

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

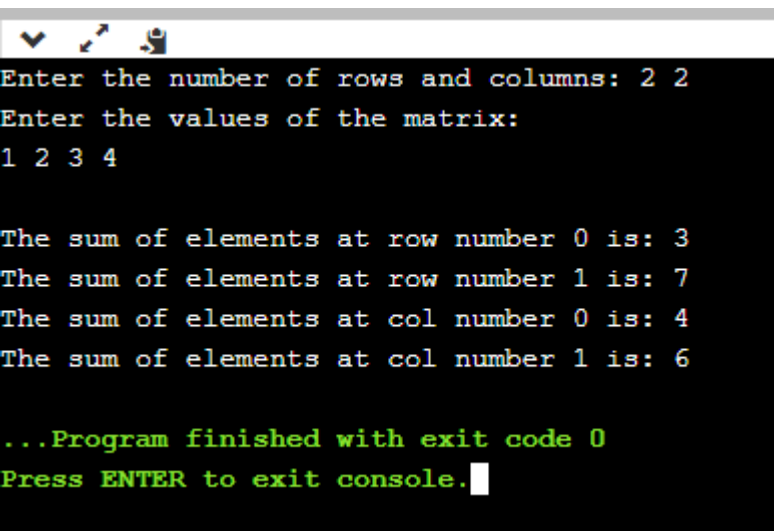
Program:-

```
#include <stdio.h>

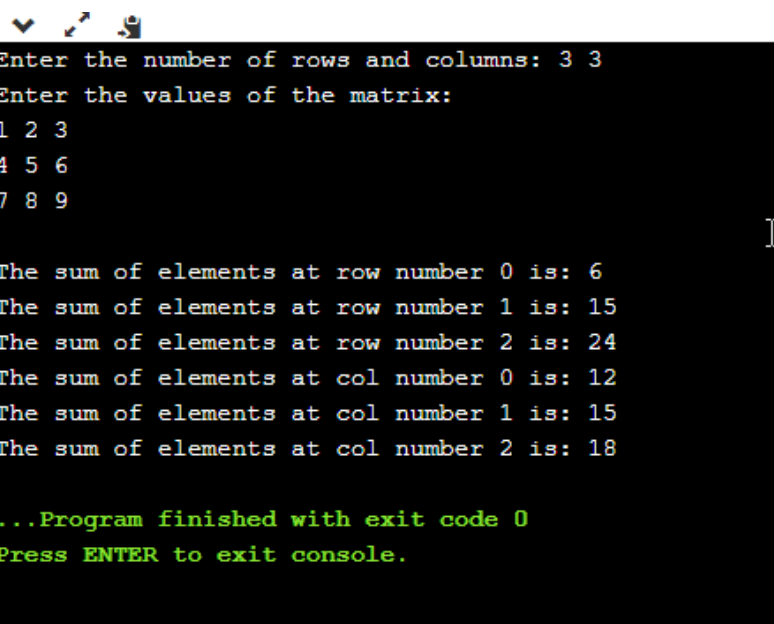
int main()
{
    int row,col;
    printf("Enter the number of rows and columns: ");
    scanf("%d%d",&row,&col);
    int arr[row][col],rowsum[row],colsum[col],i,j;
    printf("Enter the values of the matrix:\n");
    for(i=0;i<row;i++)
    {
        rowsum[i]=0;
        for(j=0;j<col;j++)
        {
            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:-

```
#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:-

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

The sum of the main diagonal is: 15
The sum of the opposite diagonal is: 15

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

```
Enter the number of rows in the square matrix: 3
Enter the values of the matrix:
1 5 6
7 8 9
4 5 6

The sum of the main diagonal is: 15
The sum of the opposite diagonal is: 18

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

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

Program:-

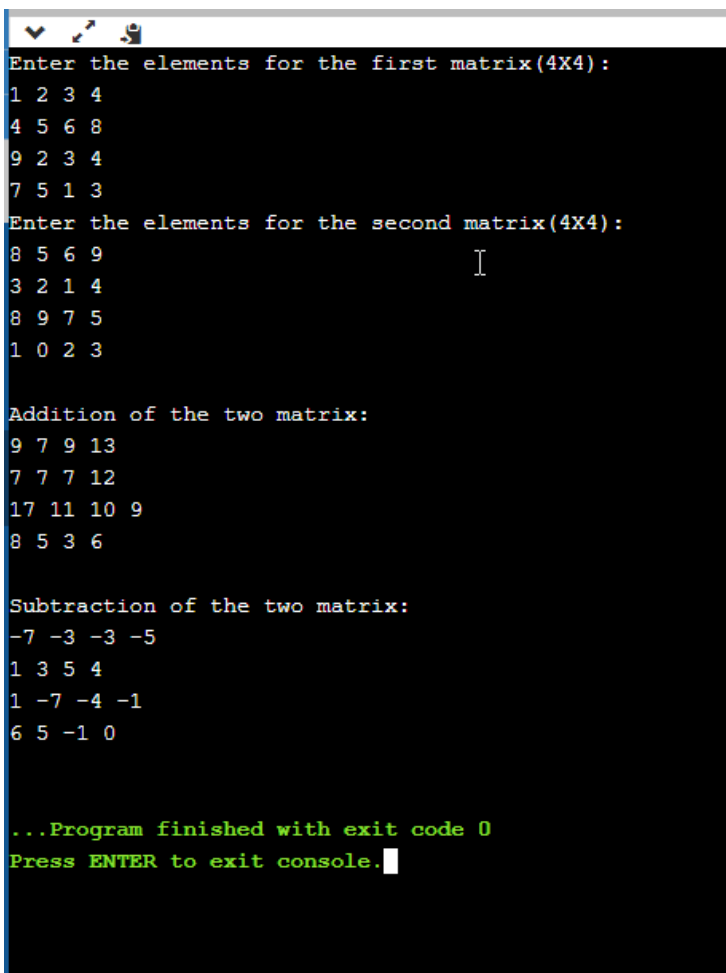
```
#include <stdio.h>

int main()
{
    int arr1[4][4], arr2[4][4], add[4][4], sub[4][4], i, j;
```

```
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  
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.

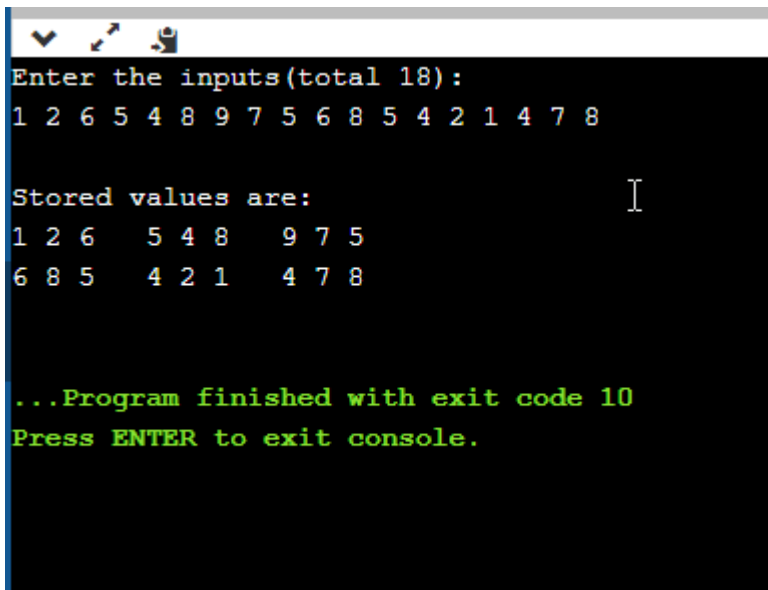
Program:-

```
#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:-



The screenshot shows a terminal window with a black background and white text. At the top, there are three small icons: a checkmark, a cursor, and a person. The text in the terminal reads: "Enter the inputs(total 18):" followed by a single line of 18 numbers: "1 2 6 5 4 8 9 7 5 6 8 5 4 2 1 4 7 8". Below this, it says "Stored values are:" followed by two lines of numbers arranged in three groups of three: "1 2 6 5 4 8 9 7 5" on the first line and "6 8 5 4 2 1 4 7 8" on the second line. At the bottom, it says "...Program finished with exit code 10" and "Press ENTER to exit console." in a green font.

```
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.
```