BDSA - Assignment 0

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1 Explanation of Algorithm

The program starts of by being ran. When the program is run, a simple GUI will appear in the users command line and ask for an input as seen in figure 1.

```
PS C:\Users\Sebastian\ITU\3. Semester\BDSA\Assignments\BDSAAssignment0\LeapYear> dotnet run
Please, type in a year and press [Enter]
2054
Nay
```

Figure 1: A picture of the GUI and the result of a given input

When the input is given by the user, the algorithm kicks in and tries to calculate if the input is a leap year.
Firstly, the algorithm checks if the input is an integer. If it is not, then an error message is printed and the program stopped, else it will continue.
Then the algorithm checks if the year is later than 1582, since only years after 1582 can be leap years. If the input is not later than 1582, an error message is printed informing the user that only years after 1582 can be leap years. If the input is later than 182 it continues.
The input then goes through 3 checks:

- Is the input exactly divisible by 4? If it cannot, then it is not a leap year. If it is, it will go to the second check.
- Is the input exactly divisible by 400? If it is, then it is a leap year If it is not, it goes to the last check.
- Is the input exactly divisible by 100? If it is, then it is not a leap year If it is not, there are no more checks, and the input is a leap year.

This entire process can be seen on figure 2 on the next page.

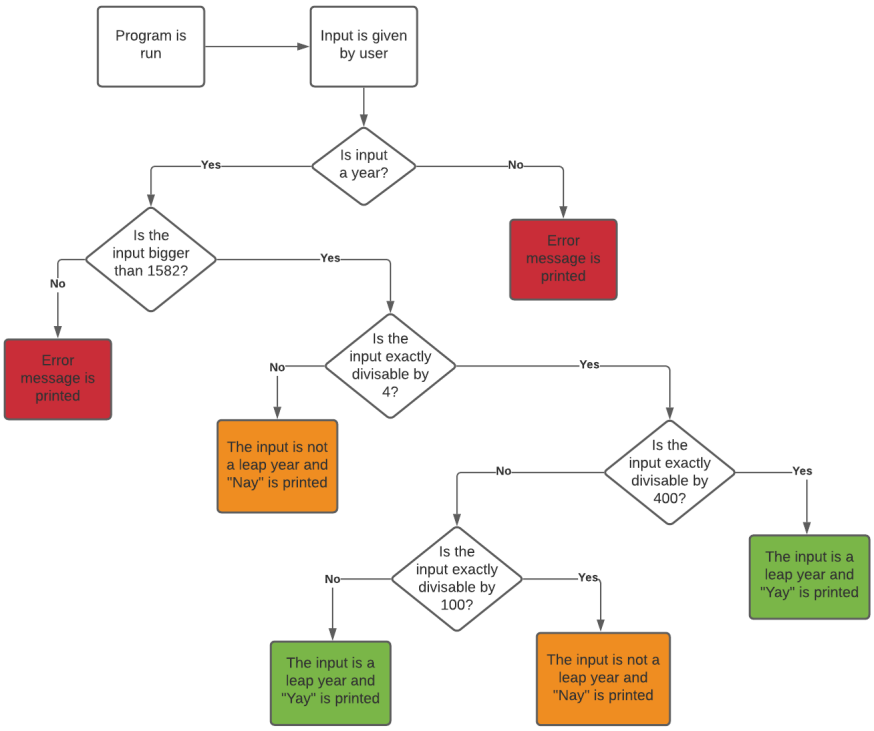

Figure 2: A diagram of the algorithm's process