P2 - REQUIREMENTS and DESIGN

"Next Date" is a function consisting of three variables like: month, date and year. It returns the date of next day as output. It reads current date as input date.
The constraints are
C1: 1 ≤ month ≤ 12
C2: 1 ≤ day ≤ 31
C3: 1812 ≤ year ≤ 2012.

If any one condition out of C1, C2 or C3 fails, then this function produces an output "value of month not in the range 1...12". Since many combinations of dates can exist, hence we can simply displays one message for this function: "Invalid Input Date".
A very common and popular problem occurs if the year is a leap year.
We have taken into consideration that there are 31 days in a month. But what happens if a month has 30 days or even 29 or 28 days?
A year is called as a leap year if it is divisible by 4, unless it is a century year.
Century years are leap years only if they are multiples of 400. So, 1992, 1996 and 2000 are leap years while 1900 is not a leap year.

REQUIREMENTS:

R1: Next Date is a function consisting of three variables day, month, year. It returns date of the next day as the output. It needs current date as the input date. The constraints are
C1:1<= day <=31
C2:1<= month <=12
C3:1812<= year <=2012
If any one of the conditions C1, C2, C3 fails, this function produces an output value of month not in the range 1……12. Since many combinations of date can exist, we can display one message for the function ‘Invalid input date’.

R2: A very common and popular problem occurs if the year is a leap. We have taken into consideration that there are 31 days in a month.
What happens if the month has 30, 29, 28 days. A year is called leap year if it is divisible by 4, unless it is a century year. Century year has leap year only if there are multiples of 4. So, 1992, 1996, 2000 are leap years but 1901, 1905 are not leap year.

DESIGN:

STEP 1: Input date in format DD.MM.YYYY
STEP2: if MM is 01, 03, 05,07,08,10 do STEP3 else STEP6
STEP3:if DD < 31 then do STEP4 else if DD=31 do STEP5 else output(Invalid Date);
STEP4: tomorrowday=DD+1 goto STEP18
STEP5: tomorrowday=1; tomorrowmonth=month + 1 goto STEP18
STEP6: if MM is 04, 06, 09, 11 do STEP7
STEP7: if DD<30 then do STEP4 else if DD=30 do STEP5 else output(Invalid Date);
STEP8: if MM is 12
STEP9: if DD<31 then STEP4 else STEP10
STEP10: tomorrowday=1, tommorowmonth=1, tommorowyear=YYYY+1; goto STEP18
STEP11: if MM is 2
STEP12: if DD<28 do STEP4 else do STEP13
STEP13: if DD=28 & YYYY is a leap do STEP14 else STEP15
STEP14: tommorowday=29 goto STEP18
STEP15: tommorowday=1, tomorrowmonth=3, goto STEP18;
STEP16: if DD=29 then do STEP15 else STEP17
STEP17: output(“Cannot have feb”, DD); STEP19
STEP18: output(tomorrowday, tomorrowmonth, tomorrowyear);
STEP19: exit