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JAVA PROGRAMMING
LAB ASSIGNMENT 04
Group: A, G3

- Java Program to Multiply to Matrix Using Multi-dimensional Arrays.

Code:

```
public class MatrixMultiplication {

public static void main(String[] args) {

        int[][] matrix1 = { { 1, 2, 3 }, { 4, 5, 6 } };

        int[][] matrix2 = { { 1, 1 }, { 1, 1 }, { 1, 1 } };

        int rows1 = matrix1.length;
        int columns1 = matrix1[0].length;
        int rows2 = matrix2.length;
        int columns2 = matrix2[1].length;

        int[][] result = new int[rows1][columns2];

        for (int i = 0; i < rows1; i++) {
                for (int j = 0; j < columns2; j++) {
                        for (int k = 0; k < columns1; k++) {
                                result[i][j] += matrix1[i][k] * matrix2[k][j];
                        }
                }
        }

        for (int i = 0; i < result.length; i++) {
                for (int j = 0; j < result[1].length; j++) {
                        System.out.print(result[i][j] + " ");
                }
```

```
                System.out.println();
            }

        }

}
```

Output:

```
Multiplication of two matrices is:
24    29
6    25
```

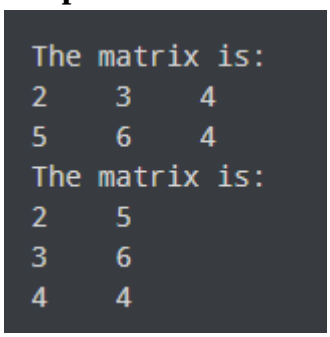
- **Java Program to Find Transpose of a Matrix**

Code:

```
public class Transpose {

    public static void main(String[] args) {
        int row = 2, column = 3;
        int[][] matrix = { {2, 3, 4}, {5, 6, 4} };

        display(matrix);

        int[][] transpose = new int[column][row];
        for(int i = 0; i < row; i++) {
            for (int j = 0; j < column; j++) {
                transpose[j][i] = matrix[i][j];
            }
        }

        display(transpose);
    }

    public static void display(int[][] matrix) {
        System.out.println("The matrix is: ");
```

```
        for(int[] row : matrix) {
            for (int column : row) {
                System.out.print(column + "    ");
            }
            System.out.println();
        }
    }
}
```

Output:



- **Java Program to Check if An Array Contains a Given Value**

Code:

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

    int[] num = {1, 2, 3, 4, 5};
    int toFind = 3;
    boolean found = false;

    for (int n : num) {
      if (n == toFind) {
        found = true;
        break;
      }
    }

    if(found)
      System.out.println(toFind + " is found.");
```

```
    else
      System.out.println(toFind + " is not found.");
  }
}
```

Output:

```
3 is found.
```

- **Java Program to Concatenate Two Arrays**

Code:

```
import java.util.Arrays;

public class Concat {

    public static void main(String[] args) {
        int[] array1 = {1, 2, 3};
        int[] array2 = {4, 5, 6};

        int aLen = array1.length;
        int bLen = array2.length;
        int[] result = new int[aLen + bLen];

        System.arraycopy(array1, 0, result, 0, aLen);
        System.arraycopy(array2, 0, result, aLen, bLen);

        System.out.println(Arrays.toString(result));
    }
}
```

Output:

```
[1, 2, 3, 4, 5, 6]
```