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KAHLIL BELLO

DATA STRUCTURES

SEPT 19, 2018

PROJECT EXTRA CREDIT FIBONACCI

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#include <iostream>

#include <ctime>

using namespace std;

long int Fib(int n)

{

if (n <= 2)

{return 1;}

else

{

return (Fib(n - 1) + Fib(n - 2));

}

}//end Fib

long int NRFib(int n)

{

int f0 = -1;

int f1 = 1;

int fn;

for (int i = 0; i <= n; ++i)

{

fn = f0 + f1;

f0 = f1;

f1 = fn;

}

return fn;

}//end NRFib

int main()

{

int start = clock();

cout << "This is the 43rd Fibonacci number RECURSIVE...\n" << Fib(42) << endl;

int finish = clock();

cout << "The run-time is: " << (finish - start) / 1000 << "\n\n";

int start2 = clock();

cout << "This is the 43rd Fibonacci number with NON-RECURSIVE function...\n" << NRFib(42) << endl;

int finish2 = clock();

cout << "The run-time is: " << (finish2 - start2) / 1000 << endl;

system("pause");

return 0;

}

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OUTPUT:

This is the 43rd Fibonacci number RECURSIVE...

267914296

The run-time is: 8

This is the 43rd Fibonacci number with NON-RECURSIVE function...

267914296

The run-time is: 0

Press any key to continue . . .

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