UNIVERSITY OF ENGINEERING AND TECHNOLOGY,TAXILA

SOFTWARE ENGINEERING

LAB-11 SOLUTION

SUBMITTED TO : MS.SABA AWAN

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REG NO : 20-SE-56

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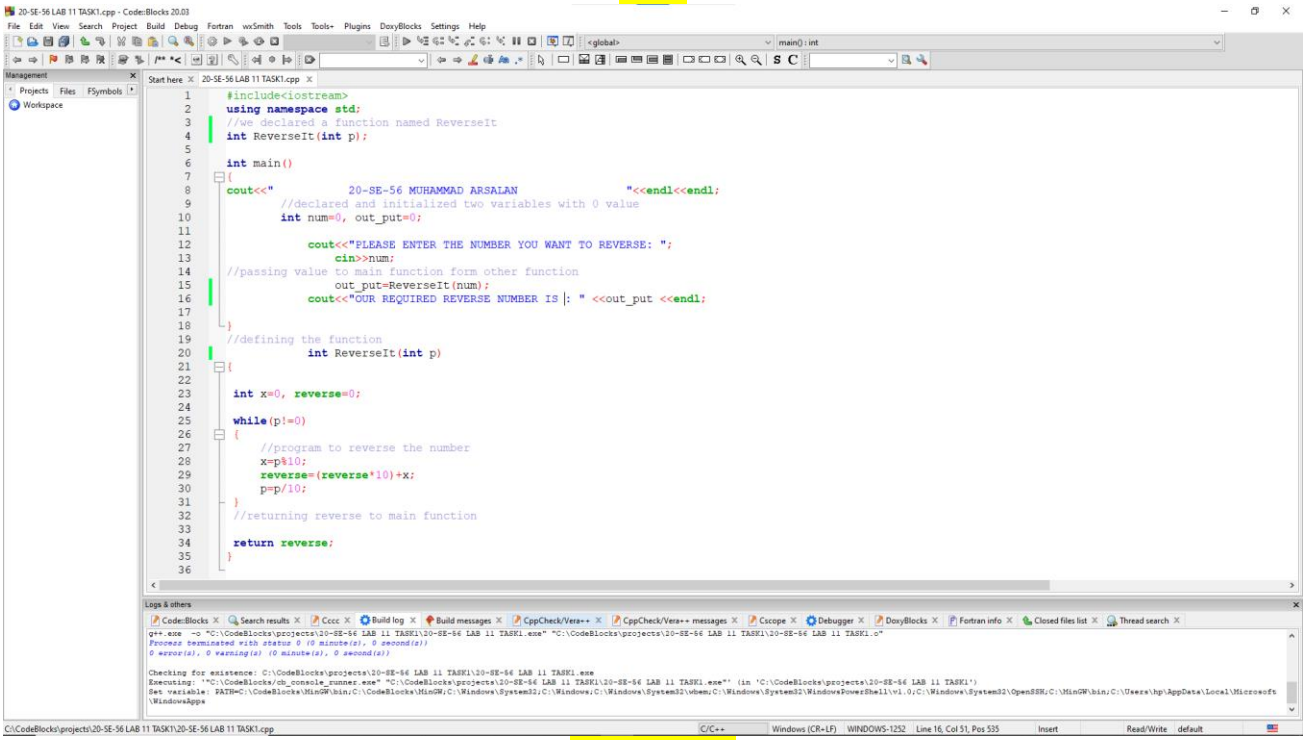
TASK-1

Write C++ Function named “ReverseIt” in which use enter a number, program reverse it and display reversed number on the console as given by the output:

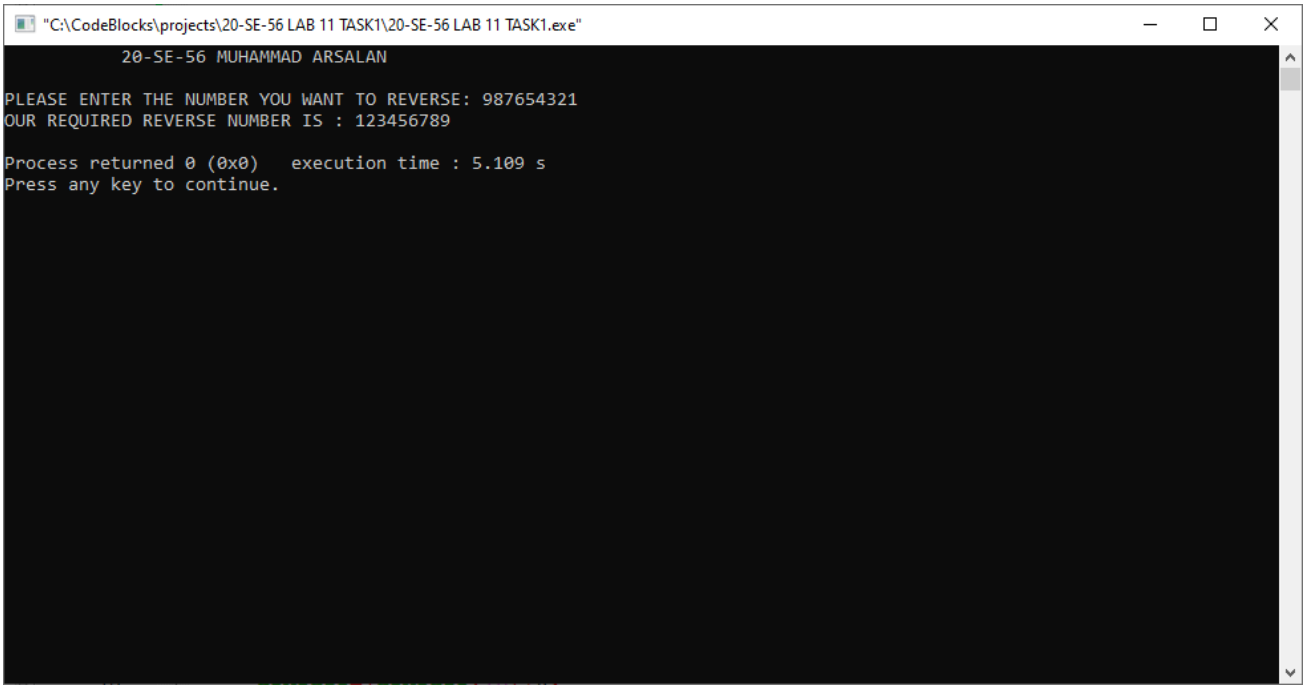
SOLUTION

CODE



```
#include<iostream>
using namespace std;
//we declared a function named ReverseIt
int ReverseIt(int p);

int main()
{
cout<<"          20-SE-56 MUHAMMAD ARSALAN              "<<endl<<endl;
        //declared and initialized two variables with 0 value
        int num=0, out_put=0;

            cout<<"PLEASE ENTER THE NUMBER YOU WANT TO REVERSE: ";
                cin>>num;
//passing value to main function form other function
                out_put=ReverseIt(num);
            cout<<"OUR REQUIRED REVERSE NUMBER IS : " <<out_put <<endl;

}
//defining the function
            int ReverseIt(int p)
{

 int x=0, reverse=0;

 while(p!=0)
 {
     //program to reverse the number
    x=p%10;
    reverse=(reverse*10)+x;
    p=p/10;
 }
 //returning reverse to main function

 return reverse;
}
```

OUTPUT



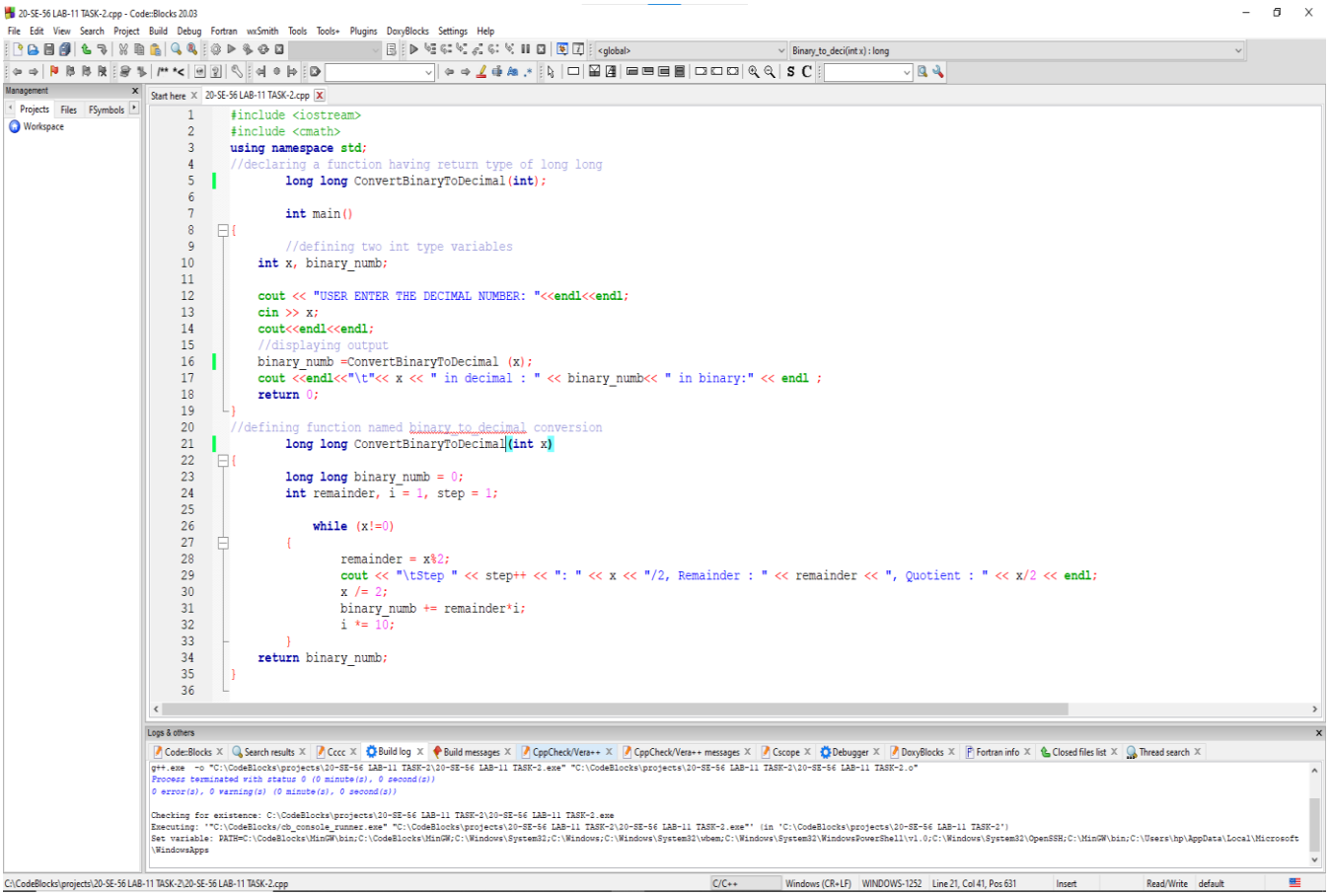
```
"C:\CodeBlocks\projects\20-SE-56 LAB 11 TASK1\20-SE-56 LAB 11 TASK1.exe"
          20-SE-56 MUHAMMAD ARSALAN

PLEASE ENTER THE NUMBER YOU WANT TO REVERSE: 987654321
OUR REQUIRED REVERSE NUMBER IS : 123456789

Process returned 0 (0x0)   execution time : 5.109 s
Press any key to continue.
```

TASK-2

Create a C++ Function named "**ConvertBinaryToDecimal**" that takes decimal number provided by user as input and perform its binary conversion to display the intermediate calculations with fila output as given below:

SOLUTION

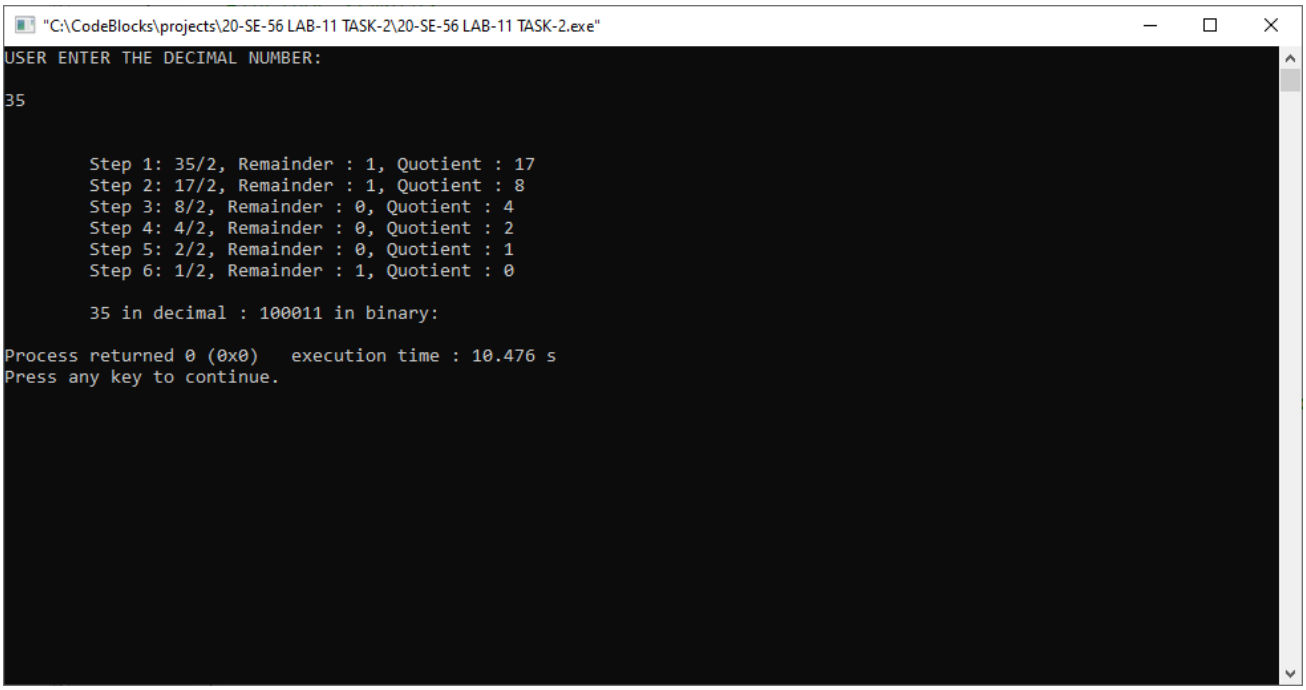
CODE



```
#include <iostream>
#include <cmath>
using namespace std;
//declaring a function having return type of long long
        long long ConvertBinaryToDecimal(int);

        int main()
{
        //defining two int type variables
    int x, binary_numb;

    cout << "USER ENTER THE DECIMAL NUMBER: "<<endl<<endl;
    cin >> x;
    cout<<endl<<endl;
    //displaying output
    binary_numb =ConvertBinaryToDecimal (x);
    cout <<endl<<"\t"<< x << " in decimal : " << binary_numb<< " in binary:" << endl ;
    return 0;
}
//defining function named binary to decimal conversion
        long long ConvertBinaryToDecimal(int x)
{
        long long binary_numb = 0;
        int remainder, i = 1, step = 1;

            while (x!=0)
        {
                remainder = x%2;
                cout << "\tStep " << step++ << ": " << x << "/2, Remainder : " << remainder << ", Quotient : " << x/2 << endl;
                x /= 2;
                binary_numb += remainder*i;
                i *= 10;
        }
    return binary_numb;
}
```

```
g++.exe -o "C:\CodeBlocks\projects\20-SE-56 LAB-11 TASK-2\20-SE-56 LAB-11 TASK-2.exe" "C:\CodeBlocks\projects\20-SE-56 LAB-11 TASK-2\20-SE-56 LAB-11 TASK-2.o"
Process terminated with status 0 (0 minute(s), 0 second(s))
0 error(s), 0 warning(s) (0 minute(s), 0 second(s))

Checking for existence: C:\CodeBlocks\projects\20-SE-56 LAB-11 TASK-2\20-SE-56 LAB-11 TASK-2.exe
Executing: "C:\CodeBlocks/cb_console_runner.exe" "C:\CodeBlocks\projects\20-SE-56 LAB-11 TASK-2\20-SE-56 LAB-11 TASK-2.exe"' (in 'C:\CodeBlocks\projects\20-SE-56 LAB-11 TASK-2')
Set variable: PATH=C:\CodeBlocks\MinGW\bin;C:\CodeBlocks\MinGW;C:\Windows\System32;C:\Windows;C:\Windows\System32\wbem;C:\Windows\System32\WindowsPowerShell\v1.0;C:\Windows\System32\OpenSSH;C:\MinGW\bin;C:\Users\hp\AppData\Local\Microsoft
\WindowsApps
```

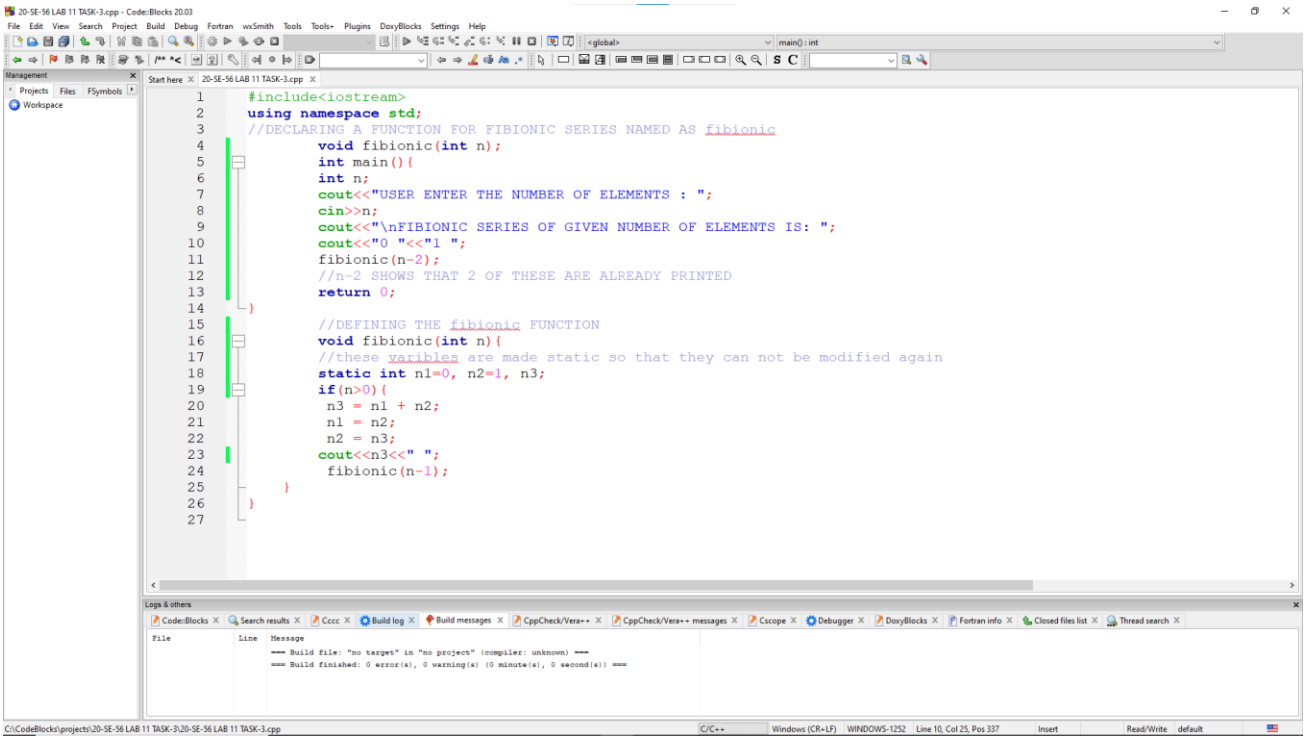
OUTPUT



TASK-3

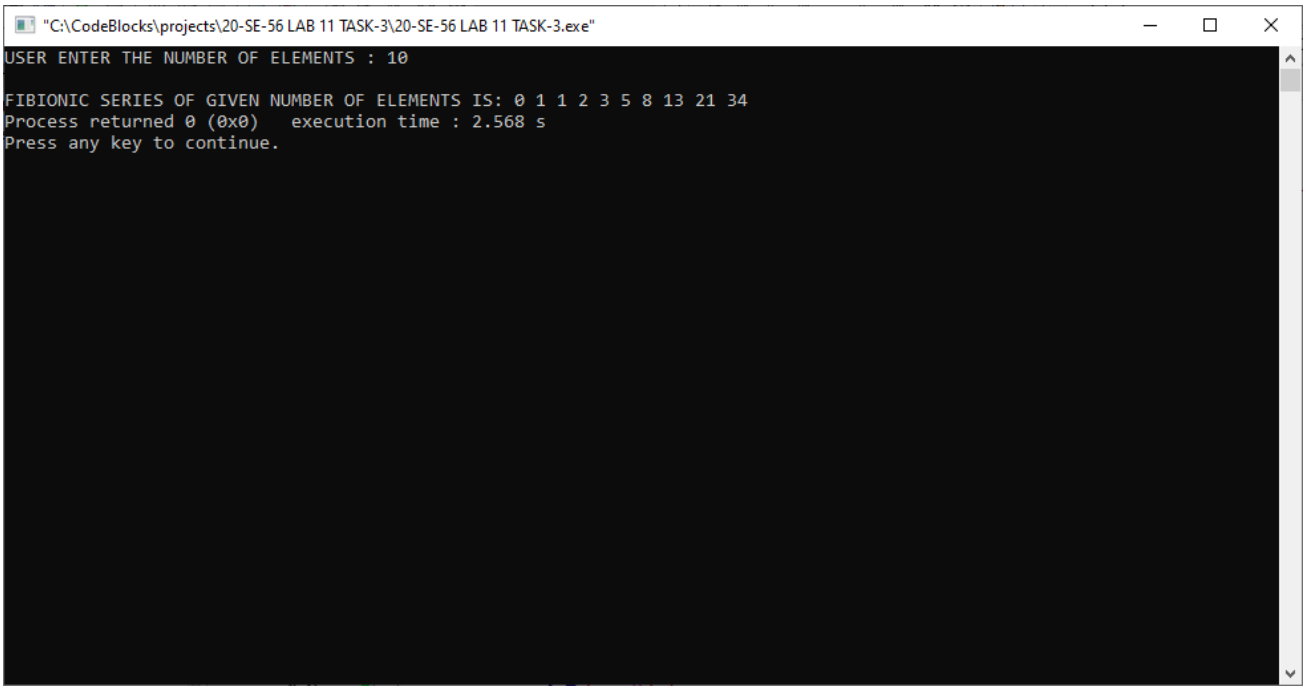
Write a C++ Program to Find Fibonacci Numbers using Recursion up to the number of terms provided by User.

SOLUTION CODE



```cpp
#include<iostream>
using namespace std;
//DECLARING A FUNCTION FOR FIBIONIC SERIES NAMED AS fibionic
        void fibionic(int n);
        int main(){
        int n;
        cout<<"USER ENTER THE NUMBER OF ELEMENTS : ";
        cin>>n;
        cout<<"\nFIBIONIC SERIES OF GIVEN NUMBER OF ELEMENTS IS: ";
        cout<<"0 "<<"1 ";
        fibionic(n-2);
        //n-2 SHOWS THAT 2 OF THESE ARE ALREADY PRINTED
        return 0;
}
        //DEFINING THE fibionic FUNCTION
        void fibionic(int n){
        //these varibles are made static so that they can not be modified again
        static int n1=0, n2=1, n3;
        if(n>0){
         n3 = n1 + n2;
         n1 = n2;
         n2 = n3;
        cout<<n3<<" ";
         fibionic(n-1);
    }
}
```

OUTPUT


"C:\CodeBlocks\projects\20-SE-56 LAB 11 TASK-3\20-SE-56 LAB 11 TASK-3.exe"
USER ENTER THE NUMBER OF ELEMENTS : 10
FIBIONIC SERIES OF GIVEN NUMBER OF ELEMENTS IS: 0 1 1 2 3 5 8 13 21 34
Process returned 0 (0x0)   execution time : 2.568 s
Press any key to continue.