**Lab Task 1:**

Complete the lab task 1 of “Lab 10 - counter- and sentinel-controlled while loop” using for loop.

**Lab Task 2:**

Modify the above program so that the user input is validated to have values between 2-20 only. Use the do-while loop for input validation.

**Lab Task 3:**

Modify the above program so that it also handles the repeated input failure.

**Lab Task 4:**

1. Repeat the practice task 1 of “Lab 10 - counter- and sentinel-controlled while loop” using the for loop.
   1. The 1st integer input should be validated (a +ve number)
   2. The 2nd integer input should be validated (a +ve number greater than the 1st number)

**Flag-controlled loop problem:** Write a program that prompts the user to input a positive integer. It should then output a message indicating whether the number is a prime number or NOT?

Hint: The program should use check the divisibility of the number (inside a loop) with all numbers less than it.

Hint: The above program should use a flag is\_prime initialized to true before loop. The flag must be toggled inside the loop

**Solution:**

#include <iostream>

using namespace std;

void main()

{ bool is\_prime=true;

int d=2, num;

cout<<"Input a positive integers:”;

cin >> num;

do {

if (num % d == 0)

{

is\_prime=false;

}

d++;

if(d == num/2) // no need to check beyond p/2

break;

} while (is\_prime);

if (is\_prime==true) printf(“Prime number”);

else printf(“Not a Prime number”);

}