1. **Write a program to calculate Fibonacci numbers and find its step count.**

#include <iostream>

using namespace std;

int step\_count\_recursive = 0;

int fibonacci\_recursive(int n) {

step\_count\_recursive++;

if (n <= 1) {

return n;

}

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

}

void print\_fibonacci\_recursive(int n) {

step\_count\_recursive = 0;

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

cout << fibonacci\_recursive(i) << " ";

}

cout << "\nStep count (recursive): " << step\_count\_recursive << endl;

}

void print\_fibonacci\_iterative(int n) {

int step\_count\_iterative = 0;

if (n == 0) return;

if (n == 1) {

cout << "0" << endl;

return;

}

int a1 = 0, a2 = 1;

cout << a1 << " " << a2 << " ";

step\_count\_iterative += 2;

for (int i = 2; i < n; ++i) {

int a3 = a1 + a2;

step\_count\_iterative++;

cout << a3 << " ";

a1 = a2;

a2 = a3;

cout << "\nStep count (iterative): " << step\_count\_iterative << endl;

}

}

int main() {

int recursive\_count;

cout << "Enter the number of Fibonacci numbers for recursive method: ";

cin >> recursive\_count;

print\_fibonacci\_recursive(recursive\_count);

int iterative\_count;

cout << "Enter the number of Fibonacci numbers for iterative method: ";

cin >> iterative\_count;

print\_fibonacci\_iterative(iterative\_count);

return 0;

}