CL-1002
Programming Fundamentals
Lab # 10

Objectives:

- Practice and understanding on basic C++ programs
- 1-D Arrays
- Nested Loops
- Loops with Arrays
- Multidimensional Array

Note: Carefully read the following instructions (*Each instruction contains a weightage*)

1. First think about statement problems and then write your program.
2. Write Program in C/C++ compiler/IDE and save source file **for each program.**
3. Do not copy from any source otherwise you will be penalized with negative marks.
4. Complete your lab **within given Time Slot**.
5. Add your source code in this word document + Make one ZIP file of your all source codes.
6. Please submit your **Both files** with this naming convention ROLLNO_SECTION_LABNO.
7. Submit your lab on Google Classroom.

Problem 1:

Write a program display same output given below

```
1 2 3 4 5 6 7 8 9 10
1 2 3 4 5 6 7 8 9
1 2 3 4 5 6 7 8
1 2 3 4 5 6 7
1 2 3 4 5 6
1 2 3 4 5
1 2 3 4
1 2 3
1 2
1
Press any key to continue . . .
```

Problem 2:

Make a menu that asks the user for the following options.
1. Square with asterisk (take number limit from user as input and print asterisk in triangle form)
2. Square with numbers in increasing order (input square number limit from user)
   Hint: 1, 4, 9, 16…n^2
3. Square with numbers in decreasing order (input square number limit from user)

Problem 3:

Write a program which input a 2-Dimensional array of size 5x5, find the largest element in it

Problem 4:

Write a C++ Program to Find if an Array is a Square Matrix and Print the Diagonals.
The program takes an array and checks if it is a square matrix and prints the diagonals.
A square matrix is one which has equal number of row and columns.

Problem 5:

Write a C++ Program to Perform Matrix Multiplication.
1. The program takes two matrices and multiplies them
2. If number of columns of matrix A is not equal to number of rows of matrix B, then matrices cannot be added.
3. The program is exited.
4. Else they are multiplied and the result is printed.
5. Exit.

Problem 6:

Write a program that can be used to assign seats for a commercial airplane. The airplane has 13 rows, with six seats in each row. Rows 1 and 2 are first class, rows 3 through 7 are business class, and rows 8 through 13 are economy class. Your program must prompt the user to enter the following information:

1. Ticket type (first class, business class, or economy class)
2. Desire seat Number

Output the seating plan in the following form:

	A	B	C	D	E	F
Row 1	*	*	X	*	X	X
Row 2	*	X	*	X	*	X
Row 3	*	*	X	X	*	X
Row 4	X	*	X	*	X	X
Row 5	*	X	*	X	*	*
Row 6	*	X	*	*	*	X
Row 7	X	*	*	*	X	X
Row 8	*	X	*	X	X	*
Row 9	X	*	X	X	*	X
Row 10	*	X	*	X	X	X
Row 11	*	*	X	*	X	*
Row 12	*	*	X	X	*	X
Row 13	*	*	*	*	X	*

Here, * indicates that the seat is available; X indicates that the seat is occupied. Make this a menu-driven program; show the user's choices and allow the user to make the appropriate choices.

Note:

If seat already occupy show the proper message and then say choice again.