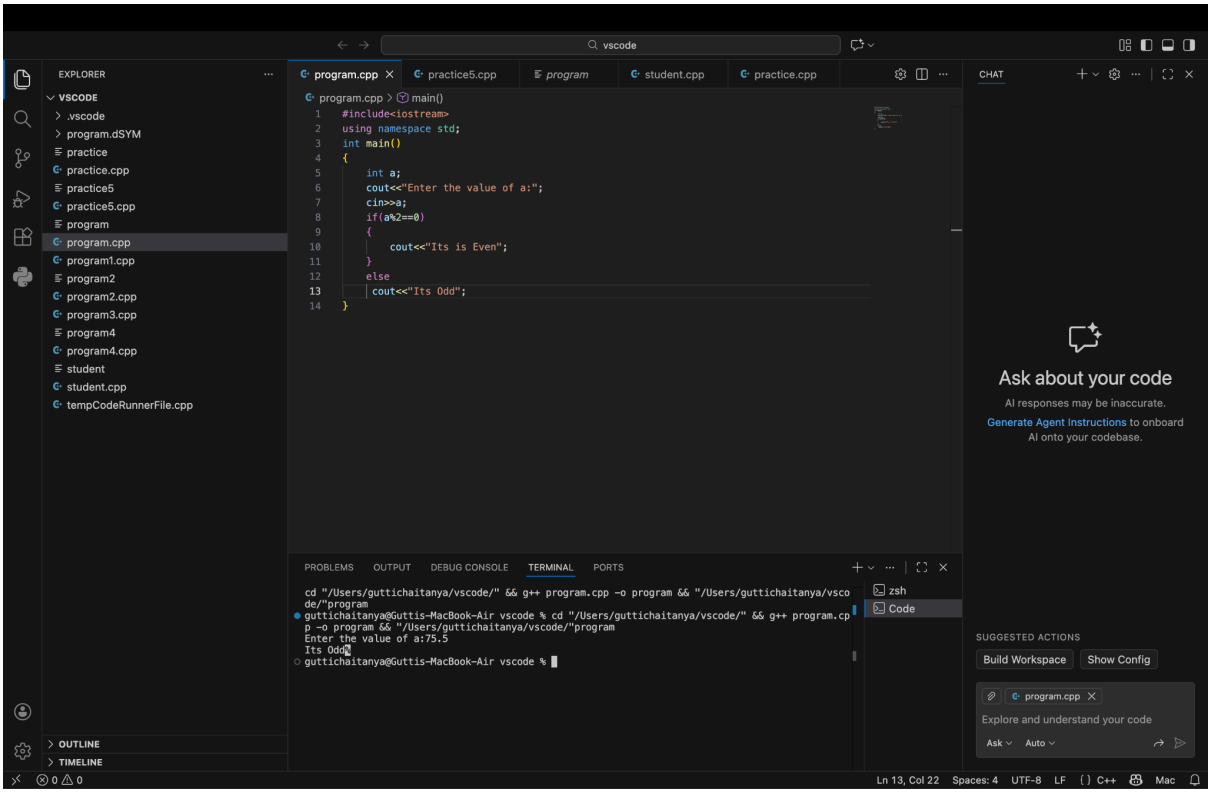
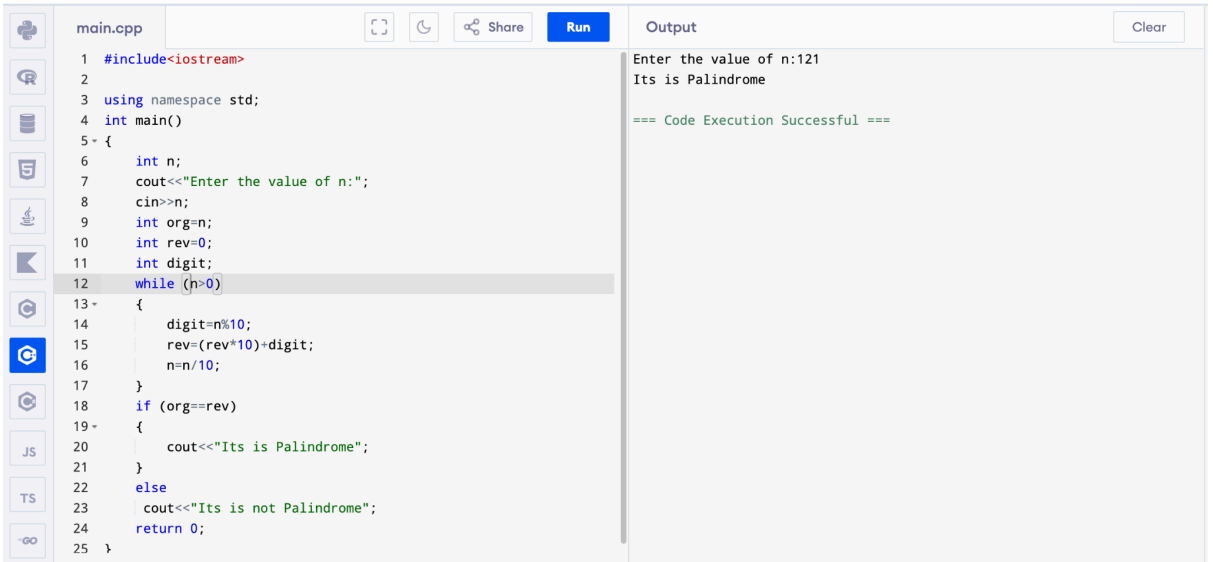
UNIT 1_EASY

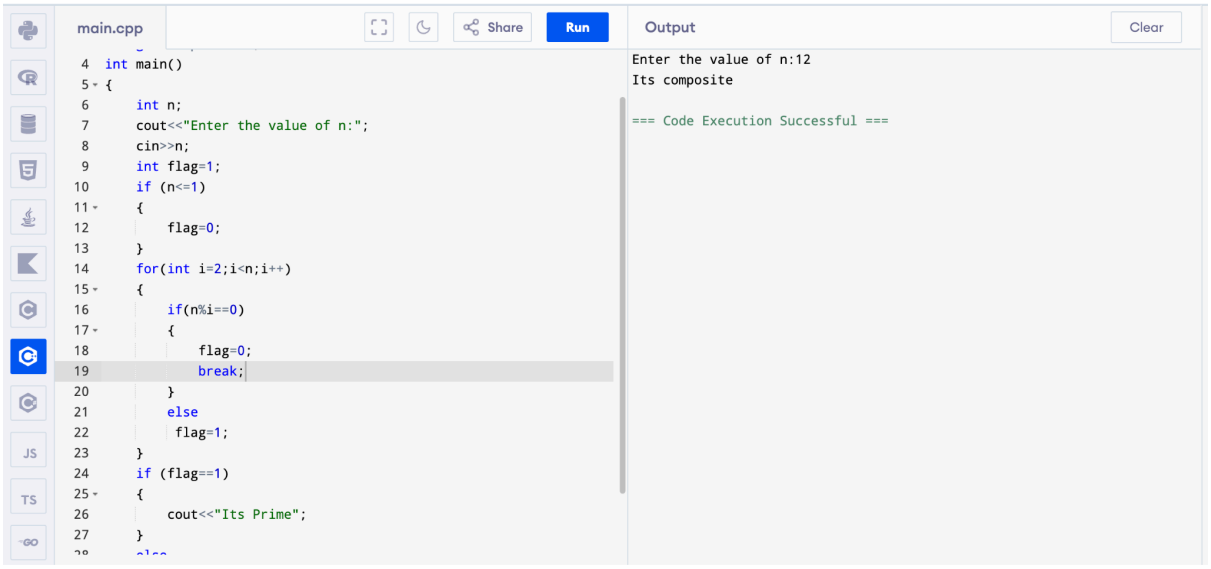
1) Odd or Even



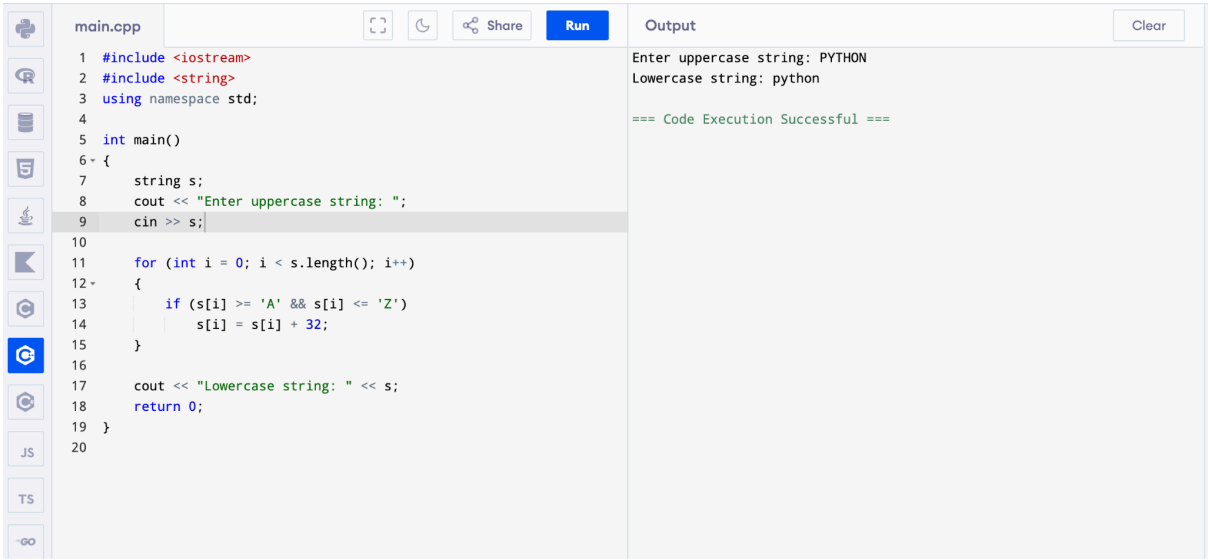
2) Palindrome



3) Prime or Not Prime



4) To make Capital letters to small Letters



HARD

1) Nth Fibonacci Number using IF–ELSE

main.cpp

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

int main()
{
    int n;
    cout << "Enter N: ";
    cin >> n;

    if (n < 0)
        cout << "Invalid input";
    else if (n == 0)
        cout << 0;
    else if (n == 1)
        cout << 1;
    else
    {
        int a = 0, b = 1, c;
        for (int i = 2; i <= n; i++)
        {
            c = a + b;
            a = b;
            b = c;
        }
        cout << b:
```

```
Enter N: 8
21

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

2) Set Nth Bit of a Number

main.cpp

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

int main()
{
    int num, bit;
    cout << "Enter Number: ";
    cin >> num;
    cout << "Enter bit number you wish to set: ";
    cin >> bit;

    if (num < 0 || bit < 0)
        cout << "Invalid input";
    else
    {
        int result = num | (1 << bit);
        cout << "Bit set Successfully\n";
        cout << "Answer: " << result;
    }
    return 0;
}
```

```
Enter Number: 5
Enter bit number you wish to set: 4
Bit set Successfully
Answer: 21

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

3) Most Frequent Element in an Array

main.cpp

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

int main()
{
    int n;
    cout << "Enter size of the array: ";
    cin >> n;

    if (n <= 0)
    {
        cout << "Invalid size";
        return 0;
    }

    int arr[100];
    for (int i = 0; i < n; i++)
    {
        cout << "Enter Element " << i + 1 << ": ";
        cin >> arr[i];
    }

    int maxCount = 0, element;
    for (int i = 0; i < n; i++)
    {
```

Output

```
Enter size of the array: 3
Enter Element 1: 2
Enter Element 2: 3
Enter Element 3: 4
Most occurred number: 2

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

4) Power of a Number

main.cpp

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

int main()
{
    int base, exp;
    long long result = 1;

    cout << "Input the base: ";
    cin >> base;
    cout << "Input the exponent: ";
    cin >> exp;

    if (exp < 0)
    {
        cout << "Negative exponent not supported";
        return 0;
    }

    for (int i = 1; i <= exp; i++)
        result = result * base;

    cout << result;
    return 0;
}
```

Output

```
Input the base: 5
Input the exponent: 3
125

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

MEDIUM

1) Square Root using IF–ELSE

main.cpp

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

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

    if (n < 0)
        cout << "Invalid input";
    else
    {
        for (int i = 1; i * i <= n; i++)
        {
            if (i * i == n)
            {
                cout << i;
                break;
            }
        }
    }
    return 0;
}
```

Output

```
Enter number: 1296
36

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

2) Perfect Number using IF–ELSE

main.cpp

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

int main()
{
    int n, sum = 0;
    cout << "Enter number: ";
    cin >> n;

    if (n <= 0)
        cout << "Invalid input";
    else
    {
        for (int i = 1; i < n; i++)
        {
            if (n % i == 0)
                sum += i;
        }

        if (sum == n)
            cout << n << " is a perfect number";
        else
            cout << n << " is not a perfect number";
    }
    return 0;
```

Output

```
Enter number: 123
123 is not a perfect number

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

3) Smallest Missing Element (WHILE loop)

main.cpp

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

int main()
{
    int arr[] = {0, 1, 2, 3, 5, 6, 7};
    int n = 7;
    int i = 0;

    while (i < n)
    {
        if (arr[i] != i)
        {
            cout << i;
            break;
        }
        i++;
    }
    return 0;
}
```

```
4

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

4) Sum of N numbers using FOR loop

main.cpp

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

int main()
{
    int n, sum = 0, num;
    cout << "Enter n: ";
    cin >> n;

    if (n <= 0)
        cout << "Invalid input";
    else
    {
        for (int i = 1; i <= n; i++)
        {
            cin >> num;
            sum += num;
        }
        cout << "Sum: " << sum;
    }
    return 0;
}
```

```
Enter n: 5
1 2 3 4 5
Sum: 15

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