#include <stdio.h>

void inputMatrix(int matrix[10][10], int rows, int cols, int matrixNumber) {

printf("-----------------Matrix: %d-------------------\n", matrixNumber);

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

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

printf("Enter elements : ");

scanf("%d", &matrix[i][j]);

}

}

}

void displayMatrix(int matrix[10][10], int rows, int cols) {

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

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

printf("%-13d", matrix[i][j]); // Clean and aligned output

}

printf("\n");

}

}

void multiplyMatrices(int a[10][10], int b[10][10], int result[10][10],

int r1, int c1, int r2, int c2) {

for (int i = 0; i < r1; i++) {

for (int j = 0; j < c2; j++) {

result[i][j] = 0;

}

}

for (int i = 0; i < r1; i++) {

for (int j = 0; j < c2; j++) {

for (int k = 0; k < c1; k++) {

result[i][j] += a[i][k] \* b[k][j];

}

}

}

}

int main() {

int matrix1[10][10], matrix2[10][10], result[10][10];

int r1, c1, r2, c2;

printf("Matrix Multiplication:-\n");

printf("Enter number of rows for Matrix 1: ");

scanf("%d", &r1);

printf("Enter number of columns for Matrix 1: ");

scanf("%d", &c1);

printf("Enter number of rows for Matrix 2: ");

scanf("%d", &r2);

printf("Enter number of columns for Matrix 2: ");

scanf("%d", &c2);

if (c1 != r2) {

printf("\nMatrix multiplication not possible.\n");

printf("Number of columns of Matrix 1 must be equal to number of rows of Matrix 2.\n");

}

inputMatrix(matrix1, r1, c1, 1);

displayMatrix(matrix1, r1, c1);

inputMatrix(matrix2, r2, c2, 2);

displayMatrix(matrix2, r2, c2);

multiplyMatrices(matrix1, matrix2, result, r1, c1, r2, c2);

printf("-----------------Result : Multiplication Matrix -------------------\n");

displayMatrix(result, r1, c2);

return 0;

}