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ICS 312
Homework Solution #14
Due Date: October 08, 2009

File Processing Homework Code

```
;; Program construct a text file which contains:
;;      Humpty Dumpty sat on the wall.
;;      Humpty Dumpty had a great fall.
;; Then, program uses the function 3fh to read this file into a buffer, and then
;; use function 40h to write the buffer out to the screen.
            include pcmac.inc
            .model       small
            .stack  100
            .data
fname              db          'myfile.txt', 0
handle             dw          ?
msg                db          'Humpty Dumpty sat on the wall.', 0dh, 0ah,
                               'Humpty Dumpty had a great fall.'
buffer             db          100 dup (?)
create_error_found db          0dh, 0ah, 'create error found.$'
write_error_found  db          0dh, 0ah, 'write error found.$'
read_error_found   db          0dh, 0ah, 'read error found.$'
close_error_found  db          0dh, 0ah, 'close error found.$'
seek_error_found   db          0dh, 0ah, 'seek error found.$'

        .code
prog    proc
        extrn       putdec : near   ; compile it with util.lib
        extrn       getdec : near
        mov         ax, @data
        mov         ds, ax

        mov         ah, 3ch         ; create file function
        lea         dx, fname       ; copy address to dx
        mov         cl, 0           ; normal file attributes
        int         21h             ; create the file
        jc          create_error    ; jump if error
```

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        mov         handle, ax      ; store file handle

        mov         ah, 40h         ; write file
        mov         bx, handle      ; file handle for the opened file
        mov         cx, 63          ; length of message
        lea         dx, msg         ; copy offset to dx
        int         21h             ; write the msg to the file
        jc          write_error     ; jump if error

        mov         ah, 42h         ; move file pointer
   ; mov            bx, handle      ; (still the file handle)
        mov         cx, 0           ; clear cx
        mov         dx, 0           ; 0 bytes to move
        mov         al, 0           ; relative to the beginning
        int         21h             ; move the file pointer
        jc          seek_error      ; jump if error

        mov         ah, 3fh         ; read the file
   ; mov            bx, handle      ; (still the file handle)
        mov         cx, 63          ; set count to read
        lea         dx, buffer      ; move offset of buffer to dx
        int         21h             ; read to buffer, ax = bytes read
        jc          read_error      ; jump if error

        mov         ah, 3eh         ; close file function
   ; mov            bx, handle      ; (still the file handle)
        int         21h             ; close the file
        jc          close_error     ; jump if error

        mov         ah, 40h         ; write to screen
        mov         bx, 1           ; file handle for the stdout
        mov         cx, 63          ; length of message
        lea         dx, buffer      ; copy offset to dx
        int         21h             ; display msg
        jc          write_error     ; jump if error
        _putch      0ah             ; prints a blank line
        jmp         done

create_error:                       ; error handles
        _putstr     create_error_found
        jmp         done
write_error:
```

```
        _putstr     write_error_found
        jmp         done
read_error:
        _putstr     read_error_found
        jmp         done
close_error:
        _putstr     close_error_found
        jmp         done
seek_error:
        _putstr     seek_error_found
        jmp         done

done:
        mov         al, 0           ; return code of 0
        mov         ah, 4ch         ; function code for exit to os
        int         21h
prog    endp
        end         prog
```

File Processing Homework Program Output

```
 C:\WINDOWS\system32\cmd.exe                                        _ □ ×

C:\Users\Jade\Desktop\ICS312~1\homework\hw14>dir
 Volume in drive C has no label.
 Volume Serial Number is 6C86-A0A6

 Directory of C:\Users\Jade\Desktop\ICS312~1\homework\hw14

10/07/2009  01:12 AM    <DIR>          .
10/07/2009  01:12 AM    <DIR>          ..
10/07/2009  01:12 AM             3,925 hw14.asm
10/07/2009  01:07 AM            58,123 hw14.docx
10/07/2009  01:07 AM            85,940 Jade's ICS 312 hw14.pdf
02/28/2001  01:11 AM             8,227 Pcmac.inc
03/05/2001  10:43 PM            11,659 UTIL.DOC
02/28/2001  12:55 AM             8,863 UTIL.LIB
               6 File(s)        176,737 bytes
               2 Dir(s)  24,855,203,840 bytes free

C:\Users\Jade\Desktop\ICS312~1\homework\hw14>ml hw14.asm util.lib
Microsoft (R) Macro Assembler Version 6.14.8444
Copyright (C) Microsoft Corp 1981-1997.  All rights reserved.

 Assembling: hw14.asm

Microsoft (R) Segmented Executable Linker  Version 5.60.339 Dec  5 1994
Copyright (C) Microsoft Corp 1984-1993.  All rights reserved.

Object Modules [.obj]: hw14.obj
Run File [hw14.exe]: "hw14.exe"
List File [nul.map]: NUL
Libraries [.lib]: "util.lib"
Definitions File [nul.def]:

C:\Users\Jade\Desktop\ICS312~1\homework\hw14>hw14.exe
Humpty Dumpty sat on the wall.
Humpty Dumpty had a great fall.

C:\Users\Jade\Desktop\ICS312~1\homework\hw14>dir
 Volume in drive C has no label.
 Volume Serial Number is 6C86-A0A6

 Directory of C:\Users\Jade\Desktop\ICS312~1\homework\hw14

10/07/2009  01:13 AM    <DIR>          .
10/07/2009  01:13 AM    <DIR>          ..
10/07/2009  01:12 AM             3,925 hw14.asm
10/07/2009  01:07 AM            58,123 hw14.docx
10/07/2009  01:13 AM             1,476 hw14.exe
10/07/2009  01:13 AM               580 hw14.obj
10/07/2009  01:07 AM            85,940 Jade's ICS 312 hw14.pdf
10/07/2009  01:13 AM                63 MYFILE.TXT
02/28/2001  01:11 AM             8,227 Pcmac.inc
03/05/2001  10:43 PM            11,659 UTIL.DOC
02/28/2001  12:55 AM             8,863 UTIL.LIB
               9 File(s)        178,856 bytes
               2 Dir(s)  24,855,199,744 bytes free

C:\Users\Jade\Desktop\ICS312~1\homework\hw14>more MYFILE.TXT
Humpty Dumpty sat on the wall.
Humpty Dumpty had a great fall.

C:\Users\Jade\Desktop\ICS312~1\homework\hw14>
```