

Procedure of the code :

When the compilation begins at first the compiler asks for the order of the 2d array from the user

- Enter the size of array”: 3 (from console)
- Thus the array, arr[3][3] is now declared.
- Now the compiler asks from the console to enter the elements in array and the elements are entered row-wise.

1 2 3

0 4 8

0 0 6

- Now p will store $n-1$ i.e, $3-1=2$.
- Number = $n*p/2=3*2/2=3$ [minimum number of zeros in a triangular matrix]
- Further compiler will ask console to input 1 or 2 for checking upper triangular and lower triangular matrix respectively.
- “Enter 1 for checking upper triangularity” or “enter 2 for checking lower triangularity” : 1 (by console)
- Further compiler will execute case no :1 of switch case

- For value of $i=1$, j will take values upto $j=0, j=1, j=2$ and simultaneously $arr[0][0], arr[0][1], arr[0][2]$ will be checked for value 0 for $i=j$ or $i>j$ accordingly and thus value of “c” and “f” will be updated for each iteration of inner loop
- Now if $f=1$, then the compiler will print “not a triangular matrix” and the compiler will come out of outer loop else i will be incremented to 1 and 2 and thus the other positions like $arr[1][0], arr[1][1], arr[1][2], arr[2][0], arr[2][1], arr[2][2]$ will be checked similarly and value of “c” and “f” will be updated.
- Finally it will check that value of $c=\text{number}$ condition, if found true then it will print “it is a triangular matrix” else it will print “not a triangular matrix”.