B1 BIRO ASSIGNMENT

Task: We measured the thickness of the ice in the past N days on lake Balaton. Create a program that calculates the total number of days when the lake was frozen

Specification

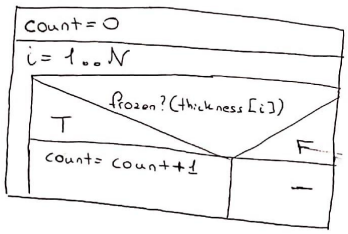
Input: $N \in \mathbb{N}$
$thickness \in \mathbb{N}^*$
$frozen?: \mathbb{N} \to \mathbb{L}$; $frozen?(x) = (x > 0)$

Precondition: $0 \leq N \leq 100$
$\forall i (1 \leq i \leq N)$: $1 \leq thickness_i \leq 20$

Output: $count \in \mathbb{N}$

Postcondition: $\sum_{i=1}^{N} 1$ $frozen?(thickness[i])$

Algorithm



Pattern = Counting, we are counting the e=lements with a specific attribute

Implementation:

```
using System;

    namespace ConsoleApp1
    {
        0 references
        internal class Program
        {
            0 references
            static void Main(string[] args)
            {
                //Declaration
                int MaxN = 100;
                int N;
                int[] thickness = new int[MaxN];
                int count = 0;

                //Input
                Console.Error.WriteLine("Enter the count of measurments");
                N = Int32.Parse(Console.ReadLine());

                for(int j = 0; j < N; j++)
                {
                    thickness[j] = Int32.Parse(Console.ReadLine());
                }
                //Algorithm
                for(int i= 0; i < N; i++)
                {
                    if (thickness[i] > 0)
                    {
                        count= count+1;
                    }
                }
                //Output
                Console.WriteLine(count);

            }
        }
    }
```

Implementation (on text) :

```
namespace ConsoleApp1
{
    internal class Program
    {
        static void Main(string[] args)
        {
            //Declaration
            int MaxN = 100;
            int N;
            int[] thickness = new int[MaxN];
            int count = 0;

            //Input
            Console.Error.WriteLine("Enter the count of measurments");
            N = Int32.Parse(Console.ReadLine());

            for(int j = 0; j < N; j++)
            {
                thickness[j] = Int32.Parse(Console.ReadLine());
            }
            //Algorithm
            for(int i= 0; i < N; i++)
            {
                if (thickness[i] > 0)
                {
                    count= count+1;
                }
            }
            //Output
            Console.WriteLine(count);

        }
    }
}
```