Green University of Bangladesh Department of Computer Science and Engineering(CSE)

Faculty of Sciences and Engineering Semester: (Fall , Year:2022), B.Sc. in CSE (Day)

LAB REPORT NO : 07
Course Code : CSE 104
Course Title : Structured Programming Lab
Section : DC

Student Details

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Lab Date : 07-12-2022
Submission Date: 12-12-22
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[For Teachers use only: Don't Write Anything inside this box]

Lab Report Status

Marks:.....
Comments:

Signature:
Date:.....
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Problem 1:

•***Title:*** Write a recursive function to generate n^{th} Fibonacci term in C programming.

Objectives:

- To be familiar with scanf and printf functions.
- To be familiar with logical expression.
- To be familiar with user-defined function.
- To be familiar with Recursion.

Input & Output:

At first, the program input a number from the user. Then using fib(n-1)+fib(n-2) rule the program finds the nth number Fibonacci number.

Implementation:

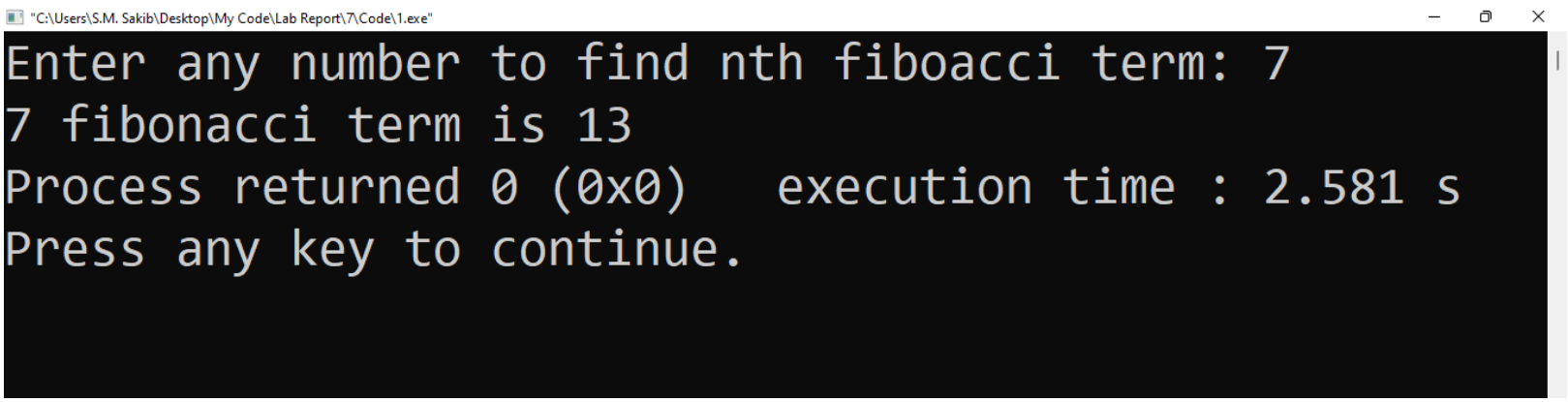
```c
#include <stdio.h>
int fibonacci_fun(int num)
{
    if(num == 0){
        return 0;
    }
    else if(num == 1){
        return 1;
    }
    else {
        return fibonacci_fun(num-1) + fibonacci_fun(num-2);
    }
}
int main()
{
    int num;
    int fibonacci_var;
    printf("Enter any number to find nth fiboacci term: ");
    scanf("%d", &num);

    fibonacci_var = fibonacci_fun(num);

    printf("%d fibonacci term is %d", num, fibonacci_var);

    return 0;
}
```

Test Result:



Discussion: When I write the program I have to learn about the rule of n^{th} number of Fibonacci numbers. And then Using Recursion I solve this problem.

Problem 2:

•***Title:*** Write a C program to calculate sum of all digits of a number using recursion.

Objectives:

- To be familiar with scanf and printf functions.
- To be familiar with if else conditions.
- To be a familiar user-defined function.
- To be familiar with Recursion.

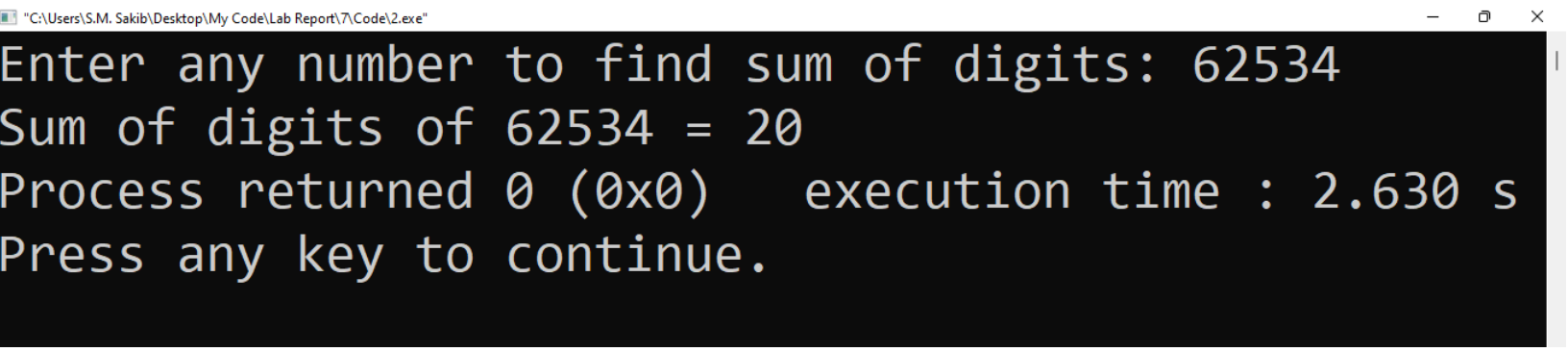
Input & Output:

At first, the program read a number from the user. Then the program separates each number and then find out all number's sumission using recursion.

Implementation:

```c
#include <stdio.h>
int main()
{
    int num, sum;
    printf("Enter any number to find sum of digits: ");
    scanf("%d", &num);
    sum = sumOfDigits(num);
    printf("Sum of digits of %d = %d", num, sum);
    return 0;
}
int sumOfDigits(int num)
{
    if(num == 0){
        return 0;
    }
    return ((num % 10) + sumOfDigits(num / 10));
}
```

Test Result:



Discussion: When I solve the problem I don't face any problem….