

Tridiagonal space matrices

Tridiagonal matrix : A Tridiagonal matrix is a band matrix that has nonzero elements on the main diagonal, the first diagonal below this, and the first diagonal above the main diagonal only.

For example, the following matrix is tridiagonal:

The matrix is a 4x4 grid of numbers:

1	7	0	0
2	3	8	0
0	5	6	4
0	0	9	10

Red lines are drawn through the matrix to highlight the main diagonal (from top-left to bottom-right) and the two diagonals immediately adjacent to it (one above and one below the main diagonal). A blue bracket on the left side groups the four rows of the matrix.

Tri Diagonal Matrix

C Program to print Tridiagonal Matrices

```
#include<stdio.h>
#include<conio.h>
void main()
{
    int i,j,k;
    clrscr();
    int mat[5][5]={{1,2,3,4,5},{6,7,8,9,10},{11,12,13,14,15},{16,17,18,19,20},{21,22,23,24,25}};
    printf("Entered matrix is:\n\n");
    for(i=0;i<5;i++)
    {
        for(j=0;j<5;j++)
        {
```

```

printf("%d\t",mat[i][j]);
}

printf("\n");

printf("\nTridiagonal matrix:\n\n");
printf("%d\t%d\n",mat[0][0],mat[0][1]);
for(i=1;i<5;i++)
{
    for(k=1;k<i;k++)
    {
        printf("\t");
    }
    if(i==4)
        printf("%d\t%d\n",mat[4][3],mat[4][4]);
    else
    {
        for(j=i;j<5;j++)
        {
            if(i==j)
                printf("%d\t%d\t%d",mat[i][j-1],mat[i][j],mat[i][j+1]);
        }
        printf("\n");
    }
}

```

```
getch();
```

```
}
```