2 D Array pass in function

Prototype	void display(int a[3][3]);
Call	display(a);

Define	void display(int a[3][3])
	{
	Ststement;
	}

1. **Write a C program How to pass in function 2D Array.**

```
#include<stdio.h>
void display(int a[3][3]);
void read(int a[3][3]);
void main()
{
                        int a[3][3];
printf("Enter the matrix elements\n");
        read(a);
        printf("Display the Matrix\n");
                        display(a);

}
void read(int a[3][3])
{
int i,j;
for(i=0;i<3;i++)
{
                        for(j=0;j<3;j++)
                             scanf("%d",&a[i][j]);
}
}
```

```
void display(int a[3][3])
{
        int i,j;
        for(i=0;i<3;i++)
        {
            for(j=0;j<3;j++)
                printf("%5d",a[i][j]);
            printf("\n");
        }
}
```

Output:

```
Enter the matrix elements
1 2 3
4 5 6
7 8 9
Display the Matrix
  1   2   3
  4   5   6
  7   8   9
```

2. **Develop a program to multiply two matrices. Input order of matrices from the user. Your program should take care of the fact that no element of either matrix can be negative.**

```
#include<stdio.h>
#include<conio.h>
void matrix(int mat[100][100], int , int );
void display(int mat[100][100], int , int );
void mul(int c[100][100], int a[100][100], int b[100][100], int n1, int m2);

void main()
{
    int a[100][100],b[100][100],c[100][100];
    int n1,m1,n2,m2;
    clrscr();
    printf("\n Enter the Order of 1st matrix ");
    scanf("%d%d",&n1,&m1);
    printf("\n Enter the Order of 2nd Matrix ");
    scanf("%d%d",&n2,&m2);
```

```
	if(m1==n2)
	{
		printf("\n Enter the Element of 1st Matrix ");
		matrix(a,n1,m1);
		printf("\n Enter the Element of 2nd Matrix ");
		matrix(b,n2,m2);
		printf("\n 1st matrix \n");
		display(a,n1,m1);
		printf("\n 2nd matrix \n");
		display(b,n2,m2);
		mul(c,a,b,n1,m2);
		printf("\n Production Of Matrix \n");
		display(c,n1,m2);
	}
	else
	{
		printf("\n Matrix can't solve ");
	}
	getch();
}
void matrix(int mat[100][100], int n, int m)
{
	int i,j,t;
	for(i=0;i<n;i++)
	{
		for(j=0;j<m;j++)
		{
			scanf("%d",&t);
			while(t<=0)
			{
				scanf("%d",&t);
			}
			mat[i][j]=t;
		}
	}
}
void display(int mat[100][100], int n, int m)
{
```

```
        int i,j;
        for(i=0;i<n;i++)
        {
                for(j=0;j<m;j++)
                        printf("%5d",mat[i][j]);
                printf("\n");
        }
}

void mul(int c[100][100], int a[100][100], int b[100][100], int n1, int m2)
{
        int i,j,k,sum;
        for(i=0;i<n1;i++)
        {
                for(j=0;j<m2;j++)
                {
                        sum=0;
                        for(k=0;k<n1;k++)
                                sum=sum+a[i][k]*b[k][j];
                        c[i][j]=sum;
                }
        }
}
```

OUTPUT:

Matrix 1	Matrix 2	Multiplay Matrix
1 2 3 4	1 4 2 5 3 6	11 10 14 23 24 28

3. What do you mean by two-dimension array? Write a program to computer the sum of diagonal element of a square matrix.

```
#include<stdio.h>
#include<conio.h>
#define N 3
void main ()
{
        int a[N][N];
        int i,j,l,m;
        int sumd=0,sumv=0;
        printf("\n Enter the Matrix\n ");
        for(i=0;i<N;i++)
        {
                for(j=0;j<N;j++)
                        scanf("%d",&a[i][j]);
        }
        printf("\n Matrix \n");
        for(i=0;i<N;i++)
        {
                for(j=0;j<N;j++)
                        printf("%5d",a[i][j]);
                printf("\n");
        }
        l=0;
        m=N-1;
        for(i=0;i<N;i++)
        {
                for(j=0;j<N;j++)
                {
                        if(i==j)
                                sumd=sumd+a[i][j];
                }

                sumv=sumv+a[l][m];
                l++;
                m--;
        }
        printf("\n Diognal Sum %d",sumd);
        printf("\n Diognal Sum %d",sumv);
        getch();
        }
```

OUTPUT:

```
Enter the Matrix
1 2 3
4 5 6
7 8 9

Matrix
  1   2   3
  4   5   6
  7   8   9

Diognal Sum 15
Diognal Sum 15
```