Date:

```
LAB NO: 8
FUNCTIONS
  jecures.
In this lab, student will be able to:
Objectives:
  understand modularization and its importance
  define and invoke a function
  define and define and define analyze the flow of control in a program involving function call analyze the flow of functions
 write programs using functions
Introduction
A function is a set of instructions to carry out a particular task.
Using functions programs can be structured in a more modular way.
Function definition and call
           FUNCTION DEFINITION
                                                    Parameter List
                           Function name
       Return type
      void DisplayMessage(void)
              cout << "Hello from function DisplayMessage\n";
      void main()
              cout << "Hello from main";
              DisplayMessage(), FUNCTION CALI
              cout << "Back in function main again.\n";
       }
```

Solved exercise

Code snippet explaining concept of multiple functions

```
void First (void){
        cout << "I am now inside function First\n";
}

void Second (void){
        FUNCTION DEFINITION
        cout << "I am now inside function Second\n";
        First();
        cout << "Back to Second\n";
}

void main (){
        cout << "I am starting in function main\n";
        First ();
        cout << "Back to main function \n";
        Second ();
        FUNCTION CALL
        cout << "Back to main function \n";
}</pre>
```

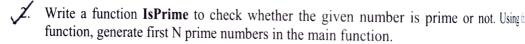
Lab exercises

With the knowledge of modularization, function definition, function call etc., write (programs which implement simple functions and recursive functions.

Write C++ programs as specified below:

Simple Functions

Write a function **Fact** to find the factorial of a given number. Using this function, compared in the main function.



- 3. To obtain the roots of the polynomial $1x^3 + 0x^2 1x^1 3x^0$, with maximum power of having initial value x1=3 using Newton Raphson's method.
- 4. To obtain sum of nth term for the series $1+x/1! + x^2/2! + x^3/3! + x^4/4!..x^x/x!$, Example 7. Taylor's series method.
- 5. To demonstrate functionality of Newton's Forward difference method for the following records, with x=2.35

v	2.0						
Λ	2.0	2.25	2.5	2.75	3		
f(x)	0	10.06		2.73			
I(A)	9	10.06	11.25	12.56	14		

functions taking (1D/2D) as array Parameter

Write a function Largest to find the maximum of a given list of numbers. Also write a main or nead N numbers and find the largest among them using this function Write a function.

Write a function of a given list of numbers. Also we program to read N numbers and find the largest among them using this function.

Write a function **Sort** to sort a list of names which will use a function **compare** to compare two names. (Bubble sort may be used).

Additional exercises

Write a function **IsPalin** to check whether the given string is a palindrome or not. Write a main function to test this function.

Write a function CornerSum which takes as a parameter, no. of rows and no. of columns of a matrix and returns the sum of the elements in the four corners of the matrix. Write a main function to test the function.

To find the value of integral using Trapezoidal rule for the following records.

X	7.47	7.48	7.49	7.50	7.51	7.52
f(x)	1.93	1.95	1.98	2.01	2.03	2.06

4. To find the value of integral using Simpson's 1/3rd rule for the following records.

X	0	0.25	0.5	0.75	1	
f(x)	1	0.8	0.6667	0.5714	0.5	

5. To find the value of integral using Simpson's 3/8th rule for the following records.

			0.3							
f(x)	1.001	1.008	1.027	1.064	1.125	1.216	1.343	1.512	1.729	2.0