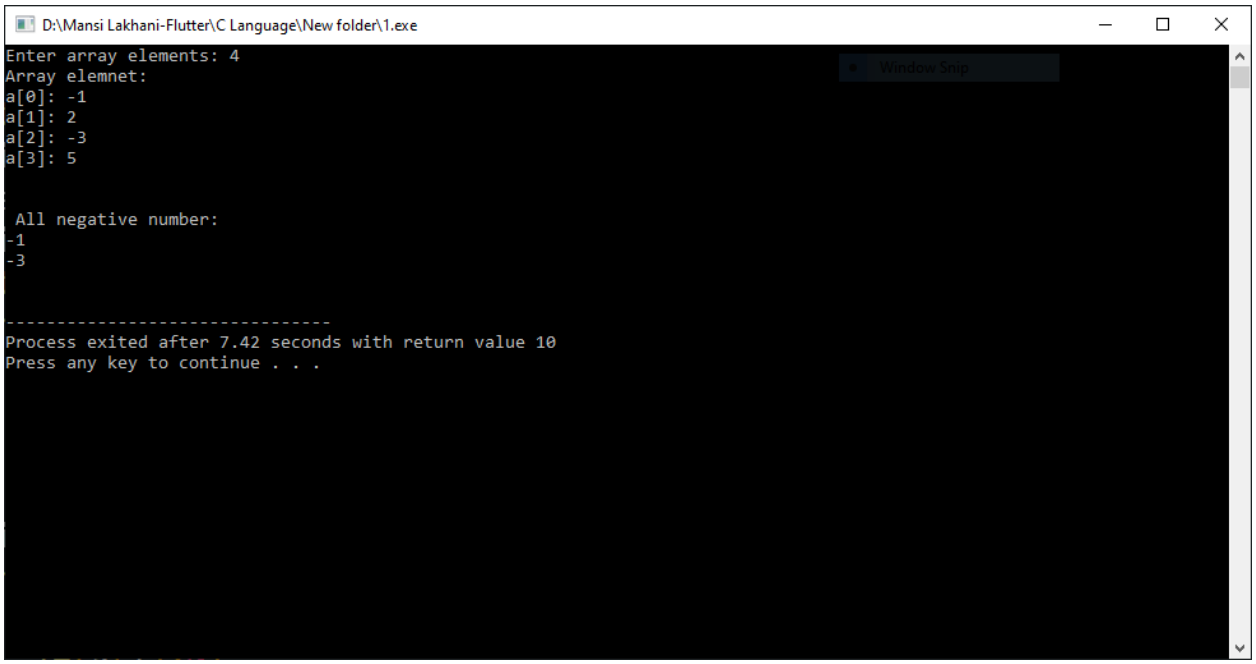
Practical-1

Aim:-Write C program to print all negative elements in an array.

Program:

```
#include<stdio.h>
main()
{
	int i,n;
	printf("Enter array elements: ");
	scanf("%d",&n);
	printf(" \n\nArray elements: ");
	int a[n];
	for(i=0;i<n;i++)
	{
		printf("a[%d]: ",i);
		scanf("%d",&a[i]);
	}
	printf("\n\n All negative number: \n");
	for(i=0;i<n;i++)
	{
		if(a[i]<0)
		{
			printf("%d \n",a[i]);
		}
	}
	printf("\n");
}
```

Output:


D:\Mansi Lakhani-Flutter\C Language\New folder\1.exe
Enter array elements: 4
Array elemnet:
a[0]: -1
a[1]: 2
a[2]: -3
a[3]: 5
All negative number:
-1
-3

Process exited after 7.42 seconds with return value 10
Press any key to continue . . .

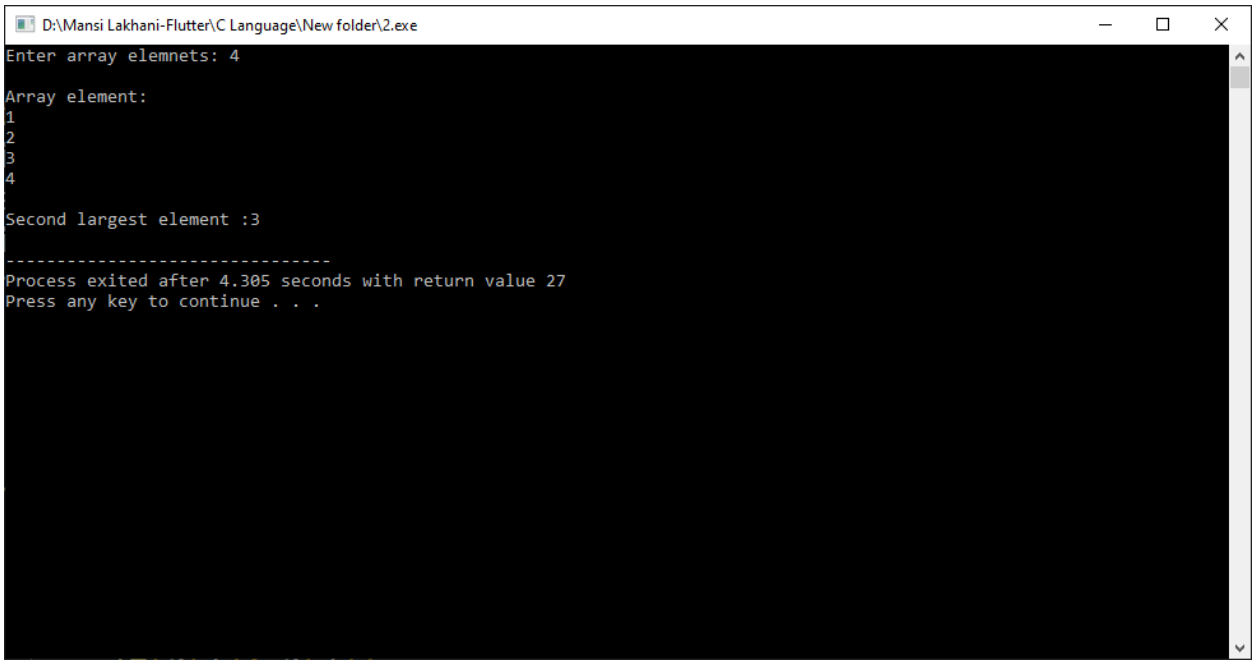
Practical-2

Aim:- **. Write C program to find second largest number in array.**

Program:

```
#include<stdio.h>
main()
{
	int a[20],b[20],n,sml=0,i,j,temp;
	printf("Enter array elements: ");
	scanf("%d",&n);
	printf("\nArray element: \n");
	for(i=1;i<=n;i++)
	{
		scanf("%d",&a[i]);
		b[i]=a[i];
	}
	for(i=1;i<=n;i++)
	{
		for(j=1;j<=n;j++)
		{
			if(a[i]<=a[j])
			{
				temp=a[i];
				a[i]=a[j];
				a[j]=temp;
			}
		}
	}
	printf(" Second largest element :%d\n",a[n-1]);
}
```

Output:


D:\Mansi Lakhani-Flutter\C Language\New folder\2.exe
Enter array elemnets: 4
Array element:
1
2
3
4
Second largest element :3
Process exited after 4.305 seconds with return value 27
Press any key to continue . . .

Practical-3

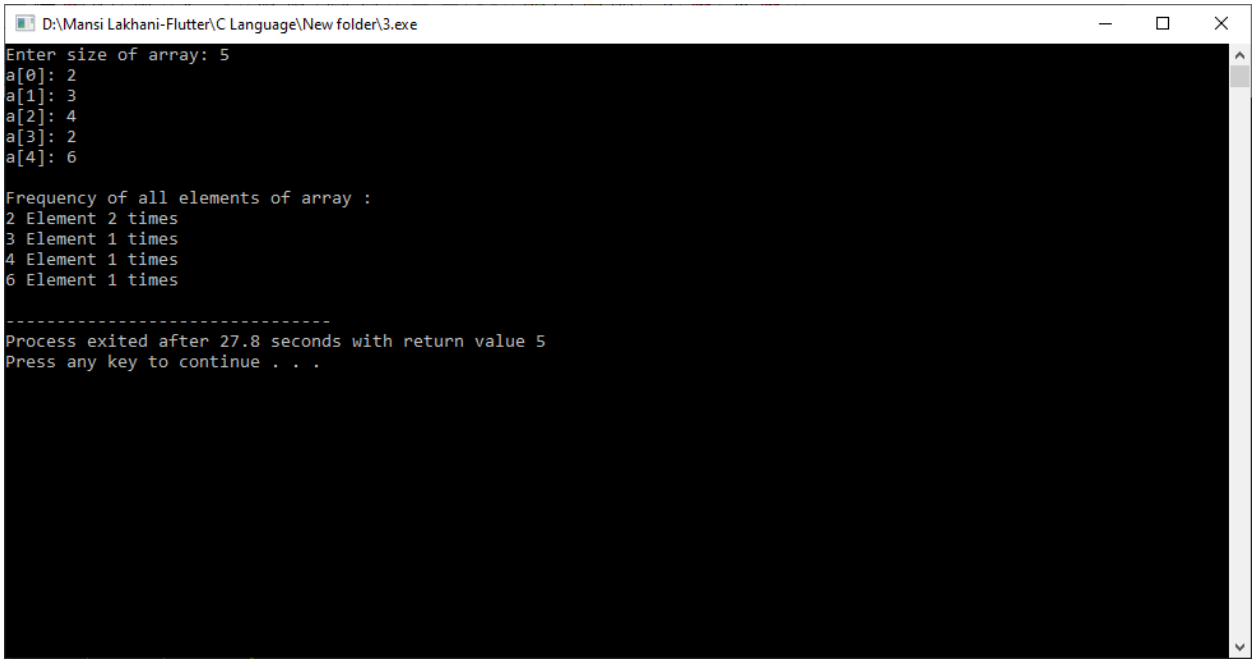
Aim:- **Write C program to count frequency of each element in an array.**

Program:

```
#include <stdio.h>
main()
{
	int i,j,n,c;
	printf("Enter size of array: ");
	scanf("%d", &n);
	int a[n],b[n];
	for(i=0;i<n;i++)
	{
		printf("a[%d]: ",i);
		scanf("%d",&a[i]);
		b[i] = -1;
	}
	for(i=0; i<n; i++)
	{
		c = 1;
		for(j=i+1; j<n; j++)
		{
			if(a[i]==a[j])
			{
				c++;
				b[j] = 0;
			}
		}
			if(b[i] != 0)
			{
				b[i] = c;
			}
	}
	printf("\nFrequency of all elements of array : \n");
	for(i=0; i<n; i++)
	{
		if(b[i] != 0)
```

```
                {
                        printf("%d Element %d times\n", a[i],b[i]);
                }
        }
}
```

Output:


D:\Mansi Lakhani-Flutter\C Language\New folder\3.exe
Enter size of array: 5
a[0]: 2
a[1]: 3
a[2]: 4
a[3]: 2
a[4]: 6
Frequency of all elements of array :
2 Element 2 times
3 Element 1 times
4 Element 1 times
6 Element 1 times

Process exited after 27.8 seconds with return value 5
Press any key to continue . . .

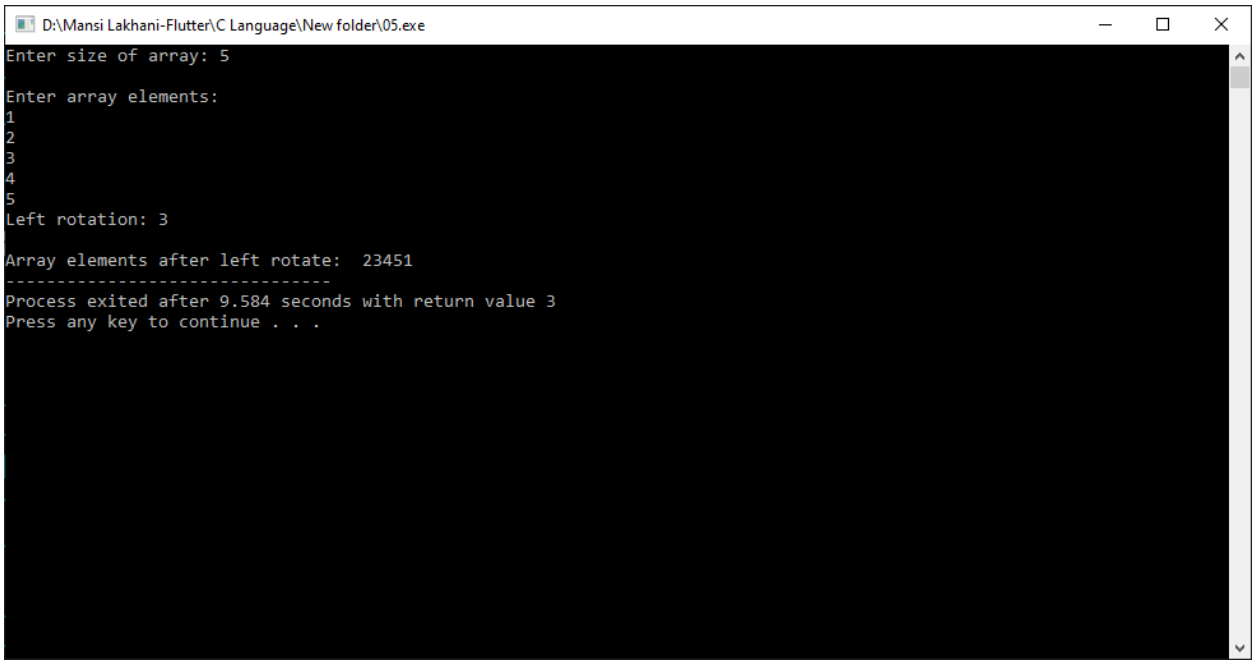
Practical-5

Aim:-. Write C program to left rotate and right rotate an array

Program:

```
#include<stdio.h>
main()
{
	int i,j,n,k,temp;
	printf("Enter size of array: ");
	scanf("%d",&n);
	printf("\nEnter array elements: \n");
	int a[n];
	for(i=0;i<n;i++)
	{
		scanf("%d",&a[i]);
	}
	printf("Left rotation: ");
	scanf("%d",&k);
	for(i=0;i<k;i++)
	{
		temp=a[0];
		for(j=0;j<n-1;j++)
		{
			temp=a[0];
			for(j=0;j<n-1;j++)
			{
				a[j]=a[j+1];
			}
			a[n-1]=temp;
		}
		printf("\nArray elements after left rotate:  ");
		for(i=0;i<n;i++)
		{
			printf("%d",a[i]);
		}
	}
}
```

Output:


D:\Mansi Lakhani-Flutter\C Language\New folder\05.exe
Enter size of array: 5
Enter array elements:
1
2
3
4
5
Left rotation: 3
Array elements after left rotate: 23451

Process exited after 9.584 seconds with return value 3
Press any key to continue . . .

Practical-6

Aim:- **Write C program to addition of two matrices.**

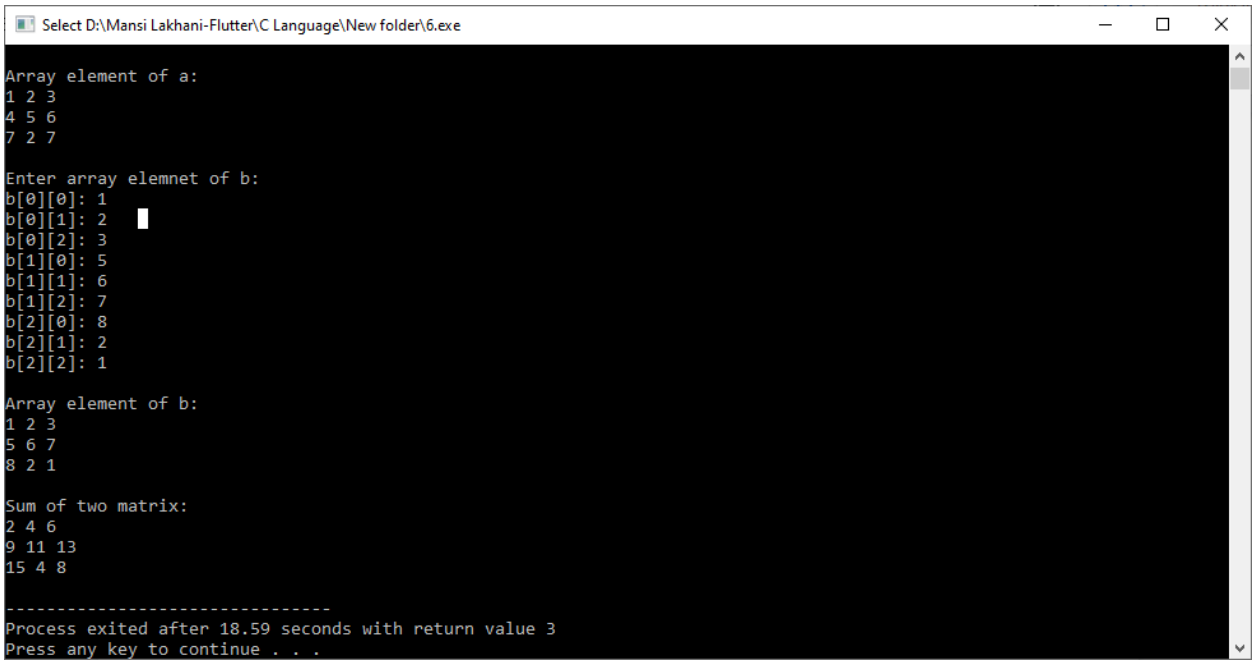
Program:

```
#include<stdio.h>
main()
{
	int i,j,r,c;
	printf("How many rows: ");
	scanf("%d",&r);
	printf("How many cols: ");
	scanf("%d",&c);
	printf("Enter array element of a: \n");
	int a[r][c];
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
			printf("a[%d][%d]: ",i,j);
			scanf("%d",&a[i][j]);
		}
	}
	printf("\nArray element of a: \n");
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
			printf("%d ",a[i][j]);
		}
		printf("\n");
	}
	printf("\nEnter array elemnet of b: \n");
	int b[r][c];
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
```

```
                printf("b[%d][%d]: ",i,j);
                scanf("%d",&b[i][j]);
            }
        }
        printf("\nArray element of b: \n");
        for(i=0;i<r;i++)
        {
            for(j=0;j<c;j++)
            {
                printf("%d ",b[i][j]);
            }
            printf("\n");
        }
        int d[r][c];
        for(i=0;i<r;i++)
        {
            for(j=0;j<c;j++)
            {
                d[i][j]=a[i][j]+b[i][j];
            }
        }
        printf("\nSum of two matrix: \n");
        for(i=0;i<r;i++)
        {
            for(j=0;j<c;j++)
            {
                printf("%d ",d[i][j]);
            }
            printf("\n");
        }


}
```

Output:


Select D:\Mansi Lakhani-Flutter\C Language\New folder\6.exe
Array element of a:
1 2 3
4 5 6
7 2 7
Enter array elemnet of b:
b[0][0]: 1
b[0][1]: 2
b[0][2]: 3
b[1][0]: 5
b[1][1]: 6
b[1][2]: 7
b[2][0]: 8
b[2][1]: 2
b[2][2]: 1
Array element of b:
1 2 3
5 6 7
8 2 1
Sum of two matrix:
2 4 6
9 11 13
15 4 8
Process exited after 18.59 seconds with return value 3
Press any key to continue . . .

Practical-7

Aim:- **Write C program matrix convert into transpose matrix.**

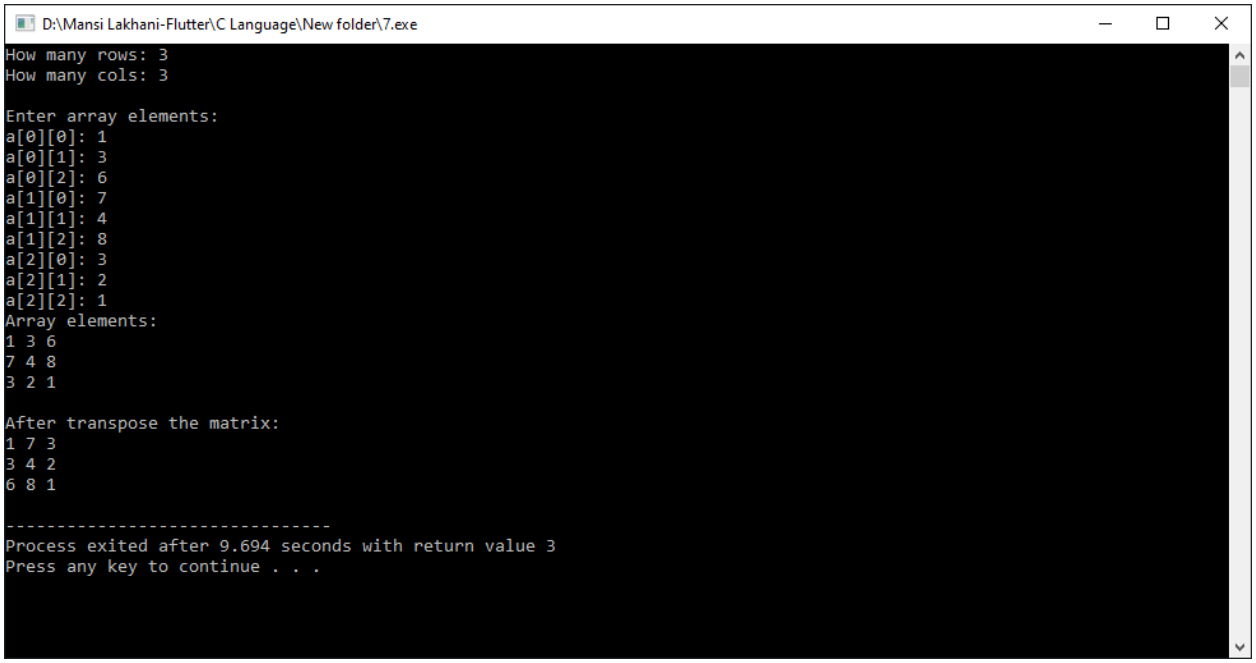
Program:

```
#include<stdio.h>
main()
{
	int i,j,r,c,sum=0;
	printf("How many rows: ");
	scanf("%d",&r);
	printf("How many cols: ");
	scanf("%d",&c);
	printf("\nEnter array elements: \n");
	int a[r][c];
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
			printf("a[%d][%d]: ",i,j);
			scanf("%d",&a[i][j]);
		}
	}
	printf("Array elements: \n");
		for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
			printf("%d ",a[i][j]);
		}
		printf("\n");
	}
	int b[r][c];
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
```

```
                b[j][i]=a[i][j];

            }
        }
        printf("\nAfter transpose the matrix: \n");
        for(i=0;i<r;i++)
        {
            for(j=0;j<c;j++)
            {
                printf("%d ",b[i][j]);
            }
            printf("\n");
        }
}
```

Output:


D:\Mansi Lakhani-Flutter\C Language\New folder\7.exe
How many rows: 3
How many cols: 3
Enter array elements:
a[0][0]: 1
a[0][1]: 3
a[0][2]: 6
a[1][0]: 7
a[1][1]: 4
a[1][2]: 8
a[2][0]: 3
a[2][1]: 2
a[2][2]: 1
Array elements:
1 3 6
7 4 8
3 2 1
After transpose the matrix:
1 7 3
3 4 2
6 8 1

Process exited after 9.694 seconds with return value 3
Press any key to continue . . .

Practical-8

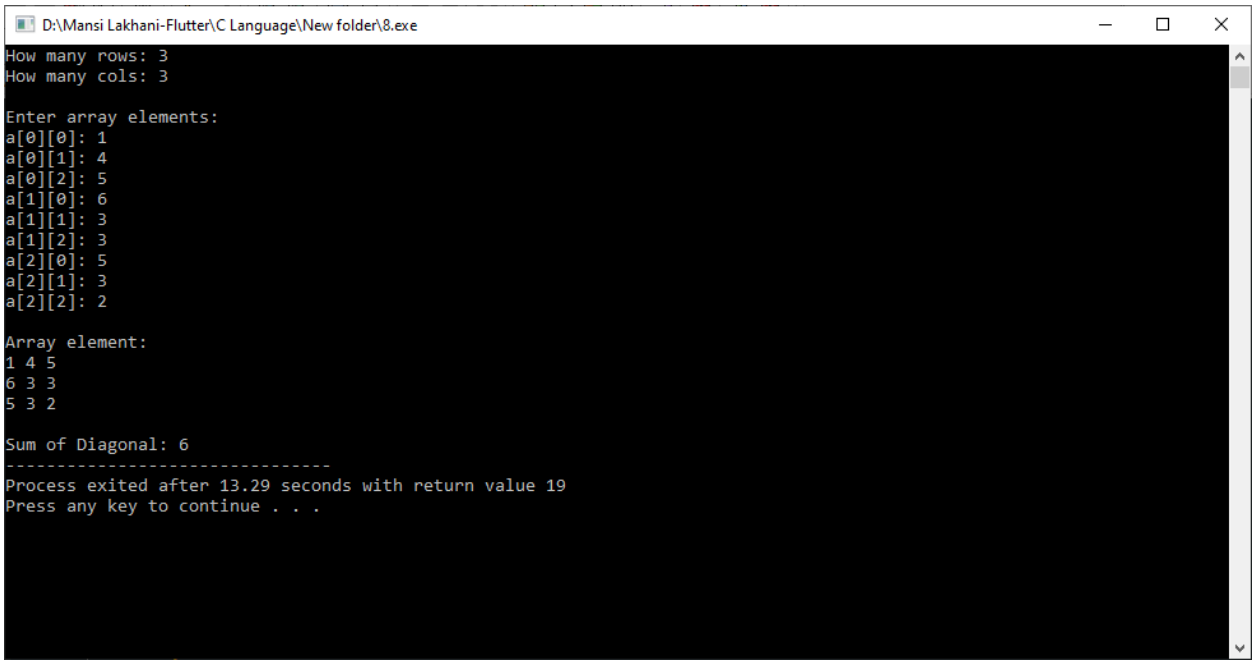
Aim:- **.Write C program to find sum of diagonal elements of a matrix.**

Program:

```
#include<stdio.h>
main()
{
	int i,j,r,c,sum=0;
	printf("How many rows: ");
	scanf("%d",&r);
	printf("How many cols: ");
	scanf("%d",&c);
	printf("\nEnter array elements: \n");
	int a[r][c];
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
			printf("a[%d][%d]: ",i,j);
			scanf("%d",&a[i][j]);
		}
	}
	printf("\nArray element:  \n");
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
			printf("%d ",a[i][j]);
		}
		printf("\n");
	}
	for(i=0;i<r;i++)
	{
		for(j=0;j<c;j++)
		{
		  if(i==j)
```

```
                {
                        sum=sum+a[i][j];
                }
            }
        }
        printf("\nSum of Diagonal: %d",sum);
}
```

Output:


D:\Mansi Lakhani-Flutter\C Language\New folder\8.exe
How many rows: 3
How many cols: 3
Enter array elements:
a[0][0]: 1
a[0][1]: 4
a[0][2]: 5
a[1][0]: 6
a[1][1]: 3
a[1][2]: 3
a[2][0]: 5
a[2][1]: 3
a[2][2]: 2
Array element:
1 4 5
6 3 3
5 3 2
Sum of Diagonal: 6
Process exited after 13.29 seconds with return value 19
Press any key to continue . . .