Write a program for matrix multiplication?

CODE:

import java.util.Scanner;

public class matrixMultiplication {

public static int[][] multiply(int[][] A, int[][] B) {

int rowsA = A.length;

int colsA = A[0].length;

int colsB = B[0].length;

int[][] result = new int[rowsA][colsB];

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

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

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

result[i][j] += A[i][k] \* B[k][j];

}

}

}

return result;

}

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

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

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

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

}

System.out.println();

}

}

public static void main(String[] args) {

Scanner scanner = new Scanner(System.in);

System.out.println("Enter the number of rows for matrix A:");

int rowsA = scanner.nextInt();

System.out.println("Enter the number of columns for matrix A:");

int colsA = scanner.nextInt();

int[][] A = new int[rowsA][colsA];

System.out.println("Enter elements for matrix A:");

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

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

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

}

}

System.out.println("Enter the number of rows for matrix B:");

int rowsB = scanner.nextInt();

System.out.println("Enter the number of columns for matrix B:");

int colsB = scanner.nextInt();

int[][] B = new int[rowsB][colsB];

System.out.println("Enter elements for matrix B:");

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

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

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

}

}

scanner.close();

if (colsA != rowsB) {

System.out.println("Matrix multiplication is not possible. Number of columns in A must be equal to the number of rows in B.");

} else {

int[][] result = multiply(A, B);

System.out.println("Result of matrix multiplication:");

printMatrix(result);

}

}

}

OUTPUT:

C:\javap>javac matrixMultiplication.java

C:\javap>java matrixMultiplication

Enter the number of rows for matrix A:

2

Enter the number of columns for matrix A:

2

Enter elements for matrix A:

1 2 3 4

Enter the number of rows for matrix B:

2

Enter the number of columns for matrix B:

2

Enter elements for matrix B:

1 2 3 4

Result of matrix multiplication:

7 10

15 22

