10/10/25

Task-11

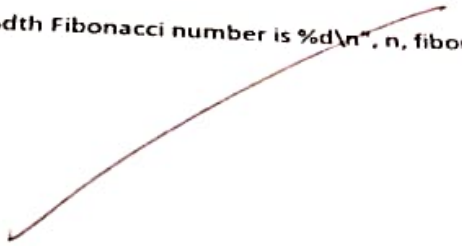
Recursion and its Concepts

The fibonacci numbers, commonly denoted F(n) form a sequence, called the fibonacci sequence, such that each number is the sum of the two preceeding ones, starting from 0 and 1.

Algorithm

1. If n is 0, return 0.
2. If n is 1, return 1.
3. Initialize variables a and b to 0 and 1. respectively.
4. For i from 2 to n, calculate the next Fibonacci number by setting a=b and b=a+b.
5. Return b as the n^{th} fibonacci number.

```
#include <stdio.h> int fibonacci(int n) {
 if (n <= 1) { return n;
 }
 return fibonacci(n-1) + fibonacci(n-2);
}
int main() {
int n = 10; // example number
printf("The %dth Fibonacci number is %d\n", n, fibonacci(n)); return 0;
}
```



Result :-

Thus, the program is executed successfully.

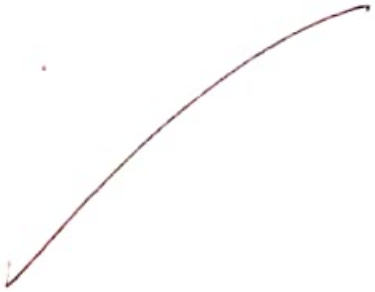
Problem:

The Tribonacci sequence T_n is defined as

Algorithm

1. If n is 0, return 0
2. If n is 1 or 2, return 1.
3. Initialize variables $t_0=1, t_1=1, t_2=1$ and $t_3=2$.
4. loop from 3 to n, and at each iteration, c
value of the next term in the sequence by
$t_0+t_1+t_2$, then update the values of t_0, t_1, and t
$t_0=t_1, t_1=t_2, t_2=t_3$.
5. Return the value of t_3.

```
nclude <stdio.h>
t fibonacci(int n) { if (n <= 1) {
eturn n;
eturn fibonacci(n-1) + fibonacci(n-2);
t main() {
t n = 10; // example number
rintf("The %dth Fibonacci number is %d\n", n, fibonacci(n)); return 0;
```



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EX NO.	8
PERFORMANCE (5)	5
RESULT AND ANALYSIS (3)	3
VIVA VOCE (3)	3
RECORD (4)	4
TOTAL (15)	15
SIGN WITH DATE	

sult :-

hus, the program is verified and executed successfully.