

CollegeWork\Practicals\2.recursive-f2.cpp

```
//write a recursive formula for factorial and fibonacci.
```

```
#include <iostream>
using namespace std;
```

```
int factorial(int a, int f = 1){
    if(a == 0){
        return f;
    }else{
        f *= a;
        return factorial(a-1,f);
    }
}
```

```
int fibonacci(int n, int f1 = 0, int f2 = 1){
    int f = f1 + f2;
    if(n == 2){
        return f;
    }
    if(n == 1){
        return 1;
    }
    if(n == 0){
        return 0;
    }
    f1 = f2;
    f2 = f;
    return fibonacci(n-1,f1,f2);
}
```

```
int main(){
    int a;
    cout << "Enter the number for Factorial: ";
    cin >> a;
    cout << "Factorial of " << a << " is " << factorial(a) << endl;
    cout << "Enter the number for Fibonacci: ";
    cin >> a;
    cout << "Fibonacci of " << a << " is " << fibonacci(a) << endl;
    return 0;
}
```

****OUTPUT****

```
PS S:\Workspace\CollegeWork\Practicals> g++ .\2.recursive-f2.cpp
```

```
PS S:\Workspace\CollegeWork\Practicals> ./a
```

```
Enter the number for Factorial: 10
```

```
Factorial of 10 is 3628800
```

```
Enter the number for Fibonacci: 14
```

```
Fibonacci of 14 is 377
```

```
PS S:\Workspace\CollegeWork\Practicals>
```