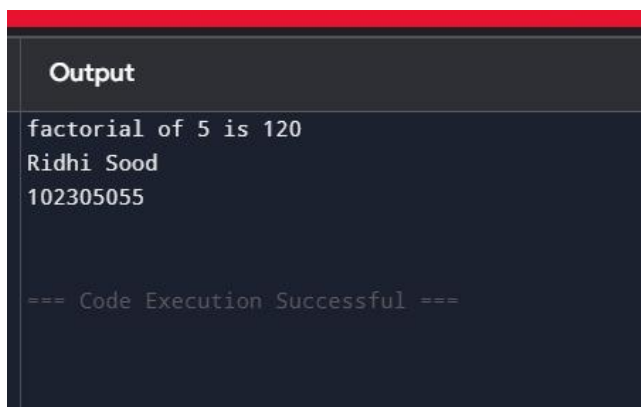


Q1.Implement recursive and iterative solutions for calculating factorial and Fibonacci numbers.

```
1. // Online C++ compiler to run C++ program online
2. #include <iostream>
3. using namespace std;
4. int factorial(int n){
5.     if(n==0){
6.         return 1;
7.     }
8.     else{
9.         return n * factorial(n-1);
10.    }
11.}
12.int main() {
13.    int n=5;
14.    cout << "factorial of 5 is "<< factorial(n) <<endl;
15.}
```



The screenshot shows a dark-themed output window with a red header bar. The text inside the window is as follows:

```
Output
factorial of 5 is 120
Ridhi Sood
102305055

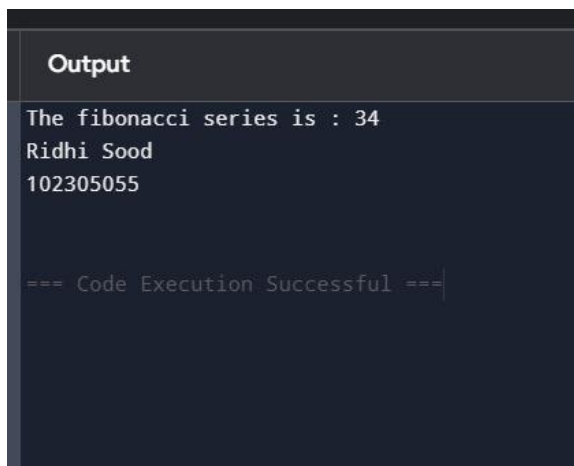
=== Code Execution Successful ===
```

```
1. #include<iostream>
2. using namespace std;
3. int fibonacci(int n){
4.     if(n==0){
5.         return 0;
6.     }
7.     if(n==1){
8.         return 1;
9.     }
```

```

10. else{
11.     return fibonacci(n-1)+fibonacci(n-2);
12. }
13.}
14.int main(){
15.    int n =9;
16.    cout<<"The fibonacci series is : "<<fibonacci(n)<<endl;
17.    cout<<"Ridhi Sood "<< endl;
18.    cout<<"102305055" <<endl;
19.}

```



The screenshot shows a dark-themed window titled "Output". The output text is as follows:

```

The fibonacci series is : 34
Ridhi Sood
102305055

=== Code Execution Successful ===

```

Q2.Solve the Tower of Hanoi problem for n disks.

```

1.#include<iostream>
Using namespace std;
Void tower_of_hanoi(int n,char source,char target, char auxiliary){
    If(n==1){
        Cout<<"Move disk 1 from " << source << " to " << target << endl;
        Return;
    }
    Tower_of_hanoi(n-1,source,auxiliary,target);
    Cout<<"Move disk "<< n << " from " << source << " to " << target << endl;
    Tower_of_hanoi(n-1,auxiliary,target,source);
}
Int main(){
    Int num;

```

```
Cout<<"Enter the number of disks"<< endl;  
Cin>>num;  
Tower_of_hanoi(num,'A','C','B');  
Cout<<"Ridhi Sood "<< endl;  
Cout<<"102305055" <<endl;  
Return 0;  
}
```

Output
Enter the number of disks
3
Move disk 1 from A to C
Move disk 2 from A to B
Move disk 1 from C to B
Move disk 3 from A to C
Move disk 1 from B to A
Move disk 2 from B to C
Move disk 1 from A to C
Ridhi Sood
102305055
=== Code Execution Successful ===