

```
/*NAME:HARSH TRIPATHI
```

```
ROLL NO:59*/
```

```
import java.util.Scanner;
```

```
public class Matrix {
```

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

```
        System.out.println("Enter the number of rows in matrix");
```

```
        Scanner sc = new Scanner(System.in);
```

```
        int row = sc.nextInt();
```

```
        System.out.println("Enter the columns in the matrix");
```

```
        int column = sc.nextInt();
```

```
        int[][] first = new int[row][column];
```

```
        int[][] second = new int[row][column];
```

```
        for (int r = 0; r < row; r++) {
```

```
            for (int c = 0; c < column; c++) {
```

```
                System.out.println(String.format("Enter first [%d][%d] integer", r, c));
```

```
                first[r][c] = sc.nextInt();
```

```
            }
```

```
        }
```

```
        for (int r = 0; r < row; r++) {
```

```
            for (int c = 0; c < column; c++) {
```

```
                System.out.println(String.format("Enter second [%d][%d] integer", r,  
c));
```

```
                second[r][c] = sc.nextInt();
```

```
            }
```

```
        }
```

```
System.out.println("First Matrix:\n");  
print2dArray(first);
```

```
System.out.println("Second Matrix:\n");  
print2dArray(second);
```

```
System.out.println("Main Menu");  
System.out.println("1.Additionof matrix");  
System.out.println("2.Substraction of matrix");  
System.out.println("3.Multiplication of matrix");  
System.out.println("4.Exit");  
System.out.println("Enter your option");  
int option = sc.nextInt();  
sc.close();
```

```
switch (option) {  
    case 1:  
        sum(first, second);  
        break;  
  
    case 2:  
        subtraction(first, second);  
        break;  
  
    case 3:  
        multiplication(first, second);  
        break;  
  
}
```

```
}
```

```
private static void sum(int[][] first, int[][] second) {  
    int row = first.length;  
    int column = first[0].length;  
  
    int[][] sum = new int[row][column];  
  
    for (int r = 0; r < row; r++) {  
        for (int c = 0; c < column; c++) {  
            sum[r][c] = first[r][c] + second[r][c];  
        }  
    }  
  
    System.out.println("Sum of matrix");  
    print2dArray(sum);  
}
```

```
static void subtraction(int[][] first, int[][] second) {  
    int row = first.length;  
    int column = first[0].length;  
  
    int[][] sum = new int[row][column];  
  
    for (int r = 0; r < row; r++) {  
        for (int c = 0; c < column; c++) {  
            sum[r][c] = first[r][c] - second[r][c];  
        }  
    }  
  
    System.out.println("Subtraction of matrix");
```

```

        print2dArray(sum);
    }

    static void multiplication(int[][] first, int[][] second) {
        int row = first.length;
        int column = first[0].length;
        int[][] sum = new int[row][column];

        for (int r = 0; r < row; r++) {
            for (int c = 0; c < column; c++) {
                sum[r][c] = first[r][c] * second[r][c];
            }
        }

        System.out.println("\nMultiplication of Matrices:\n");
        print2dArray(sum);
    }

    static void print2dArray(int[][] matrix) {
        for (int r = 0; r < matrix.length; r++) {
            for (int c = 0; c < matrix[0].length; c++) {
                System.out.print(matrix[r][c] + "\t");
            }
            System.out.println();
        }
    }
}

```

OUTPUT:

```

PS C:\Users\myname\Downloads\java-new-main\java-new-main\JavaFiles-main\JavaFiles-main\s-59(se)> c
?) { javac Matrix.java } ; if ($?) { java Matrix }
Enter the number of rows in matrix
2
Enter the columns in the matrix
2
Enter first [0][0] integer
1
Enter first [0][1] integer
2
Enter first [1][0] integer
3
Enter first [1][1] integer
4
Enter second[0][0] integer
5
Enter second[0][1] integer
6
Enter second[1][0] integer
7
Enter second[1][1] integer
8
First Matrix:
1      2
3      4
Second Matrix:
5      6
7      8
Main Menu
1.Addition of matrix
2.Subtraction of matrix
3.Multiplication of matrix
4.Exit
Enter your option
1
Sum of matrix
6      8
10     12

```