EXPERIMENT NO 6

package P2;

import java.util.Scanner;

public class MatrixAddition {

public static void main(String[] args) {

Scanner sc = new Scanner(System.in);

// Define matrix size as constant for flexibility

final int ROWS = 2;

final int COLS = 2;

int[][] matrix1 = new int[ROWS][COLS];

int[][] matrix2 = new int[ROWS][COLS];

int[][] result = new int[ROWS][COLS];

// Input first matrix

System.out.println("Enter the elements of first matrix (" + ROWS + "x" + COLS + "):");

readMatrix(matrix1, sc);

// Display first matrix

System.out.println("The first matrix is:");

printMatrix(matrix1);

// Input second matrix

System.out.println("Enter the elements of second matrix (" + ROWS + "x" + COLS + "):");

readMatrix(matrix2, sc);

// Display second matrix

System.out.println("Second matrix is:");

printMatrix(matrix2);

// Perform addition

addMatrices(matrix1, matrix2, result);

// Display result

System.out.println("The addition of two matrices is:");

printMatrix(result);

sc.close();

}

// Method to read matrix elements from user

public static void readMatrix(int[][] matrix, Scanner sc) {

for(int i = 0; i < matrix.length; i++) {

for(int j = 0; j < matrix[i].length; j++) {

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

matrix[i][j] = sc.nextInt();

}

}

}

// Method to print a matrix

public static void printMatrix(int[][] matrix) {

for(int i = 0; i < matrix.length; i++) {

for(int j = 0; j < matrix[i].length; j++) {

System.out.print(matrix[i][j] + "\t");

}

System.out.println();

}

}

// Method to add two matrices

public static void addMatrices(int[][] matrix1, int[][] matrix2, int[][] result) {

for(int i = 0; i < matrix1.length; i++) {

for(int j = 0; j < matrix1[i].length; j++) {

result[i][j] = matrix1[i][j] + matrix2[i][j];

}

}

}

}

