FCS Program 2 (This Date in History) Algorithm- Seth Miller

Input:

1. Explain the purpose of the program to the user.
2. Ask the user for the number of the month (explain the month number system).
3. Ask the user for the numeric day of the month.
4. Ask the user for the year.

Process:

1. Test if user input for month number is valid (from 1-12) and print error if not; else, go to next step.
2. Test if user input for day number is valid (from 1-31) and print error if not; else, go to next step.
3. Test if user input for year number is valid (from 1582-4902) and print error if not; else, go to next step.
4. If month input is 1 or 2, set 1 to 13 and 2 to 14, and set year to previous year (year – 1).
5. Multiply month by 2 and assign it to new variable. (A)
6. Add 1 to month, multiply product by 3, divide that product by 5, and assign integer quotient to new variable. (B)
7. Divide year by 4 and assign integer quotient to new variable. (C)
8. Divide year by 100 and assign integer quotient to new variable. (D)
9. Divide year by 400 and assign integer quotient to new variable. (E)
10. Add day + 2 + year + results of steps A-C, and E and assign it to new variable. (F)
11. Subtract result of step D from result of step F. (G)
12. Divide result from step G by 7 and assign the integer remainder within a range of 0 to 6 to a variable. (H)
13. Calculate day of week by analyzing value of step H and giving it corresponding string according to system: (I)

// 0 = Saturday // 1 = Sunday // 2 = Monday // 3 = Tuesday //

// 4 = Wednesday // 5 = Thursday // 6 = Friday //

Output:

1. Display day entered in.
2. Display weekday of day.

Test Data:

Test 1: Input- 1/1/4903 Expected Output: Error! Invalid year (success)

Test 2: Input- 5/5/2018 Expected Output: Saturday (success) \*

Test 3: Input- 10/9/2017 Expected Output: Monday (success)

Test 4: Input- 12/31/1581 Expected Output: Error! Invalid year (success)

Test 5: Input- 9/11/2001 Expected Output: Tuesday (success)

Test 6: Input- 9/32/2015 Expected Output: Error! Invalid day (success)

Test 7: Input- 14/2/1776 Expected Output: Error! Invalid month (success)

\*I had to calculate it twice because I did my work on paper wrong the first time and got the incorrect output.

Question for Dr. Kimball:

* What would happen if the user entered 1/1/1582 (January 1st, 1582)? After being updated to 13/1/1581, would it then be out of the valid range for the calculation. In other words, should my if statement that updates the month number if the user enters 1 or 2 be before the while loop that tests if the year is less than 1582?