,0,0}};
int temporary[][]={{0,0,0},{0,0,0},{0,0,0}};
int corelationMatrix[][]={{0,0,0},{0,0,0},{0,0,0}};
        for(i=0;i<3;i++){
                for(j=0;j<3;j++){
                        if(i==j){
                                temp=(int)(Math.sqrt(covariantMatrix[i][j]));
                                standardDeviation[i][j]=Math.round((float)1/temp);
                           }
                }
         }
System.out.println("******STANDARD DEVIATION*******");
System.out.println("MATRIX……");
        for(i=0;i<3;i++){
                for(j=0;j<3;j++){
                                        System.out.print(" "+standardDeviation[i][j]);
                }
                System.out.print("\n");
        }

   for(i=0;i<3;i++){
          for(j=0;j<3;j++){
                temporary[i][j]=0;
                for(k=0;k<3;k++){
```

```
                    temporary[i][j]=temporary[i][j]+covariantMatrix[i][k]*standardDeviation[k][j];
                    }
      }
    }

     for(i=0;i<3;i++){
            for(j=0;j<3;j++){
                    corelationMatrix[i][j]=0;
                    for(k=0;k<3;k++){
                    corelationMatrix[i][j]=corelationMatrix[i][j]+temporary[i][k]*standardDeviation[k][j];
                      }
       }
    }
System.out.println("******CORRELATION MATRIX*******");
System.out.println("MATRIX……");
   for(i=0;i<3;i++){
                    for(j=0;j<3;j++){
                            System.out.print(" "+corelationMatrix[i][j]);
                    }
                            System.out.print("\n");
          }
 }
}
```

//FILE TO FETCH THE INPUT

**Input.txt**

4

-3

-2

-3

16

3

2

3

25

**OUPUT:**

```
sh-4.3$ javac Matrix.java
sh-4.3$ java Matrix
******STANDARD DEVIATION*******
MATRIX......
 1 0 0
 0 0 0
 0 0 0
******CORRELATION MATRIX*******
MATRIX......
 4 0 0
 -3 0 0
 2 0 0
sh-4.3$
```