

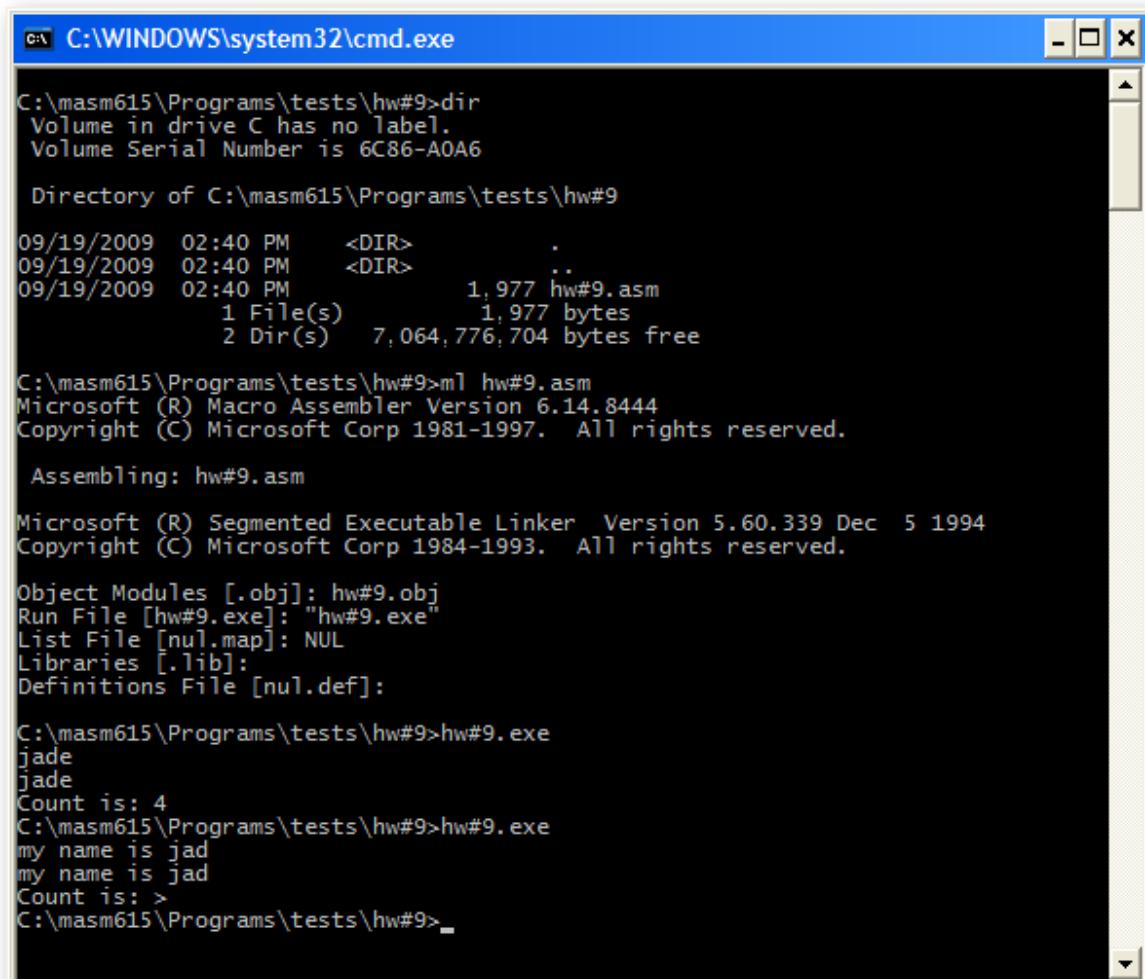
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ICS 312
Homework Solution #9
Due Date: September 22, 2009

Program Code

```
; program3.asm -- This program reads in a string for characters up to 20 bytes
; along using function 0ah, and then print it out using function 9.
.model small
.stack 100
.386           ; The cbw and cwd instructions are available on all 80x86
                ; processors. The movzx, movsx, cwde, cdq instructions
                ; are available only on 80386 and later processors.
.data
max      db      15          ; define function 0ah required data,
count    db      0           ; which needs to be in this order.
Buffer   db      15 dup ('?')
Newline  db      0dh, 0ah, '$' ; CRLF
msg      db      'Count is: $' ; a message to show the count size.
.code
prog     proc
        mov     ax, @data
        mov     ds, ax
        mov     ah, 0ah          ; call 0ah function
        lea     dx, max
        int     21h
        lea     dx, newline       ; move to the next line.
        Mov     ah, 9h
        Int     21h
        Movsx  bx, count         ; replace the CR with end of line sign.
        Mov     buffer[bx], '$'
        mov     ah, 9h          ; print out the contents in buffer.
        Lea     dx, buffer
        Int     21h
        Lea     dx, newline       ; move to the next line.
        mov     ah, 9h
        int     21h
        lea     dx, msg           ; print out the message.
```

```
Mov        ah, 9h
int        21h
add        [count], '0'      ; print out the content in count.
mov        ah, 2h
mov        dl, [count]
int        21h
mov        al, 0           ; return code of 0
mov        ah, 4ch          ; function code for exit to os
int        21h
prog      endp
end       prog
```

Program Output



The screenshot shows a Windows Command Prompt window titled "C:\WINDOWS\system32\cmd.exe". The command "dir" is run, showing the contents of the directory C:\masm615\Programs\tests\hw#9. The file hw#9.asm is listed with a size of 1,977 bytes. The command "ml hw#9.asm" is run, followed by the Microsoft Macro Assembler Version 6.14.8444 and Copyright information. The assembly code is assembled, and the Microsoft Segmented Executable Linker Version 5.60.339 Dec 5 1994 is used to link the object module hw#9.obj into the executable hw#9.exe. The final output shows the assembly code being executed, printing "Count is: 4" and "my name is jad" twice.

```
C:\masm615\Programs\tests\hw#9>dir
Volume in drive C has no label.
Volume Serial Number is 6C86-A0A6

Directory of C:\masm615\Programs\tests\hw#9

09/19/2009  02:40 PM    <DIR>      .
09/19/2009  02:40 PM    <DIR>      ..
09/19/2009  02:40 PM           1,977 hw#9.asm
                           1 File(s)   1,977 bytes
                           2 Dir(s)  7,064,776,704 bytes free

C:\masm615\Programs\tests\hw#9>ml hw#9.asm
Microsoft (R) Macro Assembler Version 6.14.8444
Copyright (C) Microsoft Corp 1981-1997. All rights reserved.

Assembling: hw#9.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]: hw#9.obj
Run File [hw#9.exe]: "hw#9.exe"
List File [nul.map]: NUL
Libraries [.lib]:
Definitions File [nul.def]:

C:\masm615\Programs\tests\hw#9>hw#9.exe
jade
jade
Count is: 4
C:\masm615\Programs\tests\hw#9>hw#9.exe
my name is jad
my name is jad
Count is: >
C:\masm615\Programs\tests\hw#9>
```