Lab 8
The Birthday Baffler

Objective:
To write a program with:

- switch-case construct for the months and days tables of data
- conditional testing for the leap year section
- correct use of a variety of mathematical operators (eg. your answers are right)

Assignment:
To determine which day of the week you were born on. Even if your parents don't remember, there's a way to find out. Just use the tables below and follow these directions. This method is guaranteed to work for any date between 1752 and 2099. *After each step is an example using Lincoln's birthday, February 12, 1809.*

1) Start by verifying that your input contains valid information (month and day are realistic, year works with given method). *2 and 12 are realistic, 1809 is a valid year.*

2) Determine the first two digits of the century (1700, 1800, 1900 or 2000) your birthday is in, then take the remainder of the number when divided by 4, subtract that number from 3, and then multiply it by 2. *The year is 1809 so take the first two digits (18), get the remainder when 18 is divided by 4 (2), subtract that from 3 (1) and multiply by 2 (2).*

3) Take the last two digits of the year in which you were born. *09*

4) Divide the above number by 4, dropping the remainder if there is one. *9 ¸ 4 = 2*

5) Determine if your birth year is a leap year. (Must use && <u>and</u> ||)   *1809 is not a leap year.*
    To maintain our calendar system, certain years are designated as leap years and have an extra day at the end of February, for a total of 366 days. The basic rule says that a leap year occurs every year that is a multiple of four. However, century years—like 1800 and 1900—generally are not leap years. But this rule, too, has an exception: any year divisible by 400 *is* a leap year.

6) Find the number associated with the month in which you were born in the **Table of Months**.
    (Use a switch case) *4 from February*

7) On which day of the month is your birthday? *12*

8) Find the sum of the five numbers obtained in steps 2, 3, 4, 6 and 7. *(2 + 9 + 2 + 4 + 12 = 29)*

9) Divide the sum by the number 7. The day that corresponds to the remainder in the **Table of Days** is the day of the week you were born on. (Use a switch case) *The remainder of 29 ¸ 7 is 1 so Sunday.*

Reference Documents Used: Switch Case

Table of Months		Table of Days	
January	1 (0 in leap year)	Sunday	1
February	4 (3 in leap year)	Monday	2
March	4	Tuesday	3
April	0	Wednesday	4
May	2	Thursday	5
June	5	Friday	6
July	0	Saturday	0
August	3		
September	6		
October	1		
November	4		
December	6		

Sample Run:

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Enter your birth date (month day year): 9 29 1977
You were born on a Thursday.

Enter your birth date (month day year): 1 1 1996
You were born on a Monday.

Enter your birth date (month day year): 12 14 1952
You were born on a Sunday.

Enter your birth date (month day year): 12 31 1999
You were born on a Friday.
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