Displaying a File's Date and Time

Required Materials:

- Your textbook, *Assembly Language for x86 Processors* (7th edition)
- Removable or network device (Flash drive, memory card, MyMocsNet account mapped to a drive letter, etc.) for storage of your program
- These instructions
- Intel-compatible, Windows-based PC (like the ones in EMCS 306) with text editor, MASM, and CodeView (if needed for debugging)

Preparation for Laboratory:

Read the material on *string processing* in Chapter 9, pages 352-382 of your textbook. Read the material on *file functions* in Sections 14.3 and 15.5 (both in the web supplement to the 7th edition).

Instructions:

Write a real mode assembly language program that will prompt the user for the name of a file in the current directory and display its date and time on the standard output device. The file name, time and date information must be displayed on the output line in the format shown below. (The name of the file, " was last modified on ", the full name of the month (January-December), a space, the one- or two-digit date (1-31), ", ", the four-digit year, " at ", the one- or two-digit hour (1-12), ":", the two-digit minutes value (00-59 with both digits shown), followed by " a.m." or " p.m." as appropriate.) Do not clear the screen before or after displaying this information. Leading zeroes *are* to be displayed for the minutes value (five minutes after four o'clock is 4:05, not 4:5) but *not* for the date or the hour. For example, if the user entered the filename "test.txt" in response to the prompt and that file had a date of 10/08/2016 and time of 00:07 (7 minutes after midnight), your output would look like this:

```
Enter the name of a file: test.txt
test.txt was last modified on October 8, 2016 at 12:07 a.m.
```

Your program will need to use some operating system services (for example, INT 21h functions 3Dh [or 716Ch] and 3Eh can be used to open and close the file and function 57h will allow you to obtain the date and time information), then format the information as specified above and write it to the standard output device. *Avoid changing the file in any way* by making sure to open it in read-only mode and by making sure to close the file after you obtain the date/time information. If the file in question does not exist and/or cannot be opened, your program must detect this problem and output an appropriate error message.

Optional: Extra credit may be awarded if, in addition to being able to receive input from the user in response to a run-time prompt as above, your program is also able to accept command-line input using the techniques explained in Section 14.3.7 of the Irvine text (web supplement).

To Hand In: *(due no later than 5:00 p.m. Monday, December 3 - last day of Fall classes)*

1. Turn in a printed copy of the *thoroughly commented .LST file(s)* for your program. **Be sure to follow the guidelines given in the programming style and documentation handout.**

2. Submit printed *results* of your program as follows: run the DIR command at the command prompt to show the file information as displayed by the system; then run your program. With the directory information and your program's output on the screen together, capture a "screen shot". Do this for at least two file names that are present and one that is not. Print these out and turn them in with your program.

3. Have the instructor check the operation of your program (for files with a variety of dates and times) and sign in the space below when you have demonstrated its operation.

Instructor's signature: _____

Staple your program listing, results, and this signed sheet together. Submit these items to the instructor by **5:00 p.m. on Monday, December 3**. Turn in whatever you have, working or not ... ***no lab exercises (this or previous) will be accepted for credit after this time.***