#include <stdio.h>

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

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

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

printf("%d\t", matrix[i][j]);

}

printf("\n");

}

}

void insertRating(int rows, int cols, int matrix[rows][cols], int movieId, int userId, int rating) {

matrix[movieId][userId] = rating;

}

void deleteRating(int rows, int cols, int matrix[rows][cols], int movieId, int userId) {

matrix[movieId][userId] = 0;

}

void linearSearch(int rows, int cols, int matrix[rows][cols], int rating) {

printf("Movies with rating %d:\n", rating);

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

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

if (matrix[i][j] == rating) {

printf("Movie %d, User %d\n", i, j);

}

}

}

}

void addMatrices(int rows, int cols, int matrix1[rows][cols], int matrix2[rows][cols], int result[rows][cols]) {

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

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

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

}

}

}

void multiplyMatrices(int rows1, int cols1, int matrix1[rows1][cols1], int rows2, int cols2, int matrix2[rows2][cols2], int result[rows1][cols2]) {

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

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

result[i][j] = 0;

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

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

}

}

}

}

int main() {

int rows = 3;

int cols = 3;

int netflixMatrix[3][3] = {

{5, 4, 0},

{0, 0, 3},

{2, 0, 1}

};

printf("Netflix Movies Matrix:\n");

displayMatrix(rows, cols, netflixMatrix);

insertRating(rows, cols, netflixMatrix, 1, 2, 4);

printf("\nNetflix Movies Matrix after insertion:\n");

displayMatrix(rows, cols, netflixMatrix);

deleteRating(rows, cols, netflixMatrix, 2, 0);

printf("\nNetflix Movies Matrix after deletion:\n");

displayMatrix(rows, cols, netflixMatrix);

linearSearch(rows, cols, netflixMatrix, 4);

int matrixA[2][3] = {{1, 2, 3}, {4, 5, 6}};

int matrixB[2][3] = {{7, 8, 9}, {10, 11, 12}};

int resultAddition[2][3];

int resultMultiplication[2][2];

addMatrices(2, 3, matrixA, matrixB, resultAddition);

printf("\nResult of Matrix Addition:\n");

displayMatrix(2, 3, resultAddition);

multiplyMatrices(2, 3, matrixA, 3, 2, matrixB, resultMultiplication);

printf("\nResult of Matrix Multiplication:\n");

displayMatrix(2, 2, resultMultiplication);

return 0;

}

*Output*:

