2. Recursion

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Agenda

- Introduction
- Recursion Examples
  - Fibonacci numbers
- Recursion Problems
  - Decimal to binary
  - Palindrome
  - Tail recursion

Introduction

All programs are written with C/C++.

There are always alternative solutions.

Please submit your works on Blackboard.

- **Submit ONLY codes and headers (not whole project).**
- **Divide each problem with folders.**

Folder> 1_Fib

Fibonacci Numbers

$fibo_1 = 0,\ fibo_2 = 1$

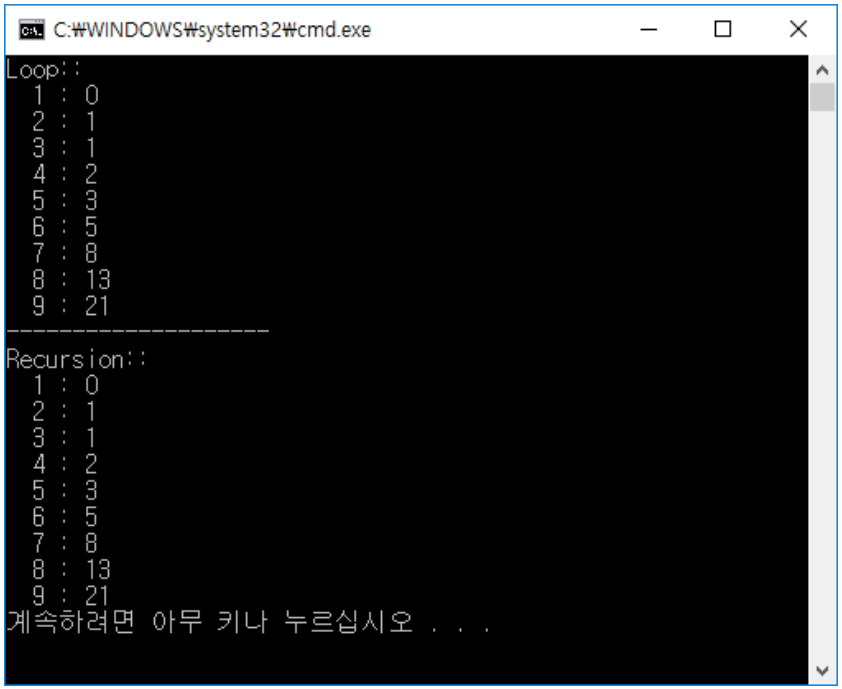
$fibo_{n+2} = fibo_n + fibo_{n+1}$

Implement Fibonacci function with Iteration (loop).

fibLoop()

Implement Fibonacci function with Recursion.

fib()

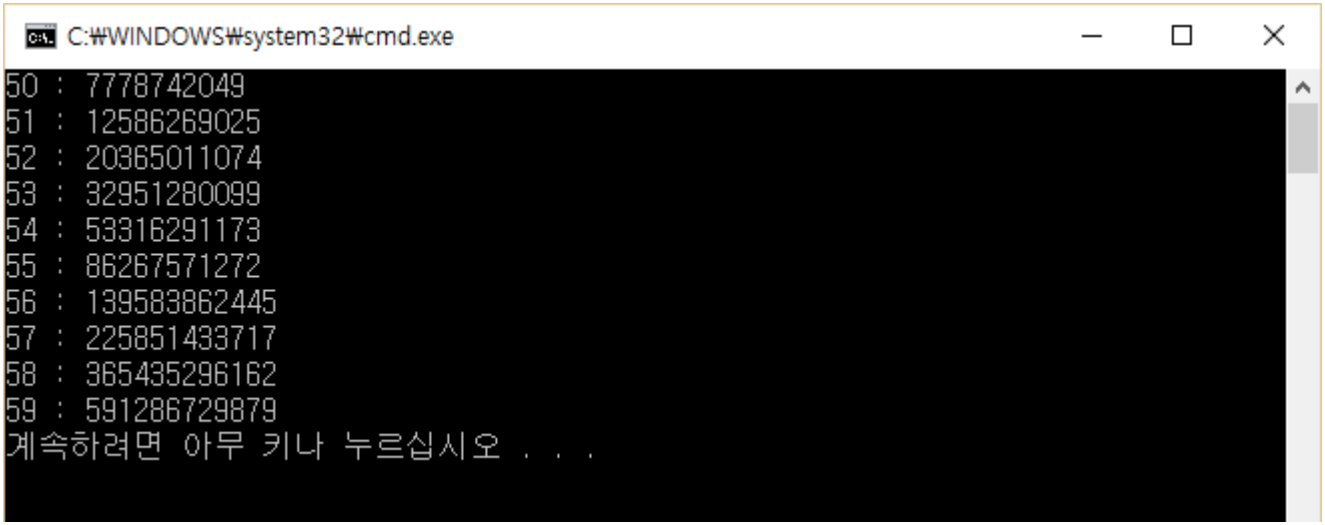


Folder> 2_FibTail

Tail recursion

Is your Fibonacci function works at n=50?

Make Fibonacci recursive function works at n>50.



Note. You will need 64 bit integer type.

Folder> 3_Palindrome

Palindrome

Create a function checking an input string is palindrome.

Create a stringLength() function (recursive)

Create palindrome() function (recursive)