ES112.02/04

Fall 2003-2004 Term Project

Project #6: “The Gregorian Calendar”

1 The Project

The goal of this project is to write a C program that prints out the calendar for any month since September 1752. September 1752 was the date when the Gregorian calendar was invented. Before that the Julian calendar was used, which is similar, but not the same as the Gregorian calendar. If you have not figured out yet, the Gregorian calendar is the calendar in use today in most western countries, as well as Turkey.

2 The Gregorian Calendar

In the Gregorian Calendar, each year is 365 days, except *leap years*, which are 366 days. The year is divided into 12 months, as given in the table below:

Month	Days
January	31
February	28 (29 on leap years)
March	31
April	30
May	31
June	30
July	31
August	31
September	30
October	31
November	30
December	31

The leap years need to be introduced since a year is not an integer multiple of days. (It is said to be about 365.2524 days.) In the Gregorian calendar, a leap year is a leap year if:

- The year is divisible by four, but not divisible by a hundred.
- The year is divisible by four hundred.

With the above definition, 1996 was a leap year due to the first rule. The year 2000 was also leap, due to the second rule. However, 1800 and 1900 were *not* leap years, and 2100 is *not* going to be a leap year either.

The very first day the Gregorian calendar was defined is September 14th, 1752, which was a Thursday. Ten days were skipped to “fix” the calendar at that date, so the calendar for September 1752 looks a little strange, as follows:

```
   September 1752
Su Mo Tu We Th Fr Sa
       1  2 14 15 16
17 18 19 20 21 22 23
24 25 26 27 28 29 30
```

3 Project Requirements

The C program in this project should be able to print the calendar of any month since September 1752, *including* September 1752 (though you may handle that as a special case). Upon running, the program should ask the user for the year first. Then, it should ask for the month. It should check for errors in the entries, and if zero ('0') is entered as the month, the calendar for the entire year should be printed.

The format should be as the below examples:

```
      May 1973
Su Mo Tu We Th Fr Sa
       1  2  3  4  5
 6  7  8  9 10 11 12
13 14 15 16 17 18 19
20 21 22 23 24 25 26
27 28 29 30 31

    December 2003
Su Mo Tu We Th Fr Sa
    1  2  3  4  5  6
 7  8  9 10 11 12 13
14 15 16 17 18 19 20
21 22 23 24 25 26 27
28 29 30 31

      July 2017
Su Mo Tu We Th Fr Sa
                   1
 2  3  4  5  6  7  8
 9 10 11 12 13 14 15
16 17 18 19 20 21 22
23 24 25 26 27 28 29
30 31
```

The formatting is *very* important in this project!