Q6. Write a program to perform matrix multiplication.

public class MatrixMultiplication {

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

// Input dimensions of the matrices

System.out.print("Enter the number of rows in the first matrix: ");

int rows1 = scanner.nextInt();

System.out.print("Enter the number of columns in the first matrix (and rows in the second matrix): ");

int cols1 = scanner.nextInt();

System.out.print("Enter the number of columns in the second matrix: ");

int cols2 = scanner.nextInt();

// Initialize the matrices

int[][] matrix1 = new int[rows1][cols1];

int[][] matrix2 = new int[cols1][cols2];

int[][] result = new int[rows1][cols2];

// Input elements of the first matrix

System.out.println("Enter the elements of the first matrix:");

for (int i = 0; i < rows1; i++) {

for (int j = 0; j < cols1; j++) {

matrix1[i][j] = scanner.nextInt();

}

}

// Input elements of the second matrix

System.out.println("Enter the elements of the second matrix:");

for (int i = 0; i < cols1; i++) {

for (int j = 0; j < cols2; j++) {

matrix2[i][j] = scanner.nextInt();

}

}

// Perform matrix multiplication

for (int i = 0; i < rows1; i++) {

for (int j = 0; j < cols2; j++) {

for (int k = 0; k < cols1; k++) {

result[i][j] += matrix1[i][k] \* matrix2[k][j];

}

}

}

// Display the result

System.out.println("The result of matrix multiplication is:");

for (int i = 0; i < rows1; i++) {

for (int j = 0; j < cols2; j++) {

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

}

System.out.println();

}

}

}