Experiment No._____ **Date___/___/2020**

TITLE OF EXPERIMENT: - A Program in Java to add two matrices

DIVISION:_____ **BRANCH:** _____

BATCH:_____ **ROLL NO.:** _____

PERFORMED ON DATE: _____

SIGNATURE OF TEACHING STAFF:

EXPERIMENT NO. 6

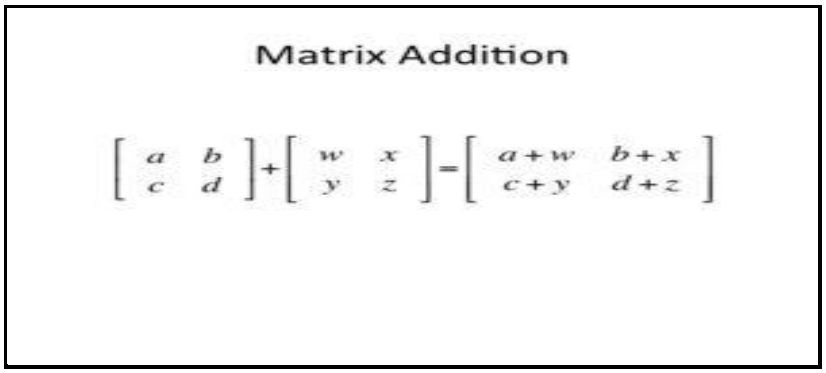
Aim: Write a Program in Java to add two matrices.

Software:

1. Eclipse
2. JDK 16

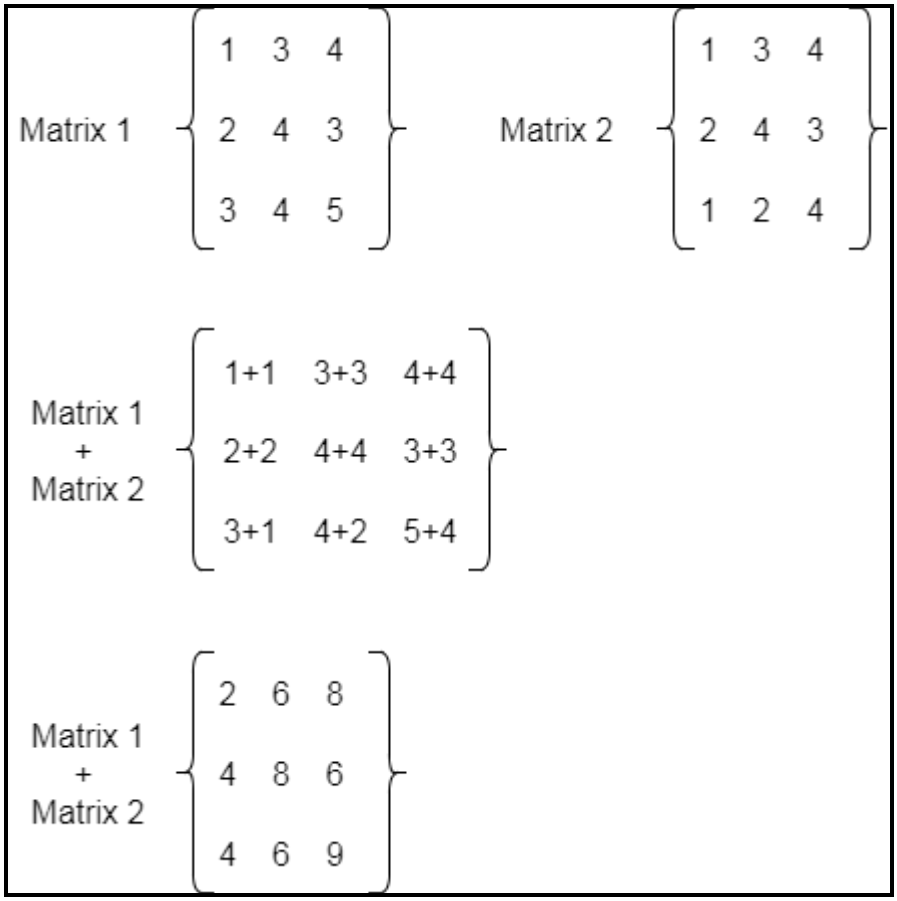
Theory:

Addition of two matrices can be carried if and only if both the matrices are in the same order. In matrix addition, each term of one matrix is added to the other matrix's term, at the same location, i.e. the term at first row first column of Matrix 1 will be added to the term at first row first column of Matrix 2 and so on. A pictorial example is given below.



We can add two matrices in java using binary + operator. A matrix is also known as array of arrays. We can add, subtract and multiply matrices.

Eg.



Java Program to Add Two Matrices are 3 Ways:

- Using For Loop
- Using While
- Using Do-While

Addition of Two Matrices – Using For Loop

1) If both matrices are of the same size then only we can add the matrices.
2) Use the double dimensional array to store the matrix elements.
3) Read row number, column number and initialize the double dimensional arrays mat1[][],mat2[][],res[][] with same row number, column number.

4) Store the first matrix elements into the two-dimensional array mat1[][] using two for loops. i indicates row number, j indicates column index. Similarly matrix 2 elements in to mat2[][].

5) Add the two matrices using for loop

- for i=0 to i<row
- for j=0 to j<col
- mat1[i][j] + mat2[i][j] and store it in to the matrix res at res[i][j] .

Program:

```
import java.util.Scanner;

class AddMatrix

{

public static void main(String args[])

{

int row, col,i,j;

Scanner in = new Scanner(System.in);


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

row = in.nextInt();


System.out.println("Enter the number columns");

col = in.nextInt();


int mat1[][] = new int[row][col];

int mat2[][] = new int[row][col];

int res[][] = new int[row][col];


System.out.println("Enter the elements of matrix1");


for ( i= 0 ; i < row ; i++ )

{
```

```
for ( j= 0 ; j < col ;j++ )
mat1[i][j] = in.nextInt();

System.out.println();
}
System.out.println("Enter the elements of matrix2");

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

for ( j= 0 ; j < col ;j++ )
mat2[i][j] = in.nextInt();

System.out.println();
}

for ( i= 0 ; i < row ; i++ )
for ( j= 0 ; j < col ;j++ )
res[i][j] = mat1[i][j] + mat2[i][j] ;

System.out.println("Sum of matrices:-");

for ( i= 0 ; i < row ; i++ )
{
for ( j= 0 ; j < col ;j++ )
System.out.print(res[i][j]+"\t");

System.out.println();
```

```
}


}
}
```

Output:

```
Enter the number of rows
2
Enter the number  columns
2
Enter the elements of matrix1
1 1


1 1


Enter the elements of  matrix2
2 2


2 2


Sum of  matrices:-
3       3
3       3
```

Conclusion:

Screenshot's of Program and Result: