```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_01.h"

/*
     1. C++ Program to Find Largest Number Among Three Numbers.
        a. In this program, the user is asked to enter three numbers
        b. Then this program finds out the largest number among thre
        Example:
            Enter three numbers: 2
            8
            -4
            Largest number: 8
*/

void PRO_01(){
    // input
    int x, y, z, result=0; cin >> x >> y >> z;

    // process
    if(x > y && x > z){
         result = x;
    } else if(y > x && y > z){
         result = y;
    }else if(z > x && z > y){
         result = z;
    }

    // output
    cout << result << endl;
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_02.h"

/*
     2. C++ Program to Print Number Entered by User.
        a. This program asks the user to enter a number.
        b. When the user enters an integer, it is stored in variable
        c. Then it is displayed on the screen.
        Example:
            Enter an integer: 28
            You entered 28
*/

void PRO_02(){
    // input
    unsigned int x; string result; cin >> x; // used [unsigned] beca

    // process
    result = "You entered " + to_string(x);

    // output
    cout << result << endl;
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_03.h"

/*
     3.C++ Program to Swap Numbers (Using Temporary Variable).a. To
        b. The content of the first variable is copied into the temp
        c. Finally, the content of the temp variable is copied back
        Example:
            Before swapping.
            a = 5, b = 10
            After swapping.
            a = 10, b = 5
*/

void PRO_03(){
    // input
    int a, b, temp; cin >> a >> b;

    // Before
    cout << "Before Swapping" << endl;
    cout << "a=" << a << ", b=" << b << endl;


    // process
    // a b t
    // b t a
    temp = a; a = b; b = temp;

    // After
    cout << "\nAfter Swapping" << endl;
    cout << "a=" << a << ", b=" << b << endl;
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_04.h"

/*
      4. C++ Program to Check Whether Number is Even or Odd.
        a. Integers that are perfectly divisible by 2 are called eve
        b. And those integers that are not perfectly divisible by 2
        c. To check whether an integer is even or odd, the remainder
        Example
            Enter an integer: 23
            23 is odd.
*/

void PRO_04(){
    // input
    int a; string result; cin >> a;

    // process
    result = to_string(a) + " is odd";
    if(a % 2 == 0){
        result = to_string(a) + " is even";
    }

    // result
    cout << result << endl;
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_05.h"

/*
    5. C++ Program to Find Quotient and Remainder.a. In this program
        b. To compute quotient and remainder, both divisor and divid
        c. The division operator / computes the quotient (either bet
        d. The modulus operator % computes the remainder when one in
        Example:
            Enter dividend: 13
            Enter divisor: 4
            Quotient = 3
            Remainder = 1
*/

void PRO_05(){
    // Enter dividend: 13
    // Enter divisor: 4
    // Quotient = 3
    // Remainder = 1

    // input
    int dividend=0, divisor=0, quotient=0, reminder=0;
    cout << "Enter Dividend: "; cin >> dividend;
    cout << "Enter Divisor: "; cin >> divisor;


    // process
    quotient = dividend / divisor;
    reminder = dividend % divisor;

    // result
    cout << "Quotient=" << quotient << endl;
    cout << "Reminder=" << reminder << endl;
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_06.h"

/*
    6. C++ Program to Calculate Sum of Natural Numbers.
        a. Positive integers 1, 2, 3, 4... are known as natural numb
        b. This program takes a positive integer from user(suppose u
        c. This program assumes that user always enters positive num
        d. If user enters negative number, Sum = 0 is displayed and
        Example:
            Enter a positive integer: 50
            Sum = 1275
*/
int sum(int x){
    if(x == 0){
        return 0;
    }
    return x + sum(x - 1);
}

void PRO_06(){
    // We can use Recursion
    // input
    int x = 0, result = 0;
    cout << "Enter a positive integer: "; cin >> x;

    // process
    if(x > 0){
        result = sum(x);
    } else{
        result = 0;
    }

    // result
    cout << "Sum = " << sum(x) << endl;
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_07.h"

/*
    7. C++ Program to Generate Multiplication Table.
        a. Display Multiplication Table up to 10
        Example:
            Enter a positive integer: 5
            5 * 1 = 5
            5 * 2 = 10
            5 * 3 = 15
            5 * 4 = 20
            5 * 5 = 25
            5 * 6 = 30
            5 * 7 = 35
            5 * 8 = 40
            5 * 9 = 45
            5 * 10 = 50
*/

void PRO_07(){
    // input
    int n = 0; cout << "Enter a positive integer: "; cin >> n;

    // process
    for(int x = 1; x <= 10; x++){
        cout << n << " * " << x << " = " << n * x << endl;
    }
}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_08.h"

/*
    8. C++ Program to Find GCD.
        a. The largest integer which can perfectly divide two intege
        b. For example, the GCD of 4 and 10 is 2 since it is the lar
        Example:
            Enter two numbers: 16
            76
            HCF = 4
*/

int HFC(int a, int b){
    if(a % b == 0){
        return b;
    } else{
        return  HFC(b, a % b);
    }

}

void PRO_08(){
    // input
    int a=0, b=0, result=0; cout << "Enter two numbers: "; cin >> a

    // process
    result = HFC(a, b);

    // output
    cout << "HFC = "<< result << endl;

}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_09.h"

/*
    9. C++ Program to Check Whether a Number is Prime or Not.
        a. A positive integer which is only divisible by 1 and itsel
        b. For example: 13 is a prime number because it is only divi
        Note: 0 and 1 are not prime numbers.
        Example:
            Enter a positive integer: 29
            29 is a prime number.
*/

void PRO_09(){
    // input
    int x=0; bool isPrimeNumber = true; cin >> x;

    // process
    // not prime
    for(int a = 2; a <= x / 2; a++){
        if(x % a == 0){
            isPrimeNumber = false;
            break; // i got it, has more than one divisor
        }
    }
    if(x == 0 || x == 1){
        isPrimeNumber = false;
    }

    // output
    if(isPrimeNumber == true){
        cout << x << " is prime number";
    } else{
        cout << x << " is not prime number";
    }

}
```

```cpp
//
// Created by Mahros on 10/31/2023.
//
#include <iostream>
using namespace std;
#include "../headers/PRO_10.h"

/*
    10. C++ Programs To Create Pyramid and Pattern
        a. Programs to Print Triangle Using *
            Example: Program to Print a Full Pyramid Using *
                        *
                      * * *
                    * * * * *
                  * * * * * * *
                * * * * * * * * *
*/

void PRO_10(){
    // input

    // output
    int n = 9;
    // 90 in bottom right
    for(int row = 1; row <= n; row++){
        // spaces
        for(int col = n; col >= row; col--){
            cout << " ";
        }

        // stars
        for(int col = 1; col <= row; col++){
            cout << "* ";
        }
        cout << endl;

    }
}
```