MIPS & Complexity

Download the MIPS simulator. See SPIM Documentation and Examples of Instructions on MIPS for more details.

Write a program in MIPS that computes the n_{th} Fibonacci number, Fib(n), where Fib(0) = 1, Fib(1) = 1, Fib(2) = 2, ... You can start with the following settings:

```
l i $t0 , 1 ; f i b ( 0 ) = 1
l i $t1 , 1 ; f i b ( 1 ) = 1
add $t2 , $t1 , $t0 ; f i b (2)= f i b (1)+ f i b ( 0 )
l i $t3 , 2 ; n = 2
```

where n is stored in t3 and Fib(n) in t2.

What is the time complexity of your Fib(n)? Prove it using your MIPS program.