

Programming Assignment - 6 - Functions

Due Date : Friday October 29th 2021

9:15 am Section 001

10:15 am Section 002

Write a menu driven C++ program that prints the day number of the year , given the date in the form of month-day-year. For example , if the input is 1-1-2006 , then the day number is 1. If the input is 12-25-2006 , the day number is 359. The program should check for a leap year. A year is leap if it is divisible by 4 but not divisible by 100. For example , 1992 , and 2008 are divisible by 4 and not divisible by 400. A year that is divisible by 100 is a leap year if it is also divisible by 400. For example , 1600 and 2000 are divisible by 400 , however , 1800 is not a leap year because 1800 is not divisible by 400. Program terminates when the user type in n or N.

Note : Your program must contain the following 7 functions :

1. A function that returns a boolean value indicating whether or not the day entered is between 1 and 31.
2. A function that returns a boolean value indicating whether or not the month entered is between 1 and 12.
3. A function that returns a boolean value indicating whether or not the year entered is greater than 0 and less than or equal to current year.
4. A function that returns a boolean value indicating whether or not the year entered is a leap year.
5. A function that returns a integer value indicating the number of days in a month.
6. A function that returns a string value indicating the name of the month.
7. A function that returns a integer value indicating actual number of day that is equivalent to day, month, and year that is entered.

Note :

The following validation must take a place :

1. Days : Must be between 1 - 31
2. Months : Must be between 1 - 12
3. Years : Must be between 1 and the current year.

Style Guidelines :

At the beginning of your program (and **before** the #include statement), include the following :

Header comments (file documentation block) should be at the top of each file and should contain: Author / s, Due Date, Assignment Number, Course number and section, Instructor, and a brief description of the purpose of the code in the file. For example :

```
// Author : (Your name here!!)
// Due Date :
// Programming Assignment Number 6
// Fall 2021 - CS 1428 - Section Number
//
// Instructor: Husain Ghooloom.
//
// <Brief description of the purpose of the program>
```

Variable names :

- Must be meaningful.
- The initial letter should be lowercase, following words should be capitalized, no other caps or punctuation (i.e. `weightInPounds`).
- Each variable must be declared on a separate line with a descriptive comment.

Named constants :

- Use for most numeric literals.
- All capitals with underscores (i.e. `TX_STATE_SALES_TAX`)
- Should occur at top of function, or global (only if necessary)

Line length of source code should be no longer than 80 characters (no wrapping of lines).

Indentation :

- Use 2-4 spaces (but be consistent throughout your program).
- Indent blocks, within blocks, etc.
- Use blank lines to separate sections.

Comments for variables :

All variable definitions should be commented as follows:

```
int gender; // integer value for the gender,  
           // 1 = Male , 2 = Female ,
```

Rules :

1. Your program **must compile** and run using Code::Blocks 20.03 IDE.
2. Your program must be **documented according to the style above** .
See the website for the sample programming style program.
3. Must **use functions , repetitions , and control structures (if .. else , switch)**
4. You must use the appropriate libraries in writing this program.
5. Must properly format the output by use the appropriate library.
See the output below. Note **that in the following line :**

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- **Replace my first / last name with your own first / last name.**

6. You must name your program as :

XXXXXX_YYYYYY_F2021_1428_1_PA6.cpp (Section number 001)
XXXXXX_YYYYYY_F2021_1428_2_PA6.cpp (Section number 002)

Where XXXXX is your Last Name and YYYYYY is your First Name.
For example , the file name should look something like :
Gholoom_Husain_F2021_1428_1_PA6.cpp (**not .cbp**)

7. You must upload your programs no later than the starting of class time on the due date. **No late assignments will be accepted regardless of the reason and a grade of zero will be assigned**

Use Canvas To upload your program

8. **Maximum points for this assignment are 10. Points following points will be deducted if:**

- Incorrect file format such as uploading .cbp instead of .cpp or missing electronic version , copied solutions from any website or copying from any other student. (- 10 points)
- Compilation Errors, using any concepts that was not discussed in the class (- 8 points)
- Logical Error (at least - 1 point)
- Incorrect program name, Incorrect Output / Output format , Missing or incorrect comments on top of the program , not replacing my first and last name with your first and last name , not replacing XXXXXX and YYYYYYY with your first and last name , Missing / Incorrect header , Missing / Incorrect footer, Not following the coding style guidelines, missing program documentation (at least - 1 point each)

Program Run : Your program must produce the following output wording and format :

This C++ program prints the day number of the year, given the date in the form of month, then day, then year

Enter date in the form: month day year:

Enter month : -10
-10 is an invalid month number

Try another date Y/N ---> y

Enter date in the form: month day year:

Enter month : 12
Enter day : -10
-10 is an invalid day number

Try another date Y/N ---> y

Enter date in the form: month day year:

Enter month : 12
Enter day : 31
Enter year: -10
-10 is an invalid year number

Try another date Y/N ---> y

Enter date in the form: month day year:

Enter month : 12
Enter day : 31
Enter year: 2020

December - 31 - 2020
Is day number 366 of the year 2020

Try another date Y/N ---> y

Enter date in the form: month day year:

Enter month : 12
Enter day : 31
Enter year: 2019

December - 31 - 2019
Is day number 365 of the year 2019

Try another date Y/N ---> s
Invalid choice - enter y/n y

Enter date in the form: month day year:

Enter month : 10
Enter day : 20
Enter year: 2010

October - 20 - 2010
Is day number 293 of the year 2010

Try another date Y/N ---> n

Program is terminated

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