EXPERIMENT NO:-6 2D ARRAY

```
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:
substraction(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 substraction(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("Substraction 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();
}
}
}
```

```
Microsoft Windows [Version 10.0.22621.2428]
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C:\Users\rautc\OneDrive\Desktop\J>java scanner.java
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.Additionof matrix
2.Substraction of matrix
3.Multiplication of matrix
4.Exit
Enter your option
1
Sum of matrix
6       8
10      12

C:\Users\rautc\OneDrive\Desktop\J>
```