Group A : DESIGN AND ANALYSIS ALGORITHM

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Assignment No: 1

Title Name: Calculate Fibonacci numbers and find its step count.

Name: Aniket Rajani

Class : BE **Div**: 1 **Batch**: A

Roll No: 405A008

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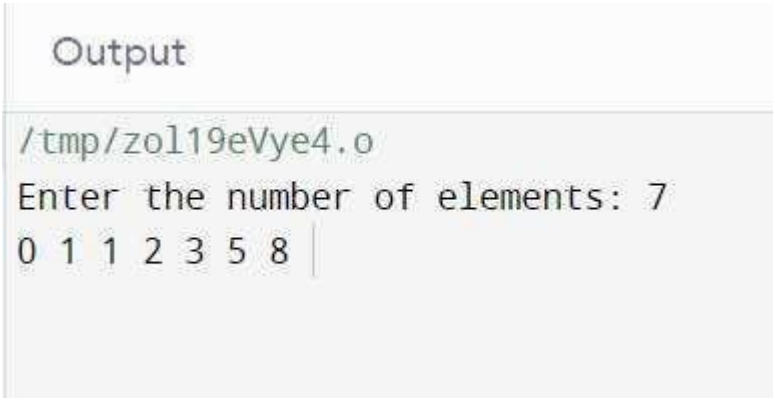
Program:

Fibonacci Series in C++ without Recursion

Code:

```
#include <iostream>
using namespace std;
int main()
{
        int n1=0,n2=1,n3,i,number;
        cout<<"Enter the number of elements: ";
        cin>>number;
        cout<<n1<<" "<<n2<<" "; //printing 0 and 1
        for(i=2;i<number;++i)      //loop starts from 2 because 0 and 1 are already
        printed
        {
                n3=n1+n2;
                cout<<n3<<" ";
                n1=n2;
                n2=n3;


        }
         return 0;
 }
```

Output:



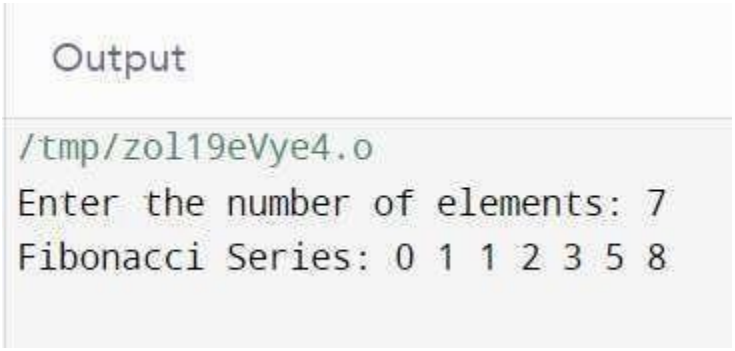
Fibonacci series using recursion in C++

Code:

```
#include<iostream>
using namespace std;
void printFibonacci(int n)
{
        static int n1=0, n2=1, n3;

        if(n>0)
        {
                n3 = n1 + n2;
                n1 = n2; n2 = n3;
                cout<<n3<<" ";
                printFibonacci(n-1);
        }
}
int main()
{
        int n;

        cout<<"Enter the number of elements: ";
        cin>>n;
        cout<<"Fibonacci Series: ";
        cout<<"0 "<<"1 ";
        printFibonacci(n-2); //n-2 because 2 numbers are already printed
        return

                0;
```

}

Output:


Output
/tmp/zol19eVye4.o
Enter the number of elements: 7
Fibonacci Series: 0 1 1 2 3 5 8