

**Name: Anmol Goyal**

Roll no:15

**Library ID :2224MCA1145**

**Practical – 6: Program to implement Two-Dimensional Array**

1. **Write a program in C to enter some value in 2D array and display it using any loop**

#include<stdio.h>

#include<conio.h>

void main()

{

void input(int a[][3],int ,int);

void display(int a[][3],int,int);

int a[3][3];

input(a,3,3);

display(a,3,3);

}

void input(int a[][3],int r,int c)

{

int i,j;

printf("Enter matrix:\n");

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

{

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

{

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

}

}

}

void display(int a[][3],int r,int c)

{

int i,j;

printf("\nMatrix is:\n");

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

{

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

{

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

}

printf("\n");

}

}

1. **Program to add and multiply two matrices of order n x n**

#include<stdio.h>

#include<conio.h>

void main()

{

int a[3][3],b[3][3],c[3][3],i,j,k,d[3][3],m,n;

printf("Enter row value\n");

scanf("%d",&m);

printf("Enter column value\n");

scanf("%d",&n);

printf("Enter 1st matrix\n");

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

{

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

{

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

}

}

printf("Enter 2nd matrix\n");

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

{

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

{

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

}

}

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

{

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

{

c[i][j]=a[i][j]+b[i][j];

}

}

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

{

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

{

d[i][j]=0;

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

{

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

}

}

}

printf("\nSum matix\n");

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

{

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

{

printf("%d ",c[i][j]);

}

printf("\n");

}

printf("\nMatrix multiply\n");

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

{

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

{

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

}

printf("\n");

}

getch();

}

1. **Program that finds the sum of diagonal elements of a m x n matrix.**
2. **Program to find the transpose of a matrix.**

#include<stdio.h>

#include<conio.h>

void main()

{

int m,n;

int i,j,a[3][3],T[3][3];

printf("Enter row\n");

scanf("%d",&m);

printf("Enter column\n");

scanf("%d",&n);

printf("\nEnter matrix");

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

{

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

{

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

}

}

printf("\nMatrix before transpose is\n");

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

{

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

{

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

}

printf("\n");

}

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

{

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

{

T[j][i]=a[i][j];

}

}

printf("\nMatrix after Transpose is\n");

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

{

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

{

printf("%d ",T[i][j]);

}

printf("\n");

}

getch();

}

1. **Program to find the row sum and the column sum of a matrix of order m x n.**