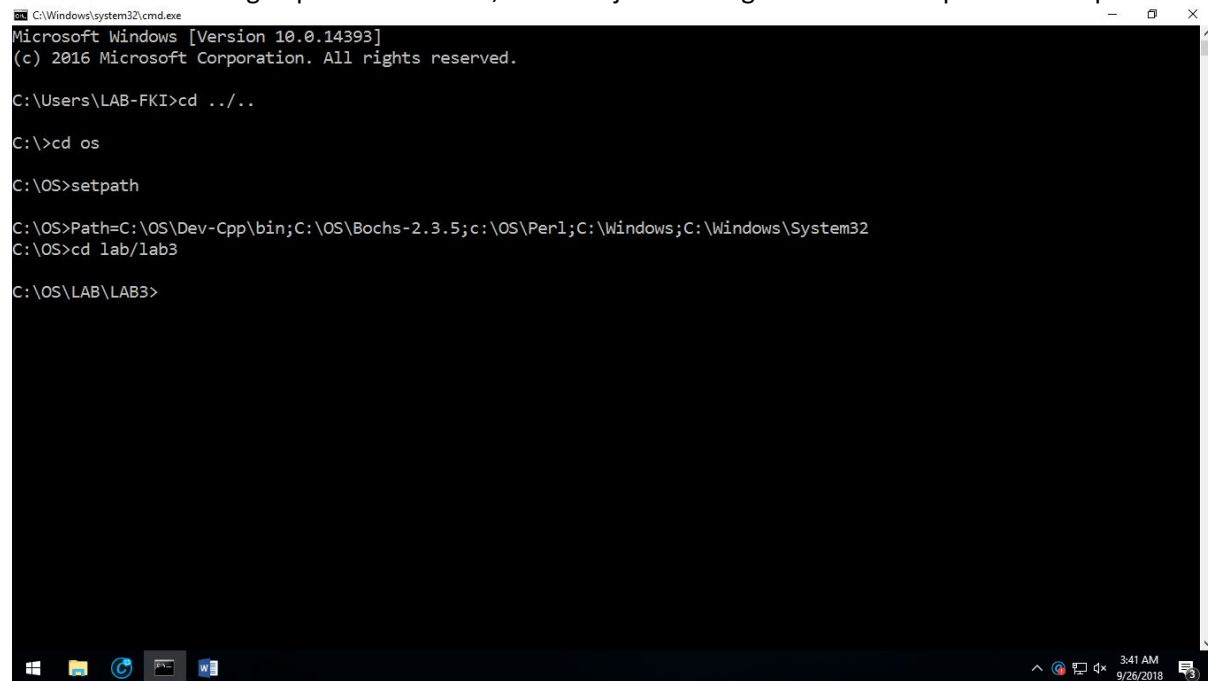


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Kelas : B

Modul 3

1. Masuk ke OS dengan perintah 'CD OS', lalu dilanjutkan dengan memasukan perintah 'setpath'



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\LAB-FKI>cd ../../

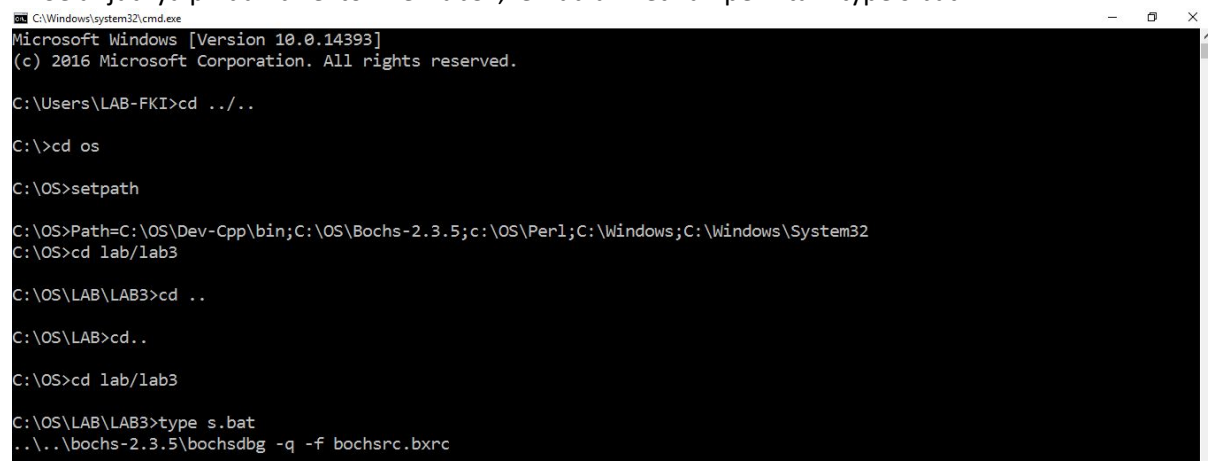
C:\>cd os

C:\OS>setpath

C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;C:\Windows;C:\Windows\System32
C:\OS>cd lab/lab3

C:\OS\LAB\LAB3>
```

2. Selanjutnya pindah direktori ke "lab3", kemudian ketikkan perintah 'type s.bat'



```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\LAB-FKI>cd ../../

C:\>cd os

C:\OS>setpath

C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;C:\Windows;C:\Windows\System32
C:\OS>cd lab/lab3

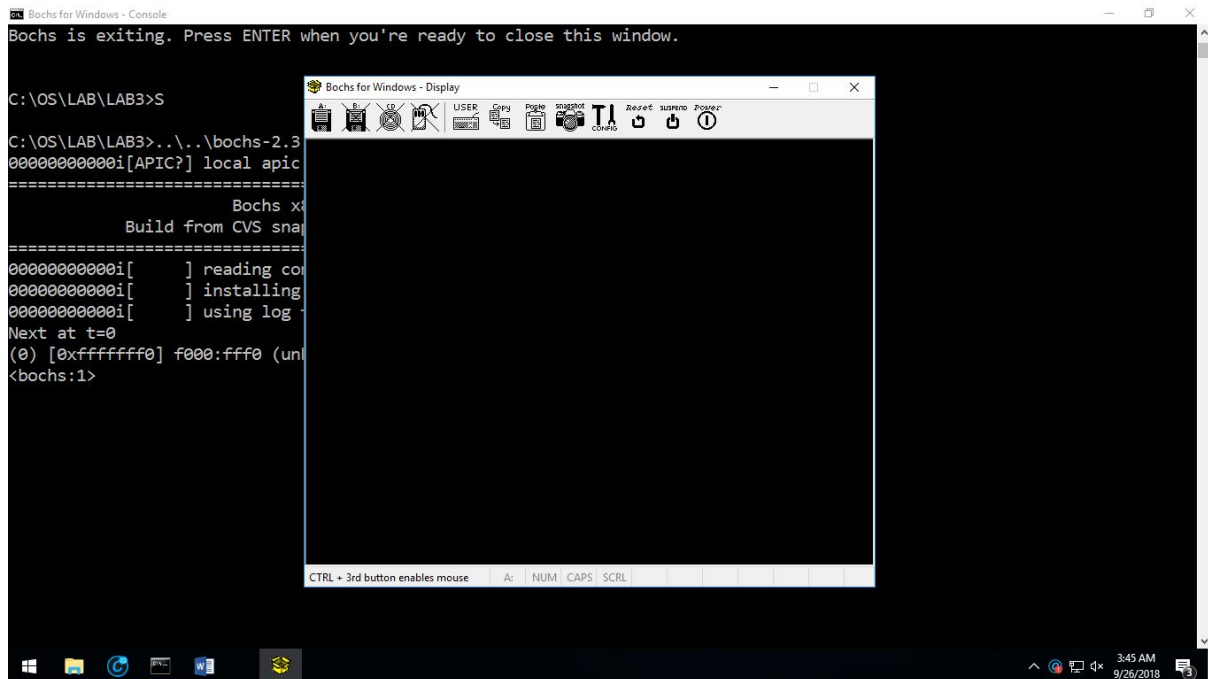
C:\OS\LAB\LAB3>cd ..

C:\OS\LAB>cd..

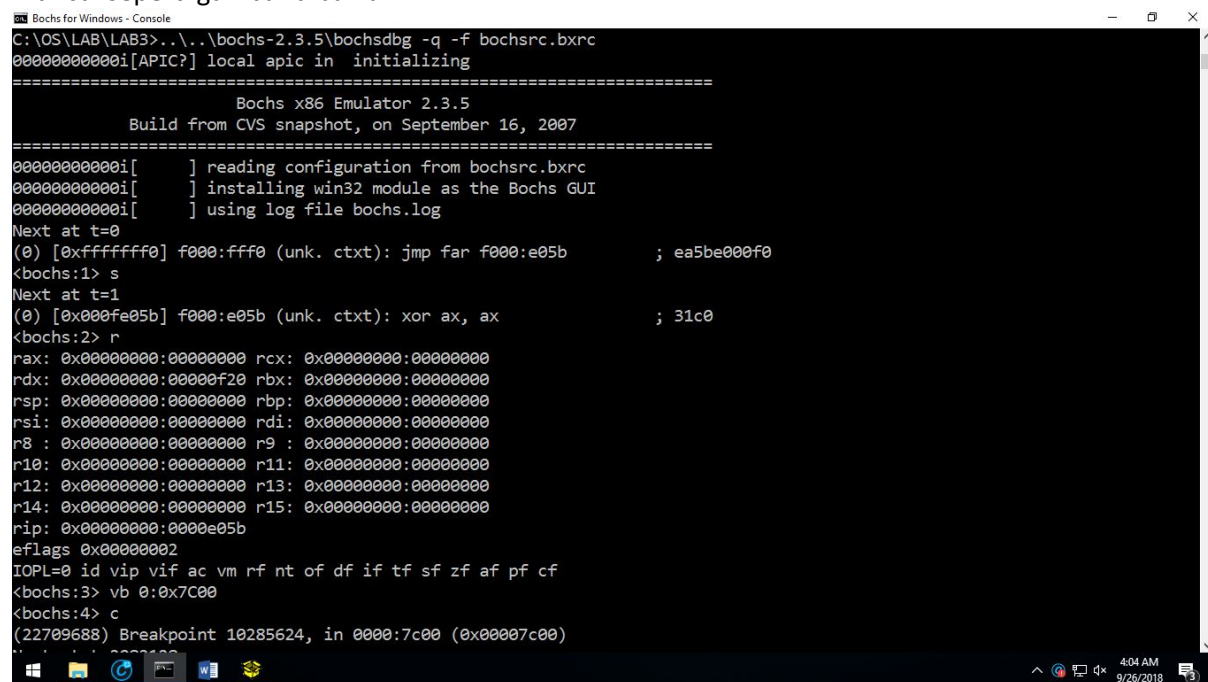
C:\OS>cd lab/lab3

C:\OS\LAB\LAB3>type s.bat
..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
```

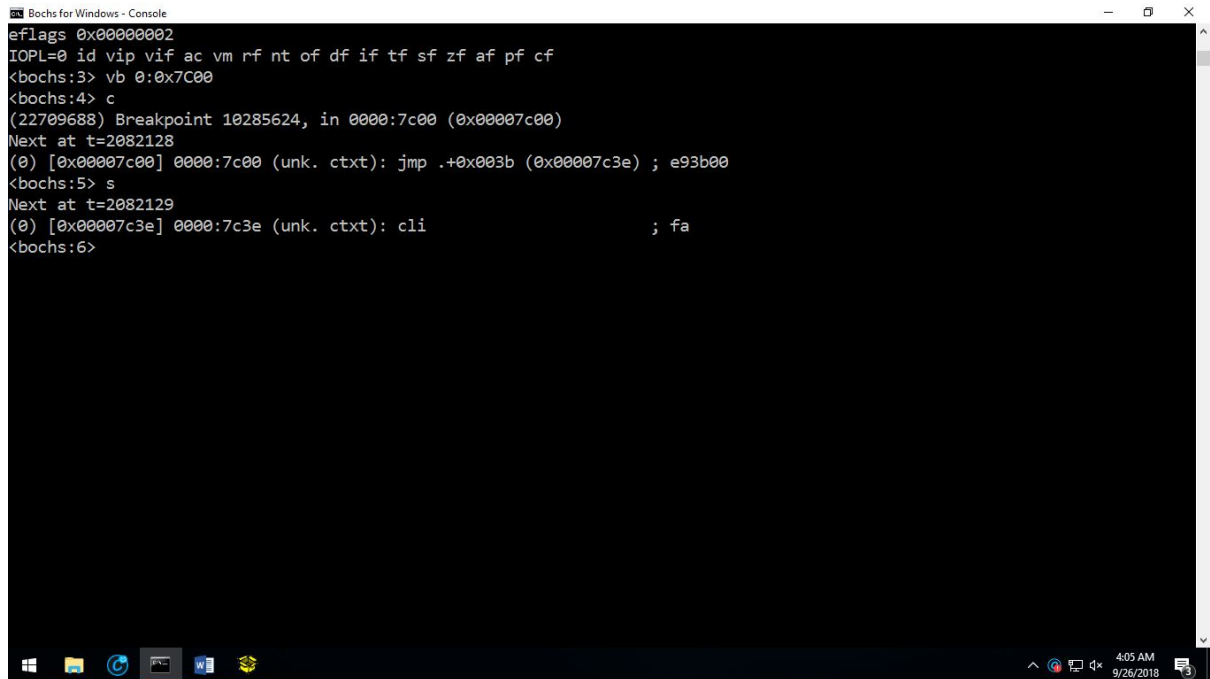
3. Dilanjutkan dengan memasukan perintah 's' untuk masuk ke PC simulator dan akan muncul seperti gambar dibawah ini



4. Ketikan perintah 's' dan kemudian ketikan perintah "r" dan juga perintah "vb 0:0x7C00" hingga muncul seperti gambar dibawah ini

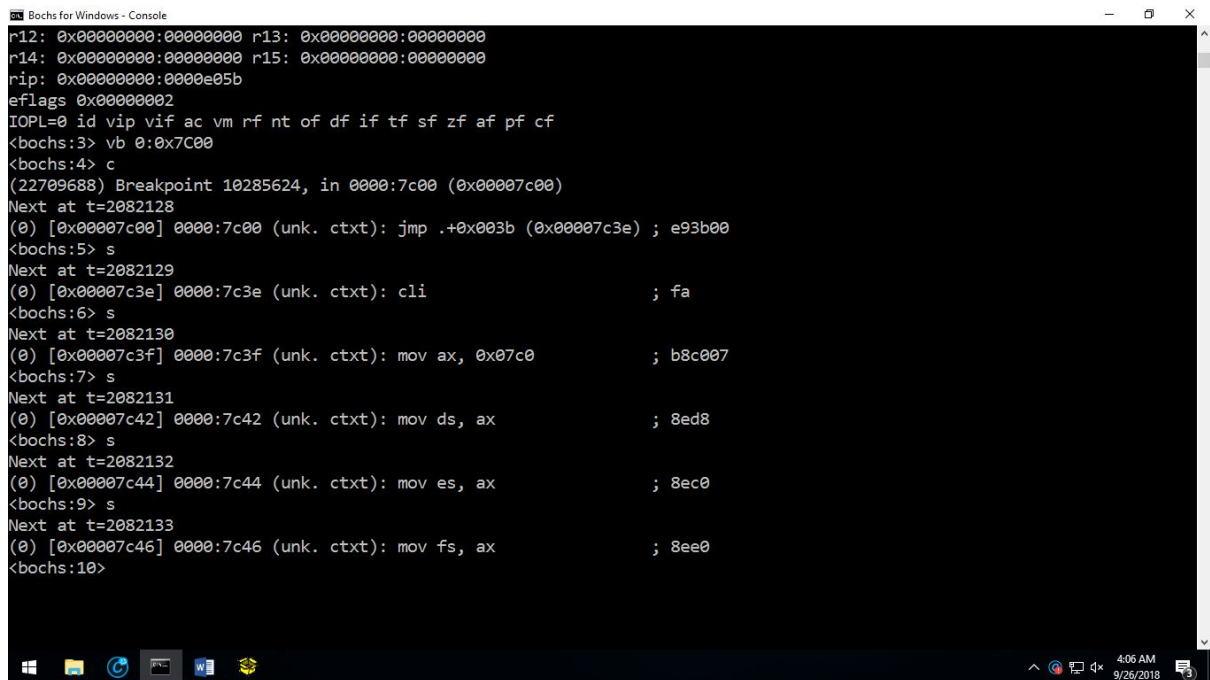


5. ketikan perintah “c” kemudian ketikan perintah “s’



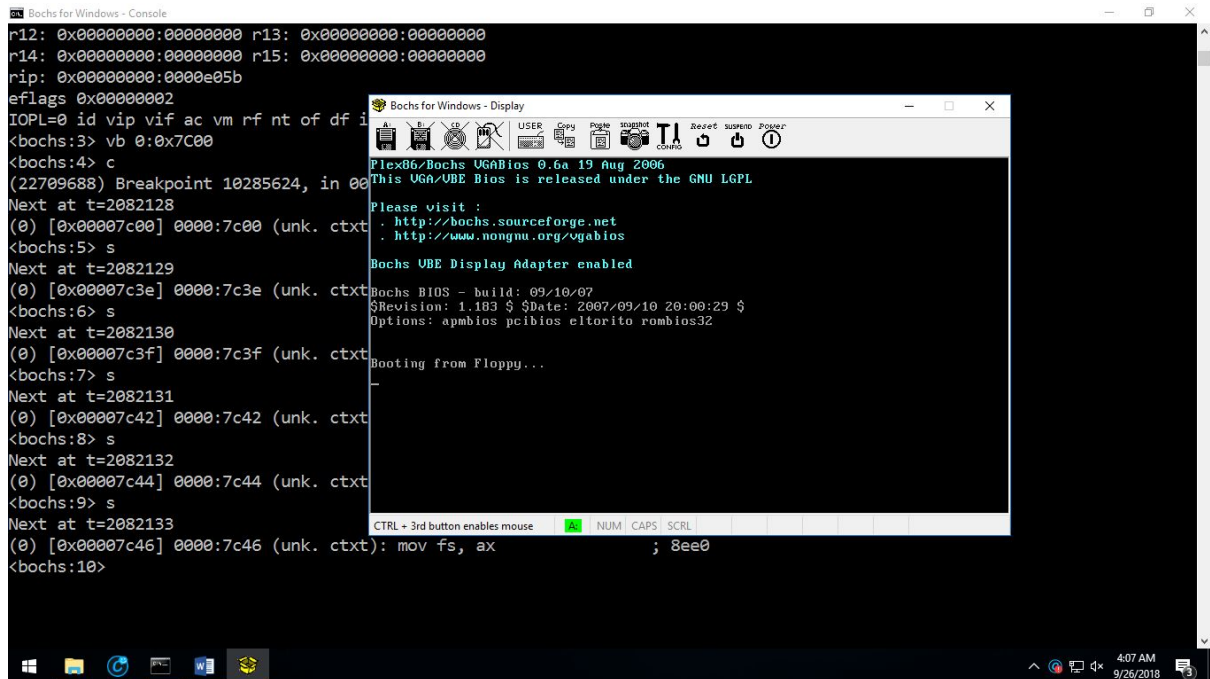
```
Bochs for Windows - Console
eFlags 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs:3> vb 0:0x7C00
<bochs:4> c
(22709688) Breakpoint 10285624, in 0000:7c00 (0x00007c00)
Next at t=2082128
(0) [0x00007c00] 0000:7c00 (unk. ctxt): jmp .+0x003b (0x00007c3e) ; e93b00
<bochs:5> s
Next at t=2082129
(0) [0x00007c3e] 0000:7c3e (unk. ctxt): cli ; fa
<bochs:6>
```

6. ketikan perintah “s” secara berulang-ulang

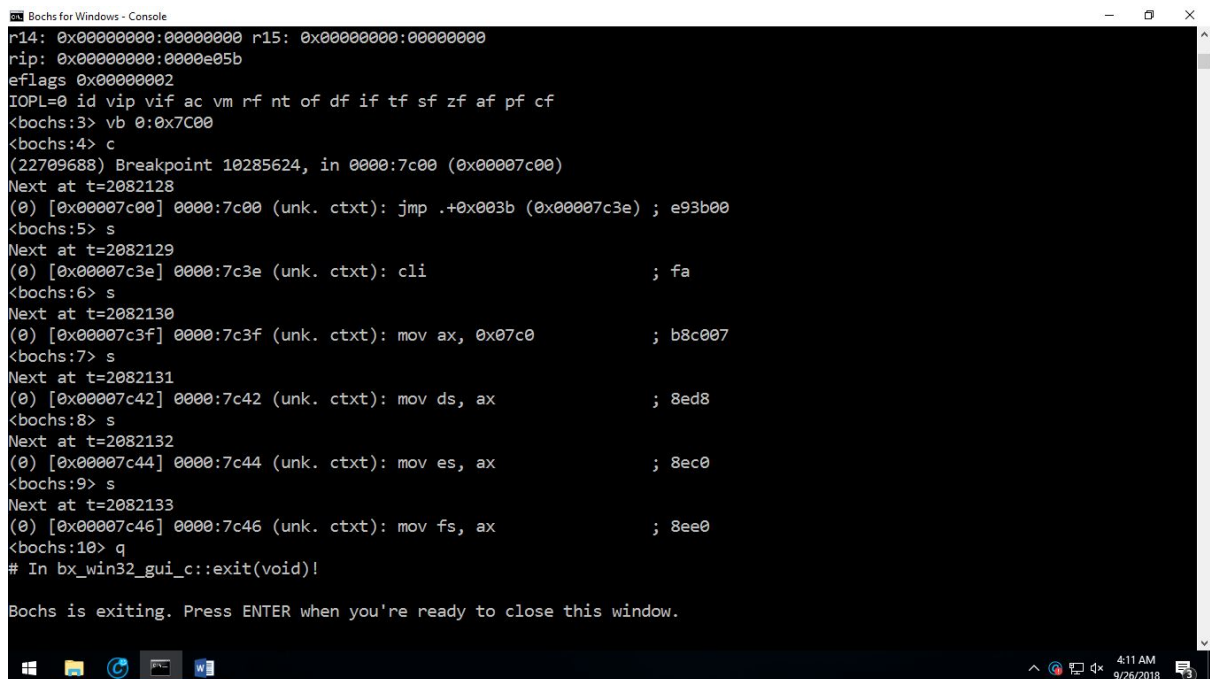


```
Bochs for Windows - Console
r12: 0x00000000:00000000 r13: 0x00000000:00000000
r14: 0x00000000:00000000 r15: 0x00000000:00000000
rip: 0x00000000:0000e05b
eFlags 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs:3> vb 0:0x7C00
<bochs:4> c
(22709688) Breakpoint 10285624, in 0000:7c00 (0x00007c00)
Next at t=2082128
(0) [0x00007c00] 0000:7c00 (unk. ctxt): jmp .+0x003b (0x00007c3e) ; e93b00
<bochs:5> s
Next at t=2082129
(0) [0x00007c3e] 0000:7c3e (unk. ctxt): cli ; fa
<bochs:6> s
Next at t=2082130
(0) [0x00007c3f] 0000:7c3f (unk. ctxt): mov ax, 0x07c0 ; b8c007
<bochs:7> s
Next at t=2082131
(0) [0x00007c42] 0000:7c42 (unk. ctxt): mov ds, ax ; 8ed8
<bochs:8> s
Next at t=2082132
(0) [0x00007c44] 0000:7c44 (unk. ctxt): mov es, ax ; 8ec0
<bochs:9> s
Next at t=2082133
(0) [0x00007c46] 0000:7c46 (unk. ctxt): mov fs, ax ; 8ee0
<bochs:10>
```

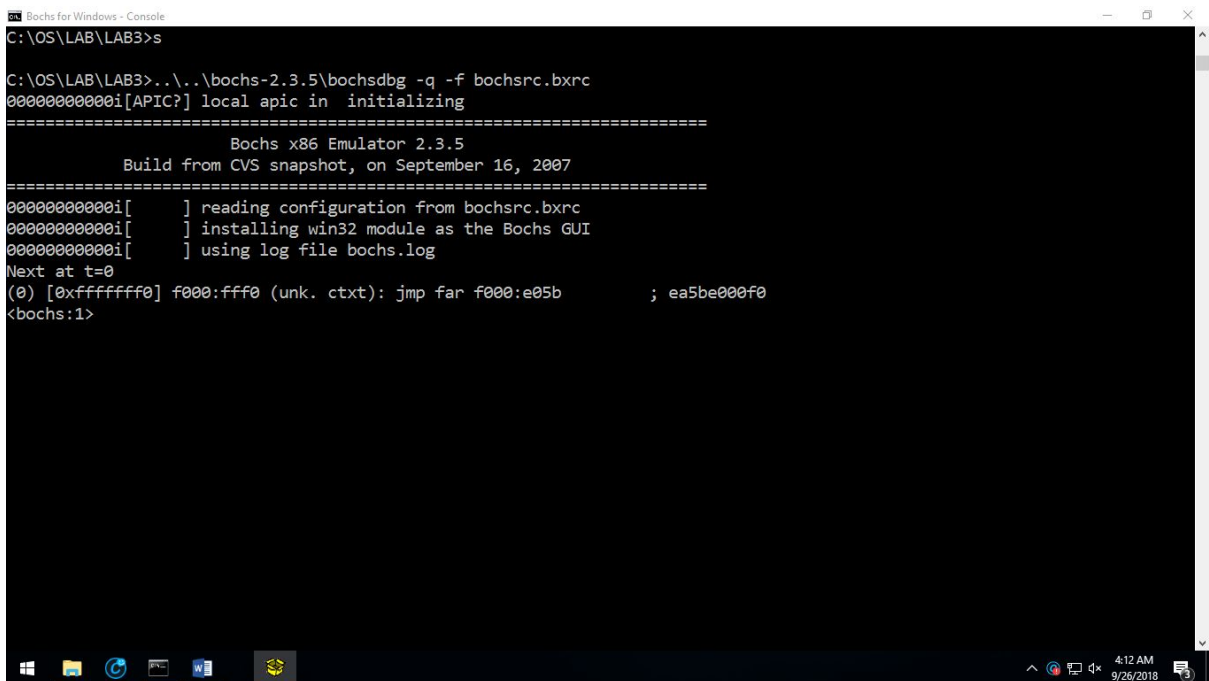
7. dan ini adalah tampilan Pc-simulator setelah menjalankan prosedur diatas tadi.



8. ketikan perintah 'q' untuk menghentikan proses debugging



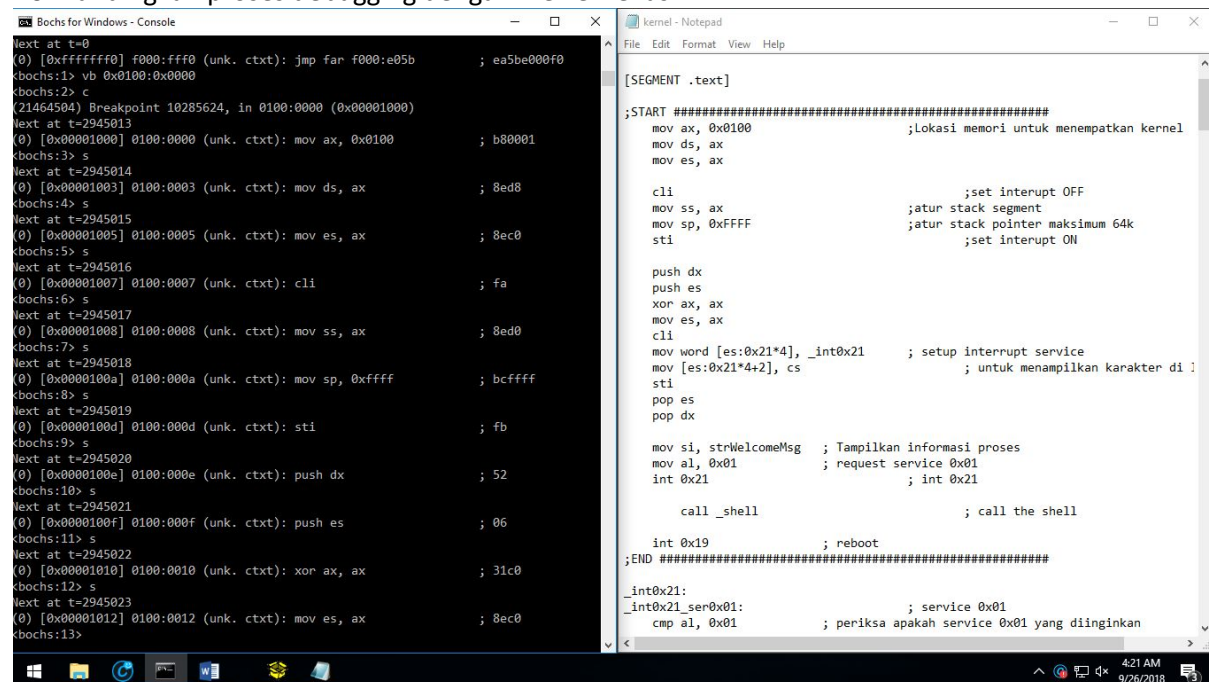
9. Ketikan perintah 's' untuk kembali masuk ke PC simulator



```
Bochs for Windows - Console
C:\OS\LAB\LAB3>s

C:\OS\LAB\LAB3>..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
0000000000i[APIC?] local apic in  initializing
=====
                Bochs x86 Emulator 2.3.5
                Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
Next at t=0
(0) [0xfffffff0] f000:ffff (unk. ctxt): jmp far f000:e05b      ; ea5be000f0
<bochs:1>
```

10. Bandingkan proses debugging dengan file kernel.asm



```
Bochs for Windows - Console
Next at t=0
(0) [0xfffffff0] f000:ffff (unk. ctxt): jmp far f000:e05b      ; ea5be000f0
<bochs:1> vb 0x0100:0x0000
<bochs:2> c
(21464504) Breakpoint 10285624, in 0100:0000 (0x00001000)
Next at t=2945013
(0) [0x00001000] 0100:0000 (unk. ctxt): mov ax, 0x0100      ; b80001
<bochs:3> s
Next at t=2945014
(0) [0x00001003] 0100:0003 (unk. ctxt): mov ds, ax          ; 8ed8
<bochs:4> s
Next at t=2945015
(0) [0x00001005] 0100:0005 (unk. ctxt): mov es, ax          ; 8ec0
<bochs:5> s
Next at t=2945016
(0) [0x00001007] 0100:0007 (unk. ctxt): cli                  ; fa
<bochs:6> s
Next at t=2945017
(0) [0x00001008] 0100:0008 (unk. ctxt): mov ss, ax          ; 8ed0
<bochs:7> s
Next at t=2945018
(0) [0x0000100a] 0100:000a (unk. ctxt): mov sp, 0xffff      ; bcffff
<bochs:8> s
Next at t=2945019
(0) [0x0000100d] 0100:000d (unk. ctxt): sti                  ; fb
<bochs:9> s
Next at t=2945020
(0) [0x0000100e] 0100:000e (unk. ctxt): push dx             ; 52
<bochs:10> s
Next at t=2945021
(0) [0x0000100f] 0100:000f (unk. ctxt): push es             ; 06
<bochs:11> s
Next at t=2945022
(0) [0x00001010] 0100:0010 (unk. ctxt): xor ax, ax           ; 31c0
<bochs:12> s
Next at t=2945023
(0) [0x00001012] 0100:0012 (unk. ctxt): mov es, ax          ; 8ec0
<bochs:13>
```

```
kernel - Notepad
File Edit Format View Help

[SEGMENT .text]

;START #####
mov ax, 0x0100      ;lokasi memori untuk menempatkan kernel
mov ds, ax
mov es, ax

cli                  ;set interrupt OFF
mov ss, ax          ;atur stack segment
mov sp, 0xFFFF      ;atur stack pointer maksimum 64k
sti                  ;set interrupt ON

push dx
push es
xor ax, ax
mov es, ax
cli

mov word [es:0x21*4], _int0x21      ; setup interrupt service
mov [es:0x21*4+2], cs                ; untuk menampilkan karakter di l
sti
pop es
pop dx

mov si, strWelcomeMsg      ; Tampilkan informasi proses
mov al, 0x01               ; request service 0x01
int 0x21                   ; int 0x21

call _shell                ; call the shell

int 0x19                   ; reboot
;END #####

_int0x21:
_int0x21_ser0x01:          ; service 0x01
cmp al, 0x01               ; periksa apakah service 0x01 yang diinginkan
```