```
    while (left <= right) {
        int mid = left + (right - left) / 2;

        if (arr[mid] != mid + 1 && (mid == 0 || arr[mid - 1] == mid)) {
            return mid + 1;
        }
        else if (arr[mid] != mid + 1) {
            right = mid - 1;
        }
        else {
            left = mid + 1;
        }
    }

    return size + 1;


t main() {
    int arr[] = {0, 1, 2, 3, 4, 5, 6, 7};
    int size = sizeof(arr) / sizeof(arr[0]);

    int smallestMissing = findSmallestMissing(arr, size);

    cout << "The smallest missing element is: " << smallestMissing << endl;

    return 0;
```

```cpp
#include <map>
using namespace std;

int main() {
    int arr[] = {3 ,43, 2 ,3 ,21 ,3 ,43 ,5} ;
    int n = sizeof(arr) / sizeof(arr[0]);

    std::map<int, int> frequencyMap;

    for (int i = 0; i < n; i++) {
        frequencyMap[arr[i]]++;
    }

    int mostFrequentElement = arr[0];
    int maxFrequency = frequencyMap[arr[0]];

    for (auto it = frequencyMap.begin(); it != frequencyMap.end(); ++it) {
        if (it->second > maxFrequency) {
            mostFrequentElement = it->first;
            maxFrequency = it->second;
        }
    }

    std::cout << "The most frequent element is: " << mostFrequentElement << std
        ::endl;

    return 0;
```

main.cpp

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

double power(double base, int exponent) {
    double result = 1.0;
    for (int i = 0; i < exponent; i++) {
        result *= base;
    }
    return result;
}

int main() {
    double base;
    int exponent;

    cout << "Enter the base number: ";
    cin >> base;

    cout << "Enter the exponent: ";
    cin >> exponent;

    double result = power(base, exponent);
    cout << base << " raised to the power of " << exponent << " is: " << result <<
        endl;

    return 0;
}
```

Output

```
/tmp/r2dGOLqkLK.o
Enter the base number: 5
Enter the exponent: 4
5 raised to the power of 4 is: 625
```

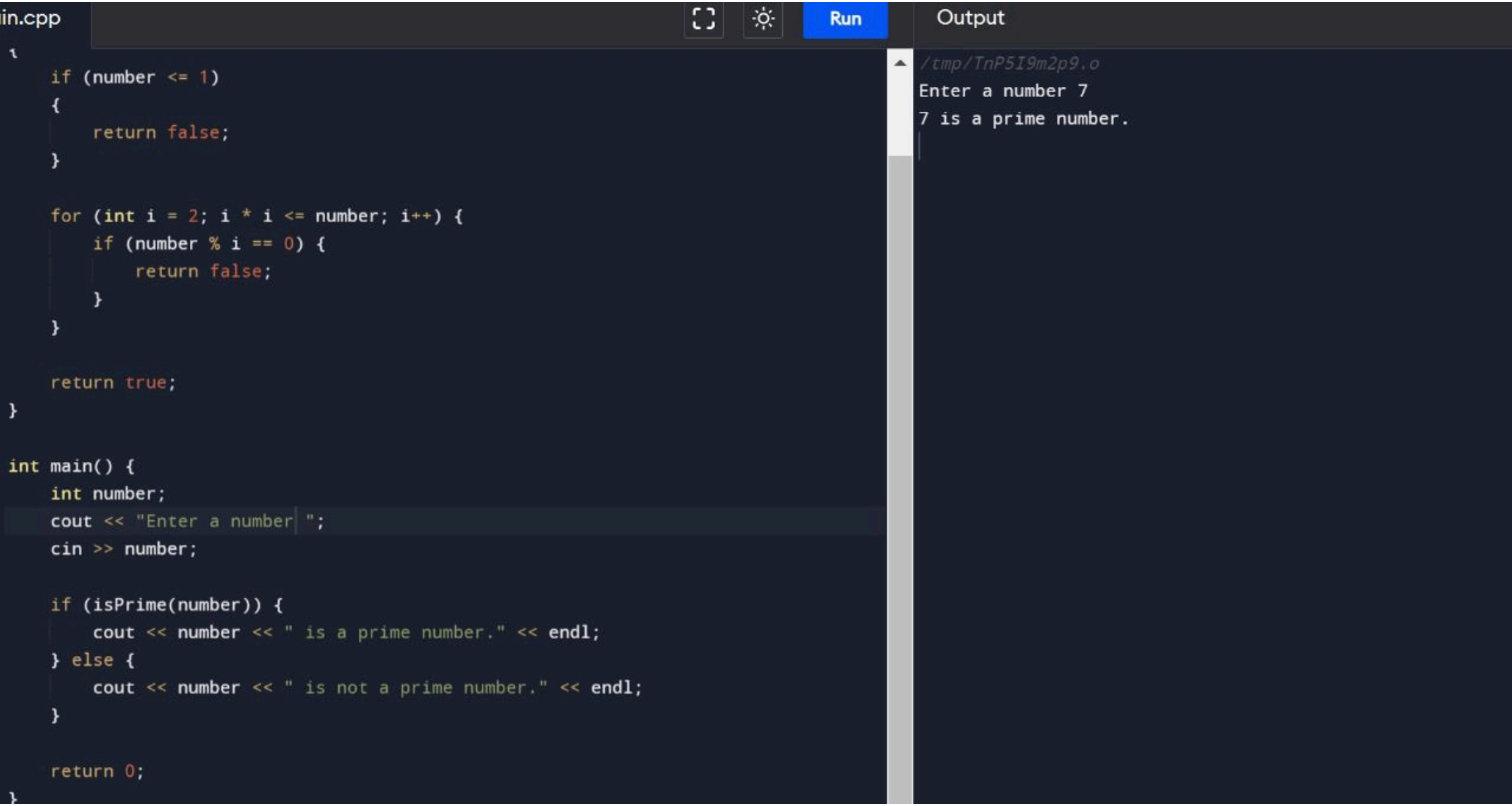
in.cpp

Run

Output

```cpp
#include <iostream>
using namespace std;
int fibonacci(int n) {
if (n <= 0) {
return 0;
}
else if (n == 1)
{
return 1;
}
else
{
int a = 0;
int b = 1;
int c;
for (int i = 2; i <= n; i++) {
c = a + b;
a = b;
b = c;
}
return b;
}
}
int main() {
int n;
cout << "Enter the value of N ";
cin >> n;
int result = fibonacci(n);
```

```
/tmp/TnP5I9m2p9.o
Enter the value of N 45
The 45th Fibonacci number is: 1134903170
```


in.cpp
Run
Output
if (number <= 1)
{
return false;
}
for (int i = 2; i * i <= number; i++) {
if (number % i == 0) {
return false;
}
}
return true;
}
int main() {
int number;
cout << "Enter a number ";
cin >> number;
if (isPrime(number)) {
cout << number << " is a prime number." << endl;
} else {
cout << number << " is not a prime number." << endl;
}
return 0;
}
/tmp/TnP5I9m2p9.o
Enter a number 7
7 is a prime number.

main.cpp

Run

Output

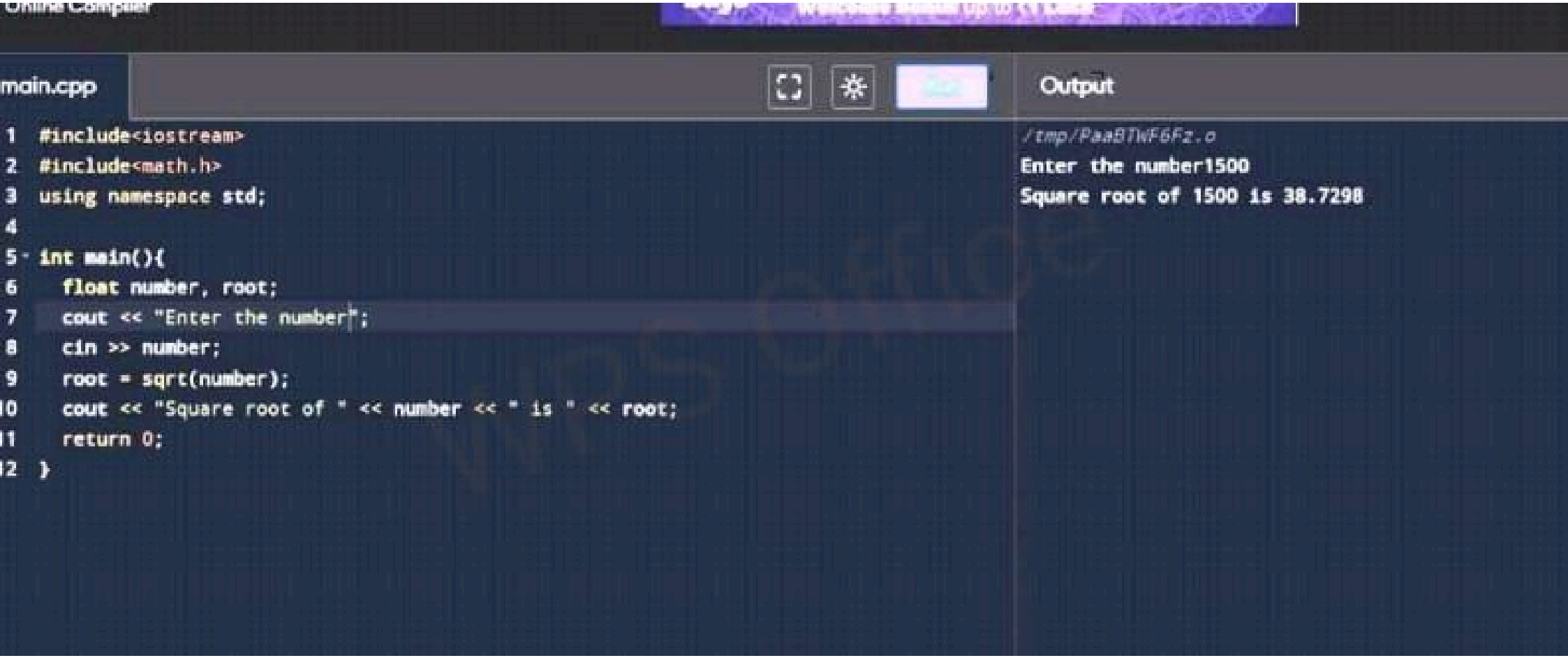
Clear

```
1  // Online C++ compiler to run C++
       program online
2  #include <iostream>
3  using namespace std;
4  int main() {
5      int i,n,count=0;
6      cin>>n;
7      for(i=1;i<n;i++){
8          if(n%i==0)
9          count+=i;
10     }
11     if(count==n)
12     cout<<"perfect number";
13     else
14 cout<<"not perfect number";
15     return 0;
16 }
```

```
/tmp/pDQlJPpWau.o
6
perfect number
```

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

int main() {
    int num, reversedNum = 0, remainder, originalNum;

    cout << "Enter a positive integer: ";
    cin >> num;

    originalNum = num;

    // Reversing the number
    while (num != 0) {
        remainder = num % 10;
        reversedNum = reversedNum * 10 + remainder;
        num /= 10;
    }

    // Checking if the number is palindrome
    if (originalNum == reversedNum) {
        cout << originalNum << " is a palindrome.";
    } else {
        cout << originalNum << " is not a palindrome.";
    }

    return 0;
```

```
/tmp/PaaBTwF6Fz.o
Enter a positive integer: 1234321
1234321 is a palindrome.
```


main.cpp
Output
#include<iostream>
#include<math.h>
using namespace std;
int main(){
float number, root;
cout << "Enter the number";
cin >> number;
root = sqrt(number);
cout << "Square root of " << number << " is " << root;
return 0;
}
/tmp/PaaBTWF6Fz.o
Enter the number1500
Square root of 1500 is 38.7298

main.cpp

Run

Output

Clear

```cpp
// Online C++ compiler to run C++ program online
#include <iostream>
using namespace std;
int main() {
    int i,n,count=0;
    cin>>n;
    for(i=1;i<n;i++){
        if(n%i==0)
        count+=i;
    }
    if(count==n)
    cout<<"perfect number";

    return 0;
}
```

```
/tmp/pDQlJPpWau.o
6
perfect number
```

```
    if (number <= 1) {
        return false;
    }

    for (int i = 2; i * i <= number; i++) {
        if (number % i == 0) {
            return false;
        }
    }

    return true;
}

int main() {
    int number;
    std::cout << "Enter a number: ";
    std::cin >> number;

    if (isPrime(number)) {
        std::cout << number << " is a prime number." << std::endl;
    } else {
        std::cout << number << " is not a prime number." << std::endl;
    }

    return 0;
```

```
12 is not a prime number.
```

main.cpp Run Output Clear

```
1  #include<iostream>
2  using namespace std;
3  int main(){
4      int a=0,b=1,c,n,i;
5      cout<<"enter the value of n";
6      cin>>n;
7      if(n==0)
8      cout<<a;
9      else if(n==1)
10     cout<<b;
11     else{
12         for(i=2;i<=n;i++)
13         {
14             c=a+b;
15             a=b;
16             b=c;
17         }
18
19
20         cout<<c;}
21
22         return 0;
23 }
```

```
/tmp/Nt0aVqLx6s.o
enter the value of n8
21
```

main.cpp

```cpp
#include <iostream>
#include <math.h>
using namespace std;

int main() {
    double number;
    cout << "Enter a number";
    cin >> number;

    double cubeRoot = cbrt(number);

    cout << "The cube root of " << number << " is: " << cubeRoot << endl;

    return 0;
}
```

Output

```
/tmp/PaaBTwF6Fz.o
Enter a number40
The cube root of 40 is: 3.41995
```

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

bool isPerfectNumber(int number) {
    int sum = 0;
    for (int i = 1; i <= number / 2; i++) {
        if (number % i == 0) {
            sum += i;
        }
    }
    return sum == number;
}

int main() {
    int number;
    cout << "Enter a number: ";
    cin >> number;

    if (isPerfectNumber(number)) {
        cout << number << " is a perfect number." << endl;
    } else {
        cout << number << " is not a perfect number." << endl;
    }

    return 0;
```

```
/tmp/PaaBTWF6Fz.o
Enter a number: 13
13 is not a perfect number.
```

Programiz
C++ Online Compiler

main.cpp

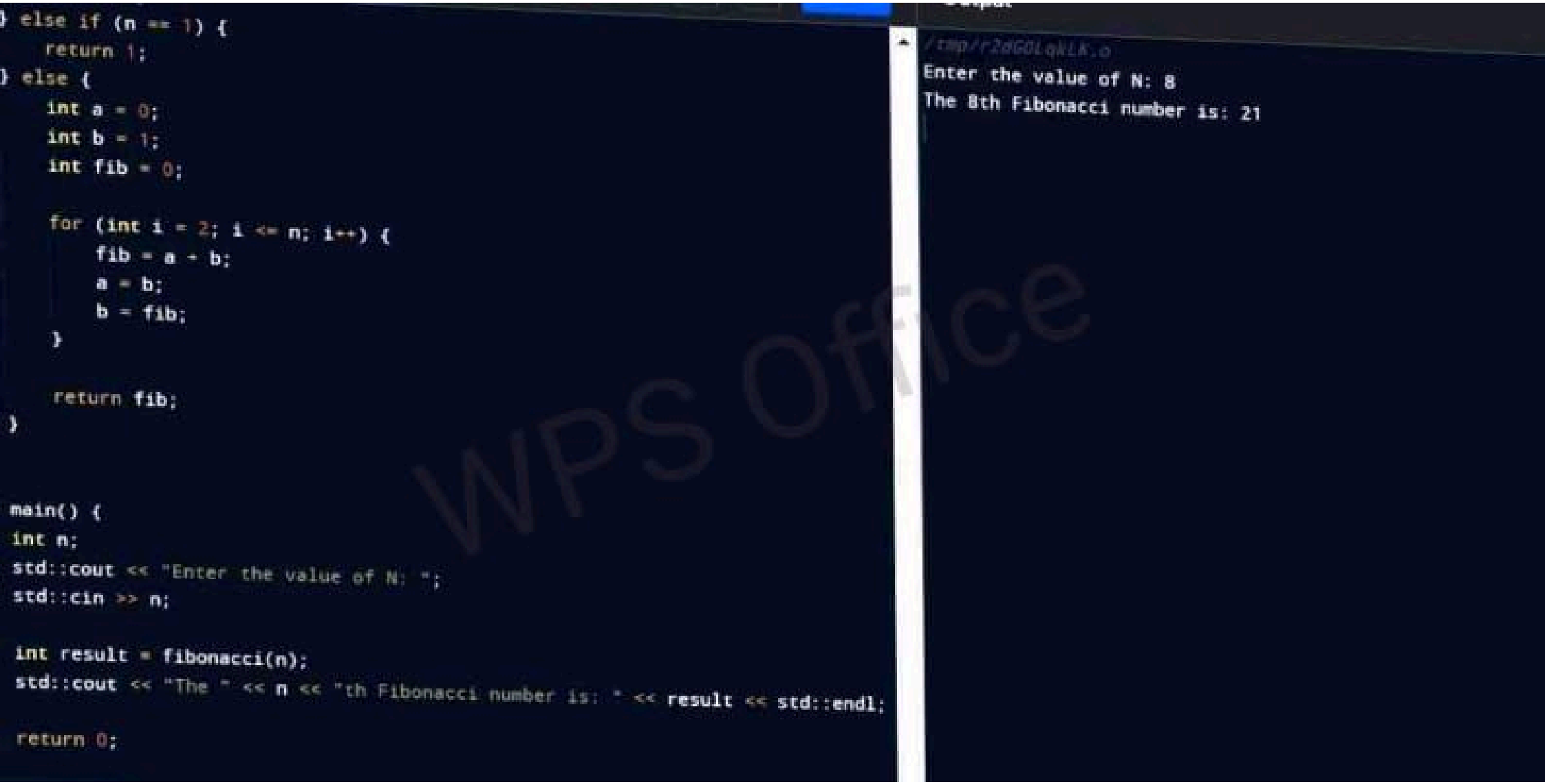
Run

```
1  // Online C++ compiler to run C++
       program online
2
3  #include<bits/stdc++.h>
4  using namespace std;
5  int main() {
6      int i=0,n,k,a;
7      cin>>n;
8      cin>>k;
9      a=pow(n,k);
10     cout<<a;
11
12     return 0;
13 }
```

Output

Clear

```
/tmp/PIgMCykDGi.o
23
4
279841
```



```
} else if (n == 1) {
    return 1;
} else {
    int a = 0;
    int b = 1;
    int fib = 0;

    for (int i = 2; i <= n; i++) {
        fib = a + b;
        a = b;
        b = fib;
    }

    return fib;
}


main() {
int n;
std::cout << "Enter the value of N: ";
std::cin >> n;

int result = fibonacci(n);
std::cout << "The " << n << "th Fibonacci number is: " << result << std::endl;

return 0;
```

```
/tmp/r2dGOLqKLK.o
Enter the value of N: 8
The 8th Fibonacci number is: 21
```

main.cpp

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

int main() {
    int n, sum = 0, i = 1;

    cout << "Enter the value of n: ";
    cin >> n;

    do {
        sum += i;
        i++;
    } while (i <= n);

    cout << "The sum of the first " << n << " natural numbers is: " << sum << endl;

    return 0;
}
```

Output

```
/tmp/PaaBTWF6Fz.o
Enter the value of n: 6
The sum of the first 6 natural numbers is: 21
```

main.cpp

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

int main() {
    int n, sum = 0;

    cout << "Enter the value of n";
    cin >> n;

    for (int i = 1; i <= n; ++i) {
        sum += i;
    }

    cout << "The sum of the first " << n << " natural numbers is: " << sum << endl;

    return 0;
}
```

Output

```
/tmp/PaaBTWF6Fz.o
Enter the value of n5
The sum of the first 5 natural numbers is: 15
```

```cpp
#include <iostream>
using namespace std;
int main() {
int number, bitPosition;
cout << "Enter the number: ";
cin >> number;
cout << "Enter the bit position (0-indexed): ";
cin >> bitPosition;
number |= (1 << bitPosition);
cout << "Number after setting the " << bitPosition << "th bit: " << number << endl;
return 0;
}
```

```
/tmp/r2dGOLqkLX.o
Enter the number: 13
Enter the bit position (0-indexed): 2
Number after setting the 2th bit: 13
```

```
    static string toUpperCase(const string& str) {
        string upperCaseStr = str;
        transform(upperCaseStr.begin(), upperCaseStr.end(), upperCaseStr.begin(),
            ::toupper);
        return upperCaseStr;
    }

    static string toLowerCase(const std::string& str) {
        string lowerCaseStr = str;
        transform(lowerCaseStr.begin(), lowerCaseStr.end(), lowerCaseStr.begin(),
            ::tolower);
        return lowerCaseStr;
    }
};

int main() {
    string inputStr;
    cout << "Enter a string: ";
    getline(std::cin, inputStr);

    string upperCaseStr = StringConverter::toUpperCase(inputStr);
    string lowerCaseStr = StringConverter::toLowerCase(inputStr);

    cout << "Upper case: " << upperCaseStr << endl;
    cout << "Lower case: " << lowerCaseStr << endl;

    return 0;
```

Programiz
C++ Online Compiler

main.cpp | Run | Output | Clear

```
1  // Online C++ compiler to run C++
       program online
2
3  #include<bits/stdc++.h>
4  using namespace std;
5  int main() {
6      int i=0,n,k,a;
7      cin>>n;
8      cin>>k;
9      a=pow(2,k-1);
10     cout<<n+a;
11
12     return 0;
13 }
```

```
/tmp/PIgMCykDGi.o
13
2
15
```

n.cpp

Run

Output

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

int main() {
    int number;

    cout << "Enter a number ";
    cin >> number;

    if (number % 2 == 0) {
        cout << number << " is an even number." << endl;
    } else {
        cout << number << " is an odd number." << endl;
    }

    return 0;
}
```

```
/tmp/TnP5I9m2p9.o
Enter a number 54
54 is an even number.
```