

# Number of Days Remaining

**Date Assigned:** Monday, September 20, 2004

**Date Due:** Wednesday, September 30, 2004

**Points:** 50 (40 for the program, 10 for the documentation)

## 1 Problem statement

For this assignment you are to determine how many days there are remaining in a given month. You will ask the user to input a date specified by the day, month, and year. As output, you will print the number of days remaining in that given month.

In this program you will need to take into account whether the year is a leap year or not. A year is a leap year if it is divisible by 4 except any year that is divisible by 100 is a leap year only if is divisible by 400.

Your program should continue running while the user would still like to calculate the remaining days in a month. This is specified by allowing the user to type in y for yes and n for no. You should only attempt this part of the program after you have completed and tested the calculation for the remaining days in the month.

Your output should look exactly like the following:

```
Days Remaining in a Month
```

```
Would you like to enter a new date? y
```

```
Enter the current date: 9 20 2004
```

```
The number of days remaining in the month are: 10
```

```
Would you like to enter a new date? y
```

```
Enter the current date: 2 20 2004
```

```
The number of days remaining in the month are: 9
```

```
Would you like to enter a new date? n
```

```
Thank you for using the days calculator
```

## 2 You need to do the following for this assignment

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### 1. Program Documentation

- (a) **Assignment Details and Introduction:** At the top of the page, write down the course number, assignment number, your name, my name, due date and submission date. After that, write one paragraph describing what your program does. Here you are restating the problem in your own words
- (b) **Problem Analysis:** Identify the input to your program, the output from your program, and any internal data in your program. You should also identify the data type and indicate whether it should be a variable or a constant.
- (c) **Algorithm:** Write out the steps that you'll need to do complete the program. Be as detailed as possible. It will help you write the program. When writing the steps of the algorithm, don't write any C++ code.
- (d) **Test Results:** These are solutions to the problem using some method other than your computer program. They are often done by hand, but could include experimental or other results. These results should be explicitly compared to those from the program to demonstrate that the program works. The number of specific cases done should be sufficient to prove beyond a reasonable doubt that the program works.

### 2. Program Implementation:

- (a) Write the C++ code then build and run it in Visual Studio .NET. Name your project "02DaysPUNetId", e.g. "02Dayskhoj0332".
- (b) Make sure to comment your code.
- (c) Follow the coding standards. I've attached a summary of the coding standards that you must follow in this program to receive full credit.
- (d) Test the code as much as you can for different values to make sure it works.
- (e) Remember, code that does not build or run loses 70% of the points.

## 3 What to turn in

1. Turn in your program documentation to me in class on the day it's due. These should be hard copies. You may write them by hand or use a word processing program to generate them, but please make sure that they are neat and easy to read!
2. Turn in a hard copy of your code attached to the documentation. You must make sure that your code follows the coding standards in order for you to receive full credit.
3. Place your completed project folder in the CS150-01 Drop folder by 1pm on Monday, September 28. Anything turned in after that but before 1pm on Tuesday, September 29, will be considered late and you will automatically lose 20% of the grade. Your project **MUST** be created in Visual Studio .NET, and you **MUST** submit the complete Visual Studio .NET project folder otherwise you will receive a zero on this assignment.

## 4 Optional Challenge

For 5 points extra credit, write a program that will accept a date as input from the user and calculate the number of days until Christmas. Submit this program along with the program you wrote for the original program. Your output should look like the following:

## Days Remaining till Christmas

Would you like to enter a new date? y

Enter the current date: 11 30 2004

The number of days remaining until Christmas are: 25

Would you like to enter a new date? y

Enter the current date: 2 20 2004

The number of days remaining until Christmas are: 96

Would you like to enter a new date? n

Thank you for using the days calculator