1.Write a C program C Program to Find the Sum of each Row & each Column of a MxN Matrix
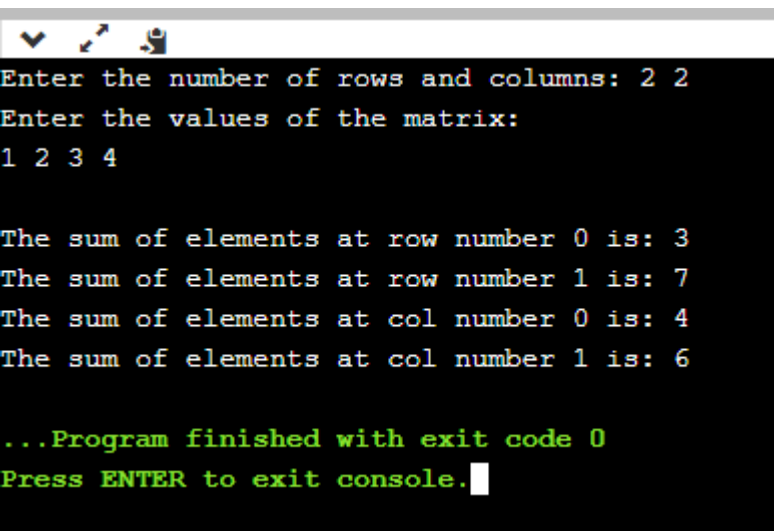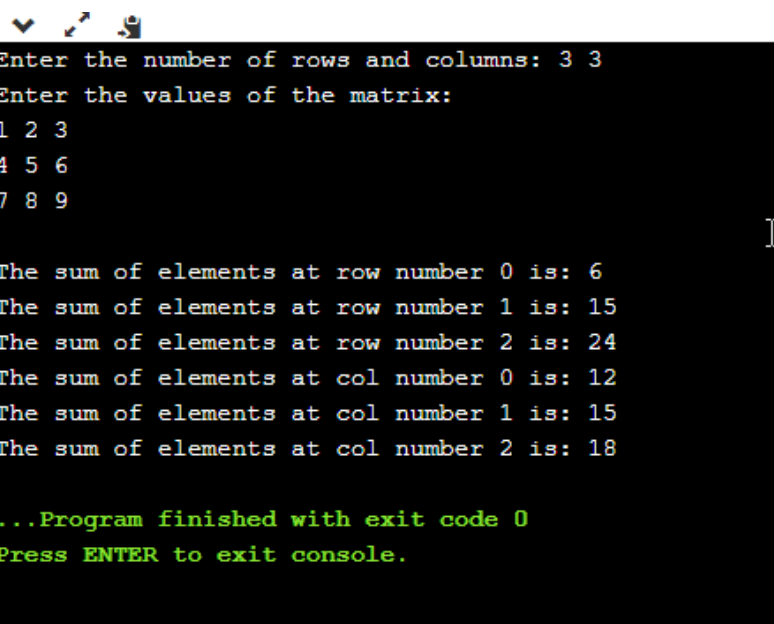
Program:-

```c
#include <stdio.h>
int main()
{
    int row,col;
    printf("Enter the number of rows and columns: ");
    scanf("%d%d",&row,&col);
    int arr[row][col],rowsum[row],colsum[col],i,j;
    printf("Enter the values of the matrix:\n");
    for(i=0;i<row;i++)
    {
        rowsum[i]=0;
        for(j=0;j<col;j++)
        {
            scanf("%d",&arr[i][j]);
            rowsum[i]+=arr[i][j];
        }
    }
    for(i=0;i<row;i++)
    {
        colsum[i]=0;
        for(j=0;j<col;j++)
        {
            colsum[i]+=arr[j][i];
```

```
        }
    }
    for(i=0;i<row;i++)
        printf("\nThe sum of elements at row number %d is: %d",i,rowsum[i]);
    for(i=0;i<col;i++)
        printf("\nThe sum of elements at col number %d is: %d",i,colsum[i]);
    return 0;
}
```

OUTPUT:-

```
Enter the number of rows and columns: 2 2
Enter the values of the matrix:
1 2 3 4

The sum of elements at row number 0 is: 3
The sum of elements at row number 1 is: 7
The sum of elements at col number 0 is: 4
The sum of elements at col number 1 is: 6

...Program finished with exit code 0
Press ENTER to exit console.
```

```
Enter the number of rows and columns: 3 3
Enter the values of the matrix:
1 2 3
4 5 6
7 8 9

The sum of elements at row number 0 is: 6
The sum of elements at row number 1 is: 15
The sum of elements at row number 2 is: 24
The sum of elements at col number 0 is: 12
The sum of elements at col number 1 is: 15
The sum of elements at col number 2 is: 18

...Program finished with exit code 0
Press ENTER to exit console.
```

2. C Program to do the Sum of the Main & Opposite Diagonal Elements of a MxM SquareMatrix

Program:-

```c
#include <stdio.h>
int main()
{
    int m;
    printf("Enter the number of rows in the square matrix: ");
    scanf("%d",&m);
    int arr[m][m],d1=0,d2=0,i,j;
    printf("Enter the values of the matrix:\n");
    for(i=0;i<m;i++)
    {
        for(j=0;j<m;j++)
        {
            scanf("%d",&arr[i][j]);
            if(i==j)
            d1+=arr[i][j];
            if((i+j)==(m-1))
            d2+=arr[i][j];
        }
    }
    printf("\nThe sum of the main diagonal is: %d",d1);
    printf("\nThe sum of the opposite diagonal is: %d",d2);
    return 0;
}
```

OUTPUT:-

3.Write a C program to read two 4x 4 matrix from user and perform addition and subtraction of Matrices.
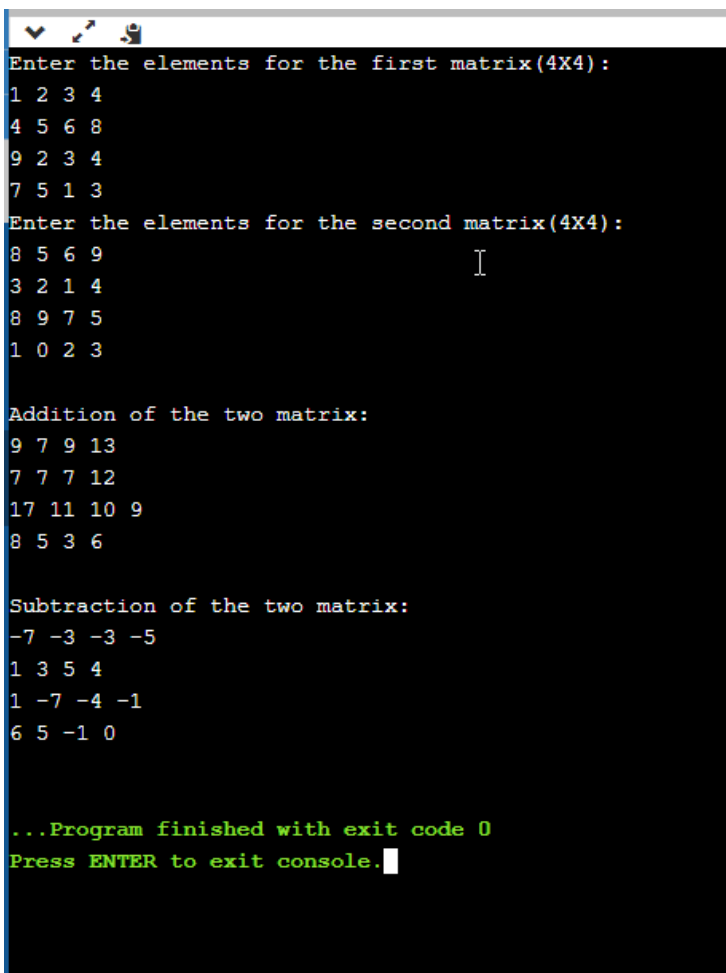
Program:-

#include <stdio.h>

int main()

{

   int arr1[4][4],arr2[4][4],add[4][4],sub[4][4],i,j;

```c
printf("Enter the elements for the first matrix(4X4):\n");
for(i=0;i<4;i++)
{
  for(j=0;j<4;j++)
  {
    scanf("%d",&arr1[i][j]);
  }
}
printf("Enter the elements for the second matrix(4X4):\n");
for(i=0;i<4;i++)
{
  for(j=0;j<4;j++)
  {
    scanf("%d",&arr2[i][j]);
    add[i][j]=arr1[i][j]+arr2[i][j];
    sub[i][j]=arr1[i][j]-arr2[i][j];
  }
}
printf("\nAddition of the two matrix:\n");
for(i=0;i<4;i++)
{
  for(j=0;j<4;j++)
  {
    printf("%d ",add[i][j]);
  }
  printf("\n");
}
```

```
        printf("\nSubtraction of the two matrix:\n");

        for(i=0;i<4;i++)

        {

            for(j=0;j<4;j++)

            {

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

            }

            printf("\n");

        }

        return 0;

    }
```

OUTPUT:-

```
Enter the elements for the first matrix(4X4):
1 2 3 4
4 5 6 8
9 2 3 4
7 5 1 3
Enter the elements for the second matrix(4X4):
8 5 6 9                            I
3 2 1 4
8 9 7 5
1 0 2 3

Addition of the two matrix:
9 7 9 13
7 7 7 12
17 11 10 9
8 5 3 6

Subtraction of the two matrix:
-7 -3 -3 -5
1 3 5 4
1 -7 -4 -1
6 5 -1 0


...Program finished with exit code 0
Press ENTER to exit console.
```

4.Write C Program to store and print 18 values entered by the user by using [2][3][3] array.
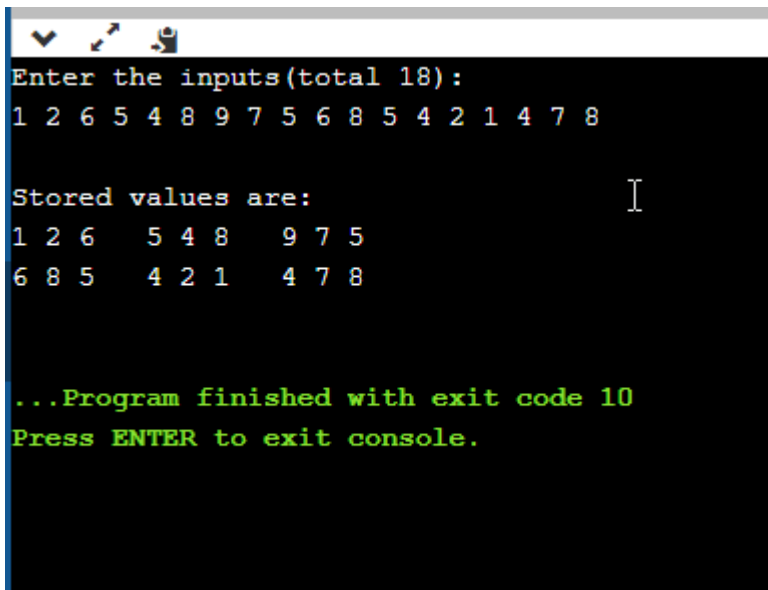
Program:-

```c
#include <stdio.h>
void main()
{
    int arr[2][3][3],i,j,k;
    printf("Enter the inputs(total 18): \n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<3;j++)
        {
            for(k=0;k<3;k++)
                scanf("%d",&arr[i][j][k]);
        }
    }
    printf("\nStored values are: \n");
    for(i=0;i<2;i++)
    {
        for(j=0;j<3;j++)
        {
            for(k=0;k<3;k++)
                printf("%d ",arr[i][j][k]);
            printf("\t");
```

```
        }

        printf("\n");

    }

}
```

OUTPUT:-

```
Enter the inputs(total 18):
1 2 6 5 4 8 9 7 5 6 8 5 4 2 1 4 7 8


Stored values are:
1 2 6   5 4 8   9 7 5
6 8 5   4 2 1   4 7 8



...Program finished with exit code 10
Press ENTER to exit console.
```