1.C++ Assignments | Loops-2 | Week 3
Predict the output

```cpp
#include <bits/stdc++.h>
using namespace std;
int main() {
while ('1' < '2')
cout << "In while loop" << endl;
}
```

- ***Output will be:-In while loop***

2.Predict the output

```cpp
#include <bits/stdc++.h>
using namespace std;
int main( ) {
int t = 10;
while (t /= 2) {
cout << "Hello" << endl;
}
}
```

- ***Output will be:-***
- ***Hello***
- ***Hello***
- ***Hello***

3.Predict the output

```cpp
#include <bits/stdc++.h>
using namespace std;
int main( ) {
for (int x = 1; x * x <= 10; x++)
cout << "In for loop" << endl;
}
```

- ***Output will be:***
- **In for loop**

In for loop

In for loop

4.Predict the output

```cpp
#include <bits/stdc++.h>
using namespace std;
int main( ) {
int x = 10, y = 0 ;
while ( x >= y ) {
x-- ;
y++ ;
cout << x << " " << y << endl ;
}
}
```
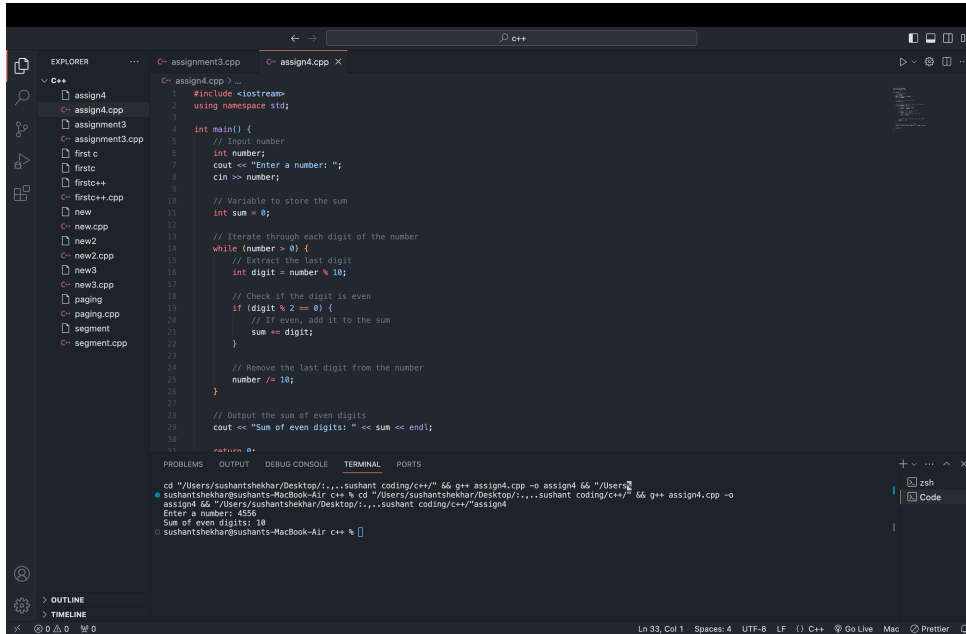
Output will be:

9 1

8 2

7 3
6 4
5 5

5.WAP TO PRINT THE SUM OF ALL THE EVEN DIGITS OF A GIVEN NUMBER.
SAMPLE INPUT : 4556
OUTPUT: 10


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

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

    // Variable to store the sum
    int sum = 0;

    // Iterate through each digit of the number
    while (number > 0) {
        // Extract the last digit
        int digit = number % 10;

        // Check if the digit is even
        if (digit % 2 == 0) {
            // If even, add it to the sum
            sum += digit;
        }

        // Remove the last digit from the number
        number /= 10;
    }

    // Output the sum of even digits
    cout << "Sum of even digits: " << sum << endl;

    return 0;
```
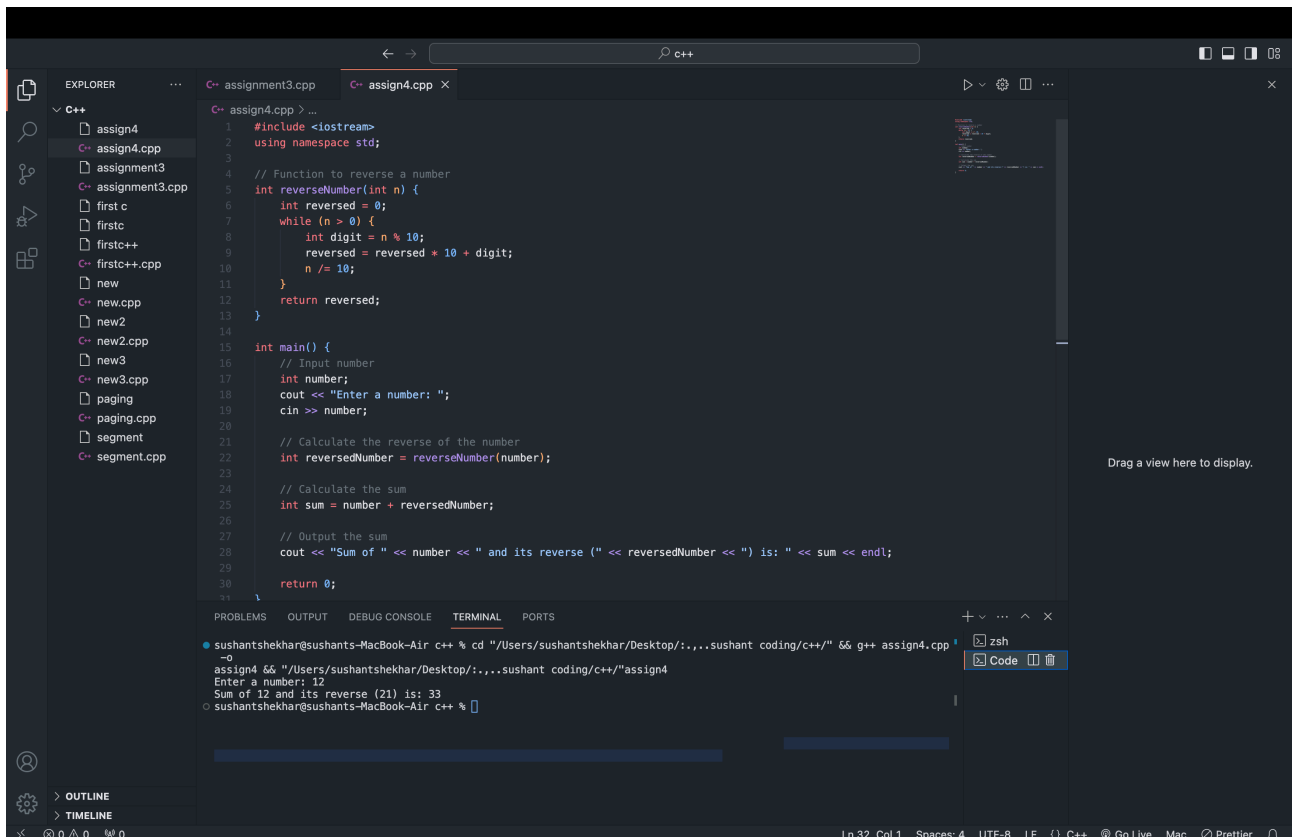
```
cd "/Users/sushantshekhar/Desktop/:.,..sushant coding/c++/" && g++ assign4.cpp -o assign4 && "/Users/
sushantshekhar@sushants-MacBook-Air c++ % cd "/Users/sushantshekhar/Desktop/:.,..sushant coding/c++/" && g++ assign4.cpp -o
assign4 && "/Users/sushantshekhar/Desktop/:.,..sushant coding/c++/"assign4
Enter a number: 4556
Sum of even digits: 10
sushantshekhar@sushants-MacBook-Air c++ %
```

6.WAP TO PRINT THE SUM OF A GIVEN NUMBER AND ITS REVERSE.
SAMPLE INPUT : 12


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

// Function to reverse a number
int reverseNumber(int n) {
    int reversed = 0;
    while (n > 0) {
        int digit = n % 10;
        reversed = reversed * 10 + digit;
        n /= 10;
    }
    return reversed;
}

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

    // Calculate the reverse of the number
    int reversedNumber = reverseNumber(number);

    // Calculate the sum
    int sum = number + reversedNumber;

    // Output the sum
    cout << "Sum of " << number << " and its reverse (" << reversedNumber << ") is: " << sum << endl;

    return 0;
```

```
sushantshekhar@sushants-MacBook-Air c++ % cd "/Users/sushantshekhar/Desktop/:.,..sushant coding/c++/" && g++ assign4.cpp
-o
assign4 && "/Users/sushantshekhar/Desktop/:.,..sushant coding/c++/"assign4
Enter a number: 12
Sum of 12 and its reverse (21) is: 33
sushantshekhar@sushants-MacBook-Air c++ %
```
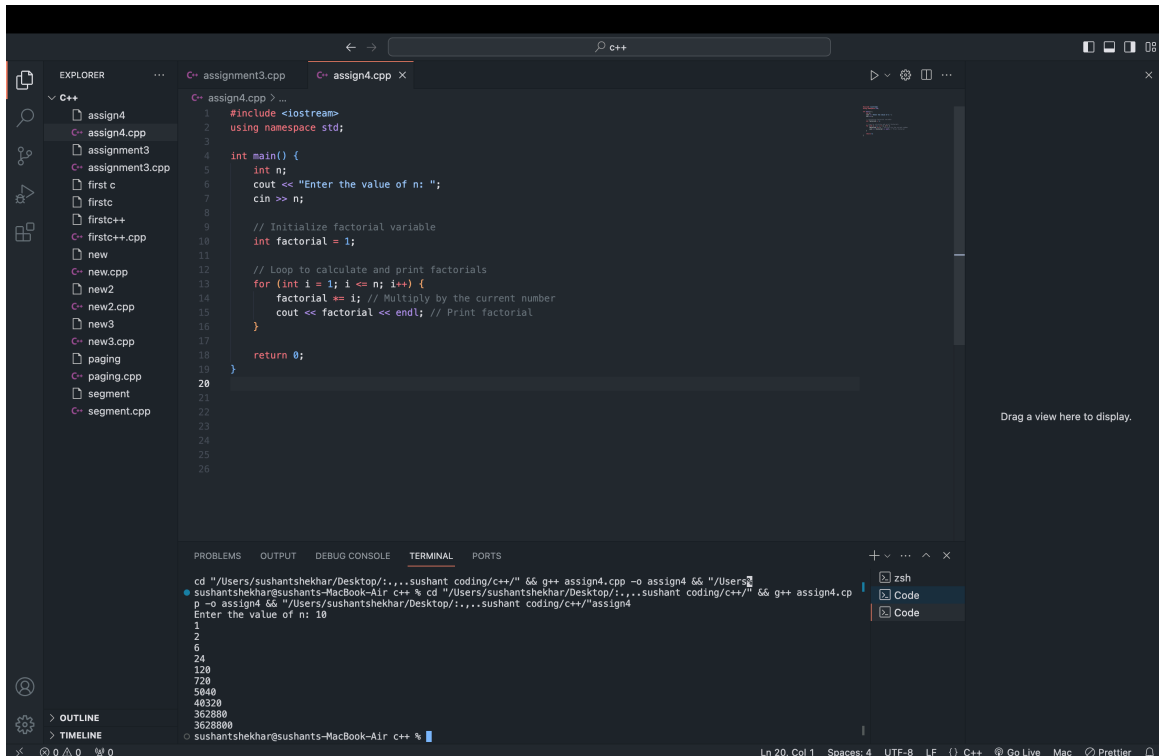
SAMPLE OUTPUT : 33 [12+21]

7.PRINT THE FACTORIALS OF FIRST 'N' NUMBERS
SAMPLE INPUT : 10
OUTPUT :
1
2
6
24
120
720
5040
40320
362880
3628800

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

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

    // Initialize factorial variable
    int factorial = 1;

    // Loop to calculate and print factorials
    for (int i = 1; i <= n; i++) {
        factorial *= i; // Multiply by the current number
        cout << factorial << endl; // Print factorial
    }

    return 0;
}
```

Terminal output:
```
Enter the value of n: 10
1
2
6
24
120
720
5040
40320
362880
3628800
```

8.PRINT FIRST 'N' FIBONACCI NUMBERS.
SAMPLE INPUT : 10
OUTPUT :

1 1 2 3 5 8 13 21 34 55

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

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

    // Variables to store the current and previous Fibonacci numbers
    int current = 1, previous = 0;

    // Loop to generate and print the first 'n' Fibonacci numbers
    for (int i = 1; i <= n; i++) {
        cout << current << " "; // Print the current Fibonacci number

        // Calculate the next Fibonacci number
        int next = current + previous;

        // Update previous and current for the next iteration
        previous = current;
        current = next;
    }

    return 0;
}
```
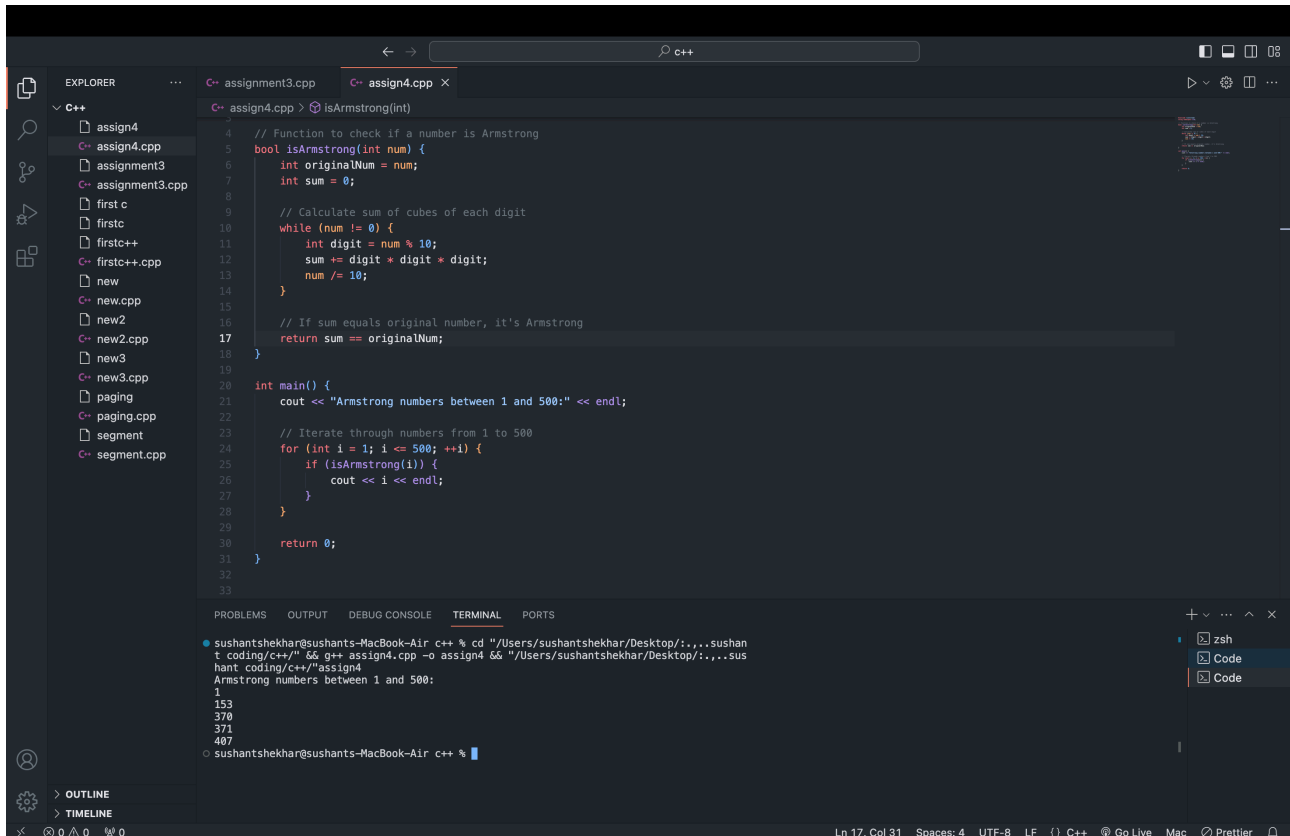
Terminal output:
```
Enter the value of n: 10
1 1 2 3 5 8 13 21 34 55
```

9.WRITE A PROGRAM TO PRINT OUT ALL ARMSTRONG NUMBERS BETWEEN 1 AND 500. IF THE SUM OF CUBES OF
EACH DIGIT OF THE NUMBER IS EQUAL TO THE NUMBER ITSELF, THEN THE NUMBER IS CALLED AN ARMSTRONG
NUMBER. FOR EXAMPLE, 153 = (1 * 1 * 1) + (5 * 5 * 5) + (3 * 3 * 3)
OUTPUT :
1
153
370
371
407