BDSA Assignment 0

Lotte Juul Damgaard

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Exercise 8

The figure can be seen below.

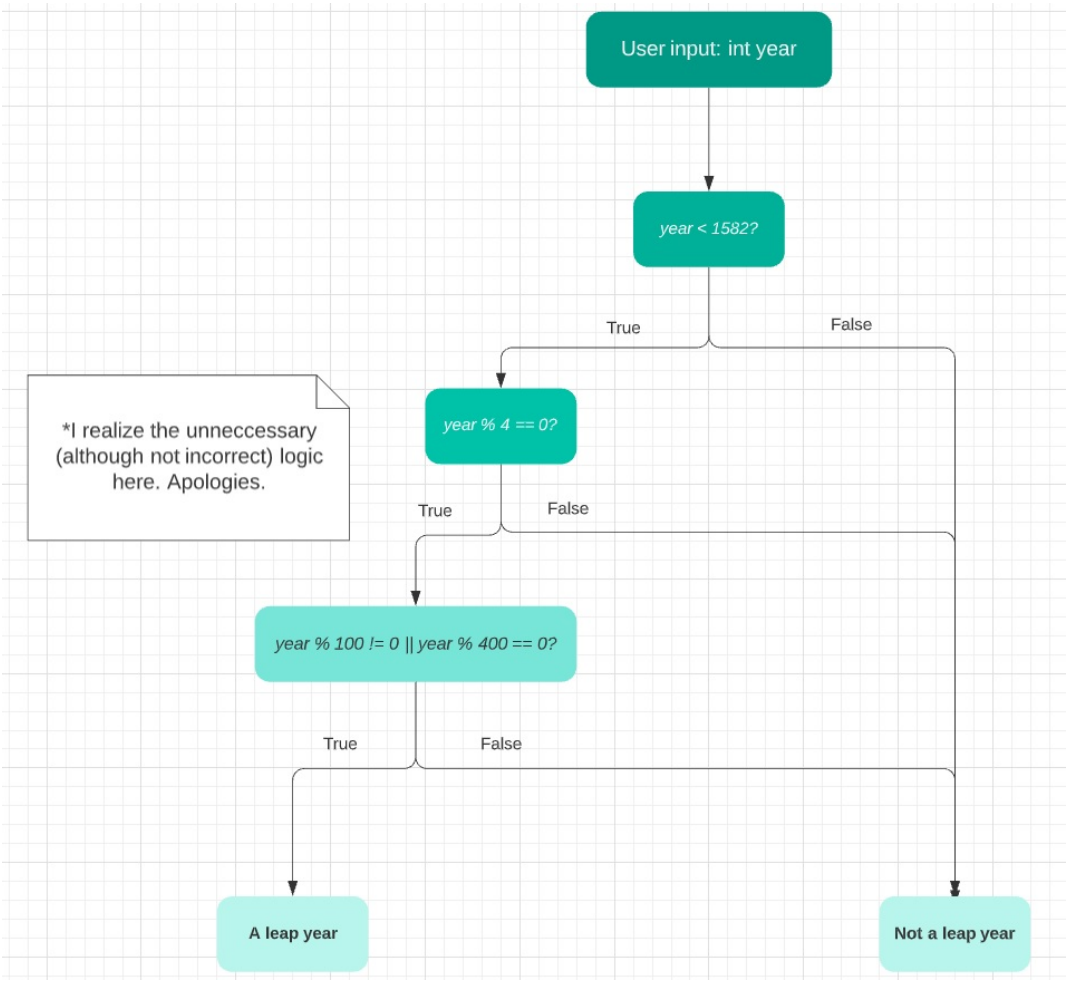

Figure 1: Diagram

Exercise 9

The algorithm I made is not perfect, but it is correct, to my understanding. I will now explain it in short.

First, we check if the year is below 1582, where leap years where first introduced (I believe). If it is, it cannot be a leap year.

Next, we check if the year is divisible by 4. If not, we return false, if it is, we go to the next statement, where both special rules are checked. We check that the year is not divisible by 100, or if it is divisible by 400. If either of these are true, we conclude that the year is indeed a leap year.

To improve this little algorithm, it would have made sense to change the order of the checks, since it is redundant to check if the year is divisible by 4 before checking if it is divisible by 400, since all numbers divisible by 400 are divisible by 4. It does not change the correctness of the algorithm, however.

It is also worth noting, that the input gets checked whether it even is a number before this algorithm runs, and it has therefore not been included here.