

## Lower Triangular Matrices

A square matrix is called lower triangular if all the entries above the main diagonal are zero.

### Lower Triangular Matrix

1	0	0
4	2	0
6	5	1

### C program to implement Lower Triangular Matrices

```
#include<stdio.h>

#include<conio.h>

void main()

{

    int array[3][3], i, j, flag = 0 ;

    printf("\n\t Enter the value of Matrix : ");

    for (i = 0; i < 3; i++)

    {

        for (j = 0; j < 3; j++)

        {

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

        }

    }
```

```
}  
  
for (i = 0; i < 3; i++)  
  
{  
  
    for (j = 0; j < 3; j++)  
  
    {  
  
        if (array[i] < array[j] && array[i][j] == 0)  
  
        {  
  
            flag = flag + 1;  
  
        }  
  
    }  
  
}  
  
if (flag == 3)  
  
    printf("\n\n Matrix is a Lower triangular matrix");  
  
else  
  
    printf("\n\n Matrix is not a lower triangular matrix");  
  
}
```

## Upper Triangular Matrices

A square matrix is called upper triangular if all the entries below the main diagonal are zero.

*Upper triangular  
matrix*

3	2	6	7
0	6	6	8
0	0	2	4
0	0	0	1

*Below the main diagonal  
are 0*

### C program to implement Upper Triangular Matrices

```
#include <stdio.h>
```

```
#include<conio.h>
```

```
void main()
```

```
{
```

```
    int i, j, r, c, array[10][10];
```

```
    printf("Enter the r and c value:");
```

```
    scanf("%d%d", &r, &c);
```

```
    for (i = 1; i <= r; i++)
```

```
{  
  
    for (j = 1; j <= c; j++)  
  
    {  
  
        printf("array[%d][%d] = ", i, j);  
  
        scanf("%d", &array[i][j]);  
  
    }  
  
}
```

```
printf("matrix is");  
  
for (i = 1; i <= r; i++)  
  
{  
  
    for (j = 1; j <= c; j++)  
  
    {  
  
        printf("%d", array[i][j]);  
  
    }  
  
    printf("\n");  
  
}
```

```
for (i = 1; i <= r; i++)  
  
{  
  
    printf("\n");  
  
}
```

```
for (j = 1; j <= c; j++)  
  
{  
  
    if (i >= j)  
  
    {  
  
        printf("%d", array[i][j]);  
  
    }  
  
    else  
  
    {  
  
        printf("\t");  
  
    }  
  
}  
  
}
```

```
printf("\n\n");  
  
for (i = 1; i <= r; i++)  
  
{  
  
    printf("\n");  
  
    for (j = 1; j <= c; j++)  
  
    {  
  
        if (j >= i)
```

```
{  
    printf("%d", array[i][j]);  
    }  
    else  
    {  
        //printf("\t");  
    }  
    // printf("\n");  
}  
}
```