

Experiment Number: 3

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Branch: AIT - CSE - AIML

Section/Group: 21AML - 9 - "A"

Semester: 3rd

Subject Name: Programming in Java

Subject Code: 21CSH-244

1. **Aim/Overview of the practical:** Write a program in JAVA using 2-D arrays to multiply two matrices of order 2X3 and 3X2.

2. **Code:**

```
import java.io.*;

class MatMult {

    static void printMatrix(int M[], int rowSize, int colSize) {

        for (int i = 0; i < rowSize; i++) {

            for (int j = 0; j < colSize; j++)

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

            System.out.println();

        }

    }

    static void multiplyMatrix( int row1, int col1, int A[],

        int row2, int col2, int B[]) {

        int i, j, k;

        System.out.println("\nMatrix A:");

        printMatrix(A, row1, col1);

        System.out.println("\nMatrix B:");
```

```
printMatrix(B, row2, col2);

if (row2 != col1) {

    System.out.println( "\nMultiplication Not Possible");

    return;

}

int C[][] = new int[row1][col2];

for (i = 0; i < row1; i++) {

    for (j = 0; j < col2; j++) {

        for (k = 0; k < row2; k++)

            C[i][j] += A[i][k] * B[k][j];

    }

}

System.out.println("\nResultant Matrix:");

printMatrix(C, row1, col2);

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

    int row1 = 2, col1 = 3, row2 = 3, col2 = 2;

    int A[][] = { { 1, 1, 1 },

        { 2, 2, 2 } };

    int B[][] = { { 1, 1 },

        { 2, 2 },

        { 3, 3 } };

    multiplyMatrix(row1, col1, A, row2, col2, B);

}

}
```

3. Output:

```
Garv Khurana@LAPTOP-ANP8Q125 MINGW64 ~
$ /usr/bin/env C:\\Program Files\\Java\\jdk-18.0.2\\bin
jdt.ls-java-project\\bin MatMult

Matrix A:
1 1 1
2 2 2

Matrix B:
1 1
2 2
3 3

Resultant Matrix:
6 6
12 12
```

Learning outcomes (What I have learned):

1. Use of Loops in JAVA.
2. Use of 2-D arrays in JAVA.
3. Use of Functions in JAVA.

Evaluation Grid (To be created as per the SOP and Assessment guidelines by the faculty) :

Sr. No.	Parameters	Marks Obtained	Maximum Marks
1.	Viva		10
2.	Performance		12
3.	Worksheet		8