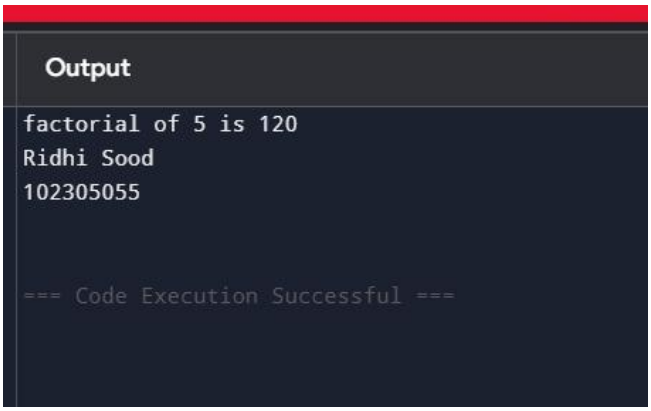
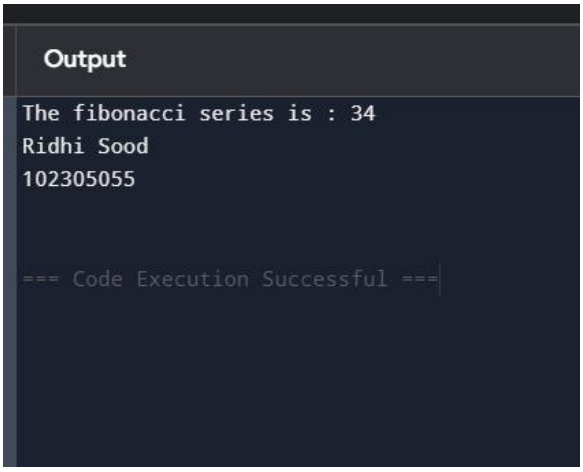
Q1.Implement recursive and iterative solutions for calculating factorial and Fibonacci numbers.

```
// Online C++ compiler to run C++ program online
#include <iostream>
using namespace std;
int factorial(int n){
    if(n==0){
        return 1;
    }
    else{
   return n * factorial(n-1);
    }
}
int main() {
    int n=5;
   cout << "factorial of 5 is "<< factorial(n) <<endl;
}
```




```
#include<iostream>
using namespace std;
int fibonacci(int n){
    if(n==0){
        return 0;
    }
    if(n==1){
        return 1;
    }
```

```
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. }
```



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;
}
```