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RollNo#: **19SW42**

Subject: **DSA**

**Matrix Multiplication**

**Task#1:** Demonstrate matrix multiplication in java.

**Code:**

import java.util.Arrays;

public class Task8\_MatrixMult {

private static int[][] matrixMultiplication(int[][] arr1, int[][] arr2) {

if (arr1[0].length == arr2.length) {

int[][] Mul = new int[arr1.length][arr2[0].length];

for (int i = 0; i < Mul.length; i++)

for (int j = 0; j < Mul[i].length; j++) {

int sum = 0;

for (int k = 0; k < Mul[i].length; k++) {

sum += arr1[i][k] \* arr2[k][j];

}

Mul[i][j] = sum;

}

return Mul;

}

throw new IllegalArgumentException("Multiplication not possible");

}

public static void main(String[] args) {

int[][] array1 = { { 0, 3 }, { 1, 1 } };

int[][] array2 = { { 2, 1 }, { 3, 2 } };

int[][] Multipli = *matrixMultiplication*(array1, array2);

System.***out***.println("Array#1: ");

for (int i = 0; i < Multipli.length; i++)

System.***out***.println(Arrays.*toString*(array1[i]));

System.***out***.println("Array#2: ");

for (int i = 0; i < Multipli.length; i++)

System.***out***.println(Arrays.*toString*(array2[i]));

System.***out***.println("Multiplication: ");

for (int i = 0; i < Multipli.length; i++)

System.***out***.println(Arrays.*toString*(Multipli[i]));

}

}

**Output:**

