**Task 1 – Programmers’ day**

256th day of a year is known as “Programmers’ day”. As can be easily calculated Programmers’ day is celebrated on 12th of September in leap years and on 13th of September in non-leap years.

Leap year is a special year that contains 366 days. Leap years were introduced with the invention of the Gregorian calendar on October 15, 1582, so before that there were no leap years at all.

A year is a leap year if it is divisible by four (for example, 1980). However a year is not a leap year if it is divisible by 100 (for example 1900). However it is a leap year if it is divisible by 400 (for example 2000).

Your task is to write a program that will calculate the date when Programmers’ day is celebrated in the given year. The program should accept a year via TextBox control, and then calculate the date and display it via Label control.

Be sure to check if the year supplied is valid. If user input is invalid your program should notify the user by showing friendly message describing the error and then terminate.

**40 marks**

**Task 2 – Fibonacci numbers**

Fibonacci numbers is a famous sequence with is defined by formula:

*The next number is found by adding up the two numbers before it.*

First numbers of this sequence are:

0, 1, 1, 2, 3, 5, 8, 13, 21, 34, 55, 89, 144, 233, 377, 610, 987, 1597, 2584, 4181

Your task is to check if any given number is a Fibonacci number. You should accept the input through a TextBox control and display the result through a MessageBox in the following way:

* 55 is a Fibonacci number
* 150 is NOT a Fibonacci number, closest Fibonacci number is 144

Note: “*closest Fibonacci number is ###*” part should display the next or the previous Fibonacci number depending on which one is closer to the user input. For example, if user enters 150, the closest Fibonacci number is 144. Yet for 200, the closest one would be 233.

Make sure to validate the input and display a friendly message if the value supplied is not a whole positive number.

**60 marks**