# Lab 6: Functions

## Objectives:

To understand function programming, its types and function-call.

## Tasks:

**Note: Implement all the tasks using functions.**

1. Write a program that takes marks as input and displays the grade using function.
2. Write a function minmax() that takes four integers as input and display the minimum and maximum number.
3. Your program should have a function named ‘prime’ which accepts an integer and return a Boolean (a true if the number is prime and false otherwise).
4. Write a program to find a factorial of user input number. Use function to find factorial.
5. Given an integer number; you have to find the total number of minimum bit(s) which can be used to store given integer number. Implement the program using function. Function will take the integer as input and return the number of bits required.
6. Write a program to find the roots of a quadratic equation of type a.x2+b.x+c where a is not equal to zero.

**Algorithm for function roots():**

* 1. Read the coefficients of a quadratic equation a, b, c
  2. Calculate determinant d = b\*b – 4\*a\*c
  3. If d > 0 calculate two real roots r1 = (-b + sqrt(d)) / (2\*a) and r2 = (-b + sqrt(d)) / (2\*a)
  4. If d=0 then roots r1 and r2 are equal and display r1 = r2 = -b / (2\*a)
  5. If d < 0 then roots are imaginary and display real root= -b /(2 \* a) and img root =sqrt(-d) / (2\*a)

1. Write Program to compute Sin(x) using Taylor series approximation given by

Sin(x) = x - (x3/3!) + (x5/5!) - (x7/7!) + …….

Compare the result with the built- in Library function and print both the results.

#define PI 3.14159265

float mysin( float deg )

{

... //implement the function here

}

int main ()

{

double param, result,result2;

param = 30.0; //take it as input from user

result = sin (param\*PI/180);

result2 = mysin (param\*PI/180);

cout<< "The sine of " << param <<" degree using builtin function is "

<< result;

cout<<"The sine of "<<param<<"degree using user defined function is "

<< result2;

return 0;

}

Note: Use separate function for power and factorial