Practical No:- 1

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Write a program non-recursive and recursive program to calculate Fibonacci numbers and analyse their time and space complexity.

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#include <bits/stdc++.h> using namespace std;

int fibonacci(int n) { if (n <= 1) {

return n;

}

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

}

int main()

{

int i, n, t1 = 0, t2 = 1, nT;

cout<< "Fibonacci Series in C++ Without Using Recursion "; cout<< "\nEnter any number:";

cin >> n;

for (i = 1; i <= n; ++i) { cout << t1 << " ";

nT = t1 + t2; t1 = t2;

t2 = nT;

}

cout<< "\n\nFibonacci Series in C++ Using Recursion"; cout<< "\nEnter any number:";

int p; cin>>p;

cout << fibonacci(p);

}

/\* OUTPUT:-

Fibonacci Series in C++ Without Using Recursion Enter any number:15

0 1 1 2 3 5 8 13 21 34 55 89 144 233 377

Fibonacci Series in C++ Using Recursion Enter any number:15

377

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