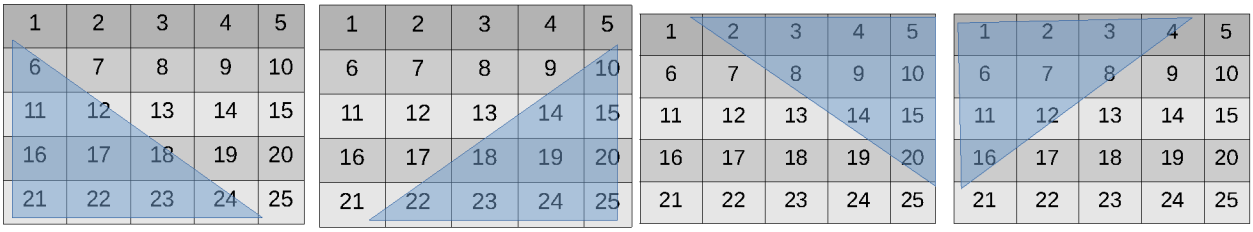
DSA LAB Programming Practice

Multi Dimensional Array

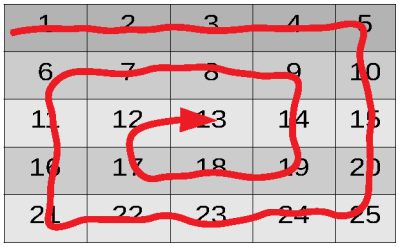
For all the following questions you can take the random values.

1. Write a program to create a two dimensional array dynamically and display the content of the array in a function
2. Write a program where in the main function you create a two dimensional array statically and pass as a parameter to a function called “fill”. The *fill* function will inpot the elements into the array and return the array as a return type. The main function will receive the return array from the *fill* function as a pointer and display the elements of the array using the pointer.
3. Write a program to display the triangular matrix of a two dimensional matrix as per the following figure.



In the first matrix you need to display 21, 16,22,11,17,23,6,12,18,24. Similarly for other matrix in the same manner.

4. Display the two dimensional matrix in a circular manner as per the following figure.



5. Write function that will compute the sum of surrounding elements of a particular position in a two dimensional matrix.

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

13’s surrounding elements are 7,8,9,14,19,18,17,12
6’s surrounding elements are 1,2,7,12,11

6. Write a program to rotate the circular elements based on the number of shifts. If it is two shift then all the elements in the circle will be shifted two step forward. Write the program without taking any extra array.

1-shift 2-shift

7. Write a program to find the square matrix subset of an original two dimensional matrix whose summation, i.e. the summation of all the elements of square matrix subset, is equal to the required number.
8. Write a program to find the minimum number of contiguous elements in the row major order format of a two dimensional matrix whose summation is equal to the required number.