**✅ C++ Assignments-1**

**1. Simple Calculator**

* **Concepts**: Variables, Arithmetic Operators
* **Task**: Write a program that takes two numbers and an operator (+, -, \*, /) from the user and displays the result.

**2. Odd or Even Checker**

* **Concepts**: If-Else, Modulo Operator
* **Task**: Ask the user for a number and print whether it's odd or even.

**3. Greatest of Three Numbers**

* **Concepts**: If-Else Ladder, Logical Operators
* **Task**: Take three numbers from the user and print the greatest one.

**4. Check Leap Year**

* **Concepts**: Logical Operators, If-Else
* **Task**: Input a year and check whether it is a leap year or not.
  + A year is a leap year if:  
    (year % 4 == 0 && year % 100 != 0) || (year % 400 == 0)

**5. Simple Interest Calculator**

* **Concepts**: Variables, Arithmetic Operations
* **Task**: Input principal, rate, and time, then calculate and print the simple interest.

**6. Table of a Number**

* **Concepts**: Loops
* **Task**: Ask the user for a number and print its multiplication table up to 10.

**7. Sum of First N Natural Numbers**

* **Concepts**: Loops, Variables
* **Task**: Input n from the user and print the sum from 1 to n using a loop.

**8. Factorial of a Number**

* **Concepts**: Loops, Arithmetic
* **Task**: Input a number and find its factorial using a for or while loop.

**9. Count Digits of a Number**

* **Concepts**: Loops, Modulo, Division
* **Task**: Take an integer and count the number of digits using a loop.

**10. Prime Number Checker**

* **Concepts**: Loops, If-Else, Logical Operators
* **Task**: Input a number and check whether it is a prime number or not.

**11. Reverse a Number**

* **Concepts**: While Loop, Modulo, Integer Division
* **Task**: Input a number and print its reverse.
  + Example: Input: 1234 → Output: 4321

**12. Fibonacci Series**

* **Concepts**: For Loop, Variables
* **Task**: Print the first n numbers in the Fibonacci sequence.
  + Example: 0 1 1 2 3 5 8 ...

**13. Armstrong Number Checker (3-digit)**

* **Concepts**: While Loop, Power, Modulo
* **Task**: Check if a 3-digit number is an Armstrong number.
  + Example: 153 → 1³ + 5³ + 3³ = 153

**14. Print All Prime Numbers Between 1 to N**

* **Concepts**: Nested Loops, Logical Operators
* **Task**: Input n and print all prime numbers between 1 and n.

**15. Pattern Printing (Pyramid)**

* **Concepts**: Nested Loops
* **Task**: Print a right-angled triangle using stars.
  + Example (n = 5):
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  + \*\*\*
  + \*\*\*\*
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