```
Task 2:
```

3

## Implementation 1:

det fibonacci\_1 (n): -7(1)

elif n<=1: - Ta)

else:

n = input (input (" Enter number") \_ 76)

rth-fib = fiboracei\_1(n) \_\_\_\_T(1)

print ("The Lyth fibonaccion number is 44." format

(n, nth-fib)) - T(1)

: 
$$f(m) = T(2^m) + T(1) = O'(2^m)$$
.

explanation it mitopropriated let n=5 : (r) & inspendit tob (in - 1100) 10300 1 20 fib(3) = 2 = 2 (infib(4) fib(3) fib(2) fib(2) fib(3)  $-4 = 2^2$ fib(2) fib(1) fib(6) fib(1) fib(6) fib(1) fip (0) fis (1) for i in porge(2, 11): -- 1617 (mit - Le journe + Ce - 17 th Pigate (c)1. - [wlay ways 1] 1, (00 (2m) ( moderne model in heged bridge " There I improved the state of the To most of her of your was a supported to A. T. com is f Company (are stiple (10) 1.10) T + (1) (Amwerr).

det fibonacci-2 (n): if mco: Toturn " invalid input" if m<= 1: (D) diff(1) return n fib = [0] \* (n+1) 14 (pay (pay (p.14 fib[0]= 0 fib[1] = 1 forci in range (2, n+1): - t(n) fib[i]=1]+fib[i-2] -Th) return fib [n] nth\_fib = fibonacci \_ 2(m) prant (The 43 th fisonacei number is 4)." franct (

 $f(n) = (n) + \tau(n) + \tau(n)$ 

37. 8+th fib) )-T(

Problem,

Implementation 1 is exponential time complexity and Implementation 2 is linear time complexity. Apart from faster, Implementation 2, linear is more faster that exponential.

Homwett.

(eti : 10 > i : 0: i) mo)

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