1.Write a C program to find the transpose of a matrix.

#include<stdio.h>

#define N 50

void main ()

{

int a[N][N], i, j, m, n;

printf ("Enter number of rows and columns :\n");

scanf ("%d%d", &m, &n);

printf ("Enter first matrix:");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

{

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

}

}

printf ("\nfirst matrix is:\n");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

{

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

}

printf ("\n");

}

printf ("\nThe transpose of the matrix is:\n");

for (i = 0; i < n; i++)

{

for (j = 0; j < m; j++)

{

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

}

printf ("\n");

}

return 0;

}

2.Write a C program to get the addition of two matrices.

#include<stdio.h>

#define N 50

int main() {

int arr1[N][N],arr2[N][N],arr[N][N],i,j,m,n,a,b;

printf("Enter rows and columns for first matrix:\n");

scanf("%d%d",&m,&n);

printf("Enter first matrix:");

for(i=0; i<m; i++)

{

for(j=0; j<n; j++)

{

scanf("%d",&arr1[i][j]);

}

}

printf("Enter rows and columns for second matrix:\n");

scanf("%d%d",&a,&b);

printf("Enter second matrix:\n");

for(i=0; i<a; i++)

{

for(j=0; j<b; j++)

{

scanf("%d",&arr2[i][j]);

}

}

printf("\nfirst matrix is:\n");

for(i=0; i<m; i++)

{

for(j=0; j<n; j++)

{

printf("%d\t",arr1[i][j]);

}

printf("\n");

}

printf("\n second matrix is:\n");

for(i=0; i<a; i++)

{

for(j=0; j<b; j++)

{

printf("%d\t",arr2[i][j]);

}

printf("\n");

}

printf("\nAddition of two matrices is:\n");

for(i=0; i<a; i++)

{

for(j=0; j<b; j++)

{

arr[i][j]=arr1[i][j]+arr2[i][j];

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

}

printf("\n");

}

return 0;

}

3. Write a C program to find the multiplication of two matrices.

#include<stdio.h>

#define N 50

int main ()

{

int arr1[N][N], arr[N][N], arr2[N][N], i, j, k, sum, m, n, a, b;

printf ("Enter rows and columns for first matrix:\n");

scanf ("%d%d", &m, &n);

printf ("Enter first matrix:");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

{

scanf ("%d", &arr1[i][j]);

}

}

printf ("Enter rows and columns for second matrix:\n");

scanf ("%d%d", &a, &b);

printf ("Enter second matrix:\n");

for (i = 0; i < a; i++)

{

for (j = 0; j < b; j++)

{

scanf ("%d", &arr2[i][j]);

}

}

printf ("\nfirst matrix is:\n");

for (i = 0; i < m; i++)

{

for (j = 0; j < n; j++)

{

printf ("%d\t", arr1[i][j]);

}

printf ("\n");

}

printf ("\n second matrix is:\n");

for (i = 0; i < a; i++)

{

for (j = 0; j < b; j++)

{

printf ("%d\t", arr2[i][j]);

}

printf ("\n");

}

if (n != a)

{

printf ("can not multiply");

}

else

{

for (i = 0; i < m; i++)

{

for (j = 0; j < b; j++)

{

sum = 0;

for (k = 0; k < m; k++)

{

sum = sum + (arr1[i][k] \* arr2[k][j]);

}

arr[i][j] = sum;

}

}

}

printf ("multiplication is:\n");

for (i = 0; i < m; i++)

{

for (j = 0; j < b; j++)

{

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

}

printf ("\n");

}

return 0;

}

4. Write a C program to find the subtraction of two matrices.

#include <stdio.h>

#define N 50

int main() {

int i, j,a,b,m,n,subtract, arr1[N][N], arr2[N][N], arr[N][N];

printf("Enter rows and columns for first matrix:\n");

scanf("%d%d",&m,&n);

printf("Enter first matrix:");

for(i=0; i<m; i++)

{

for(j=0; j<n; j++)

{

scanf("%d",&arr1[i][j]);

}

}

printf("Enter rows and columns for second matrix:\n");

scanf("%d%d",&a,&b);

printf("Enter second matrix:\n");

for(i=0; i<a; i++)

{

for(j=0; j<b; j++)

{

scanf("%d",&arr2[i][j]);

}

}

printf("\nfirst matrix is:\n");

for(i=0; i<m; i++)

{

for(j=0; j<n; j++)

{

printf("%d\t",arr1[i][j]);

}

printf("\n");

}

printf("\n second matrix is:\n");

for(i=0; i<a; i++)

{

for(j=0; j<b; j++)

{

printf("%d\t",arr2[i][j]);

}

printf("\n");

}

printf("\nSubstraction of two matrices is:\n");

for(i=0; i<a; i++)

{

for(j=0; j<b; j++)

{

arr[i][j]=arr1[i][j]-arr2[i][j];

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

}

printf("\n");

}

return 0;

}