```c
#include<stdio.h>
int main()
{
    int i,j,option;
    int p;
    int c=0;
    int f = 0;
    int k =0;
    int number; // a variable to count minimum number of zeros in
any triangular matrix
    printf("enter the size of the array: ");
    int n;
    scanf("%d",&n);
    int arr[n][n];
    printf("enter the elements in the array \n ");
    for(i=0;i<n;i++)
    {   for(j=0;j<n;j++)
        {
            scanf("%d",&arr[i][j]);
        }
    } p = n-1; // using formula
    number = n*p/2;   // we all know that the minimum number of
zero in any triangular matrix of order n is n(n-1)/2

printf("enter 1 for checking upper triangularity of the matrix ");
printf(" \n enter 2 for checking lower triangularity of the matrix
");
scanf("%d",&option);
switch(option)
{
    case 1 : for(i=0;i<n;i++)
            {
                for (j=0;j<n;j++)
                {   if(i==j){
                    if(arr[i][j]==0)
                        f=1;

                }   else if (i>j){
                    if(arr[i][j]==0)
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                        c++;
            } else{
                if(arr[i][j]==0)
                    k++;



            }
            }
            if (f==1){ // to check whether there is a non
zero element in main diagonal of the given matrix
                printf("not a triangular matrix");
                break;
            }

        } if (c>=number && k!=c){  // check that the counter
variable is atleast greater than the minimum number of zeros
            printf("this is a upper triangular matrix");
        } else {
            printf("\n this is not a upper triangular
matrix");
        }


    break;
    case 2 : for(i=0;i<n;i++)
            {
            for (j=0;j<n;j++)
            {   if(i==j){
                if(arr[i][j]==0)
                    f=1;


            }   else if (i<j){
                if(arr[i][j]==0)
                    c++;
            } else {
                if(arr[i][j]==0)
                    k++;


            }
            }
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                if (f==1){
                printf("not a triangular matrix");
                 break;
                }

            }if (c>=number && k!=c){
                printf("this is a lower triangular matrix");
            } else {
                printf(" \n this is not a lower triangular
matrix");
            }
        break;
        default : printf("incorrect option choosen");
}
return 0;
}
```