#include<stdio.h>

#include<stdlib.h>

void add(int m[3][3], int n[3][3], int sum[3][3])

{

for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

sum[i][j] = m[i][j] + n[i][j];

}

void subtract(int m[3][3], int n[3][3], int result[3][3])

{

for(int i=0;i<3;i++)

for(int j=0;j<3;j++)

result[i][j] = m[i][j] - n[i][j];

}

void multiply(int m[3][3], int n[3][3], int result[3][3])

{

for(int i=0; i < 3; i++)

{

for(int j=0; j < 3; j++)

{

result[i][j] = 0;

for (int k = 0; k < 3; k++)

result[i][j] += m[i][k] \* n[k][j];

}

}

}

void transpose(int matrix[3][3], int trans[3][3])

{

for (int i = 0; i < 3; i++)

for (int j = 0; j < 3; j++)

trans[i][j] = matrix[j][i];

}

void display(int matrix[3][3])

{

for(int i=0; i<3; i++)

{

for(int j=0; j<3; j++)

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

printf("\n");

}

}

int main()

{

int a[][3] = { {5,6,7}, {8,9,10}, {3,1,2} };

int b[][3] = { {1,2,3}, {4,5,6}, {7,8,9} };

int c[3][3];

printf("First Matrix:\n");

display(a);

printf("Second Matrix:\n");

display(b);

int choice;

do

{ printf("\nChoose the matrix operation,\n");

printf("----------------------------\n");

printf("1. Addition\n");

printf("2. Subtraction\n");

printf("3. Multiplication\n");

printf("4. Transpose\n");

printf("5. Exit\n");

printf("----------------------------\n");

printf("Enter your choice: ");

scanf("%d", &choice);

switch (choice) {

case 1:

add(a, b, c);

printf("Sum of matrix: \n");

display(c);

break;

case 2:

subtract(a, b, c);

printf("Subtraction of matrix: \n");

display(c);

break;

case 3:

multiply(a, b, c);

printf("Multiplication of matrix: \n");

display(c);

break;

case 4:

printf("Transpose of the first matrix: \n");

transpose(a, c);

display(c);

printf("Transpose of the second matrix: \n");

transpose(b, c);

display(c);

break;

case 5:

printf("Thank You.\n");

exit(0);

default:

printf("Invalid input.\n");

printf("Please enter the correct input.\n");

} }while(1);

return 0;

}