

Assignment No. 1

Problem Statement : Write a program non-recursive and recursive program to calculate Fibonacci numbers and analyze their time and space complexity.

Program:

```
#include<iostream>
using namespace std;
int a=0, b=1, c=0;
void fibonacci(int n)
{
    for(int i=0;i<n;i++)
    {
        cout<<a<<" ";
        int temp=a+b;
        a=b;
        b=temp;
    }
}

void rec_fibonacci(int n)
{
    if(n>0)
    {
        c=a+b;
        a=b;
        b=c;
        cout<<c<<" ";
        rec_fibonacci(n-1);
    }
}

int main()
{
    int n=6;
    //fibonacci(n);
    cout<<a<<" "<<b<<" ";
    rec_fibonacci(n-2);
}
```

Output:

```
Enter value of n : 6
```

```
0 1 1 2 3 5
```

```
-----
```

```
Process exited after 2.78 seconds with return value 0
```

```
Press any key to continue . . . |
```