**TASK-08**

**EXPLANATION:**

Write a program to compute sinx for given x. The user should supply x and a positive integer n. We compute the sine of x using the series and the computation should use all terms in the series up through the term involving xn

sin x = x - x3/3! + x5/5! - x7/7! + x9/9!+………………………..

**INPUT:**

#include <iostream>

#include <string>

#include <cmath>

#include <iomanip>

#include "abdullah"

#define pi 3.14

using namespace std ;

double factorial ( int ) ;

int main ()

{

bool flag = true ;

while ( flag )

{

long double x = 0 , n = 0 ;

long double series = 0.0 ;

bool flag = true ;

string line\_1 = "Please enter the angle : " ;

string line\_2 = "Please enter the upper limit : " ;

cout << line\_1 ;

while ( ! ( cin >> x ) )

{

cin\_clear ( line\_1 , "No chatacter!" ) ;

}

int angle = x ;

if ( x > 360 )

{

while ( ! ( x <= 360 ) )

{

x -= 360 ;

}

}

if ( x < 0 )

{

while ( ! ( x >= 0 ) )

{

x += 360 ;

}

}

x = x \* ( pi / 180 ) ;

cout << line\_2 ;

while ( ! ( cin >> n ) || n < 1 )

{

cin\_clear ( line\_2 ) ;

}

for ( int i = 1 ; i <= n ; i+=2 )

{

if ( flag == 1 )

series = series + ( ( pow ( x , i ) ) / factorial (i) ) ;

else

series = series - ( ( pow ( x , i ) ) / factorial (i) ) ;

flag = !flag ;

}

cout << "Value of sin( " << angle << " ) in by series sum is : " << fixed << setprecision (10) << series ;

cout << endl ;

flag = continuationLoop () ;

cout << endl ;

}

}

double factorial ( int i )

{

if ( i <= 1 )

return 1 ;

else

return i \* factorial ( i - 1 ) ;

}

**OUTPUT:**



