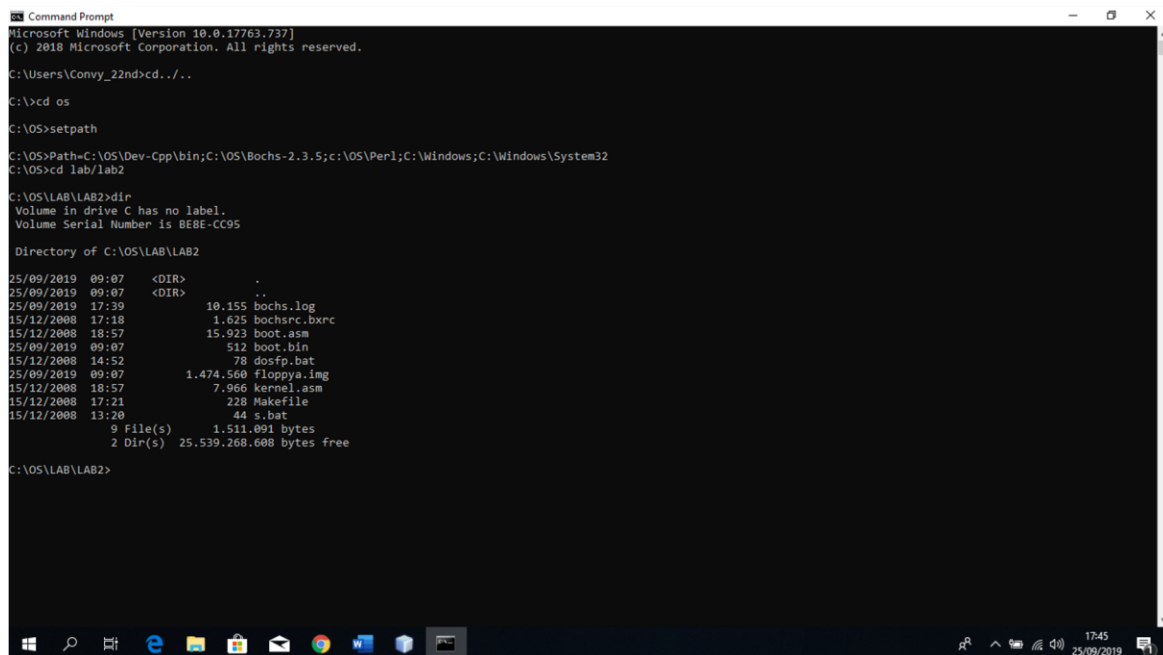


Nama : Hesti Sefria Nurfitri

Nim : L200180122

Modul 2

- Menuju ke direktori kerja
- Masuk ke direktori kerja C:\OS
- Melihat isi direktori di dalam folder OS dengan perintah dir pada command prompt.
- Menjalankan file setpath untuk mengatur lingkungan kerja
- ketik “cd LAB/LAB2” dilanjutkan perintah “dir” untuk melihat file didalamnya dan Menyiapkan file image “floppya.img”



```
Microsoft Windows [Version 10.0.17763.737]
(c) 2018 Microsoft Corporation. All rights reserved.

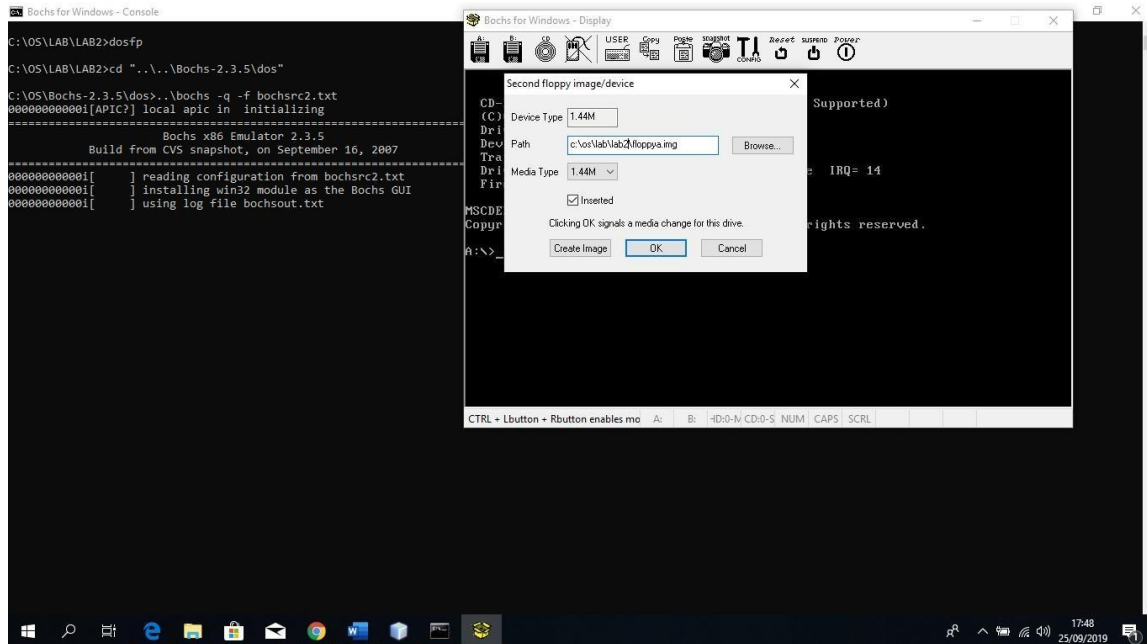
C:\Users\Convy_22nd>cd ../..
C:\>cd os
C:\OS>setpath
C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Windows\C:\Windows\System32
C:\OS>cd lab/lab2
C:\OS\LAB\LAB2>dir
Volume in drive C has no label.
Volume Serial Number is BEBE-CC95

Directory of C:\OS\LAB\LAB2

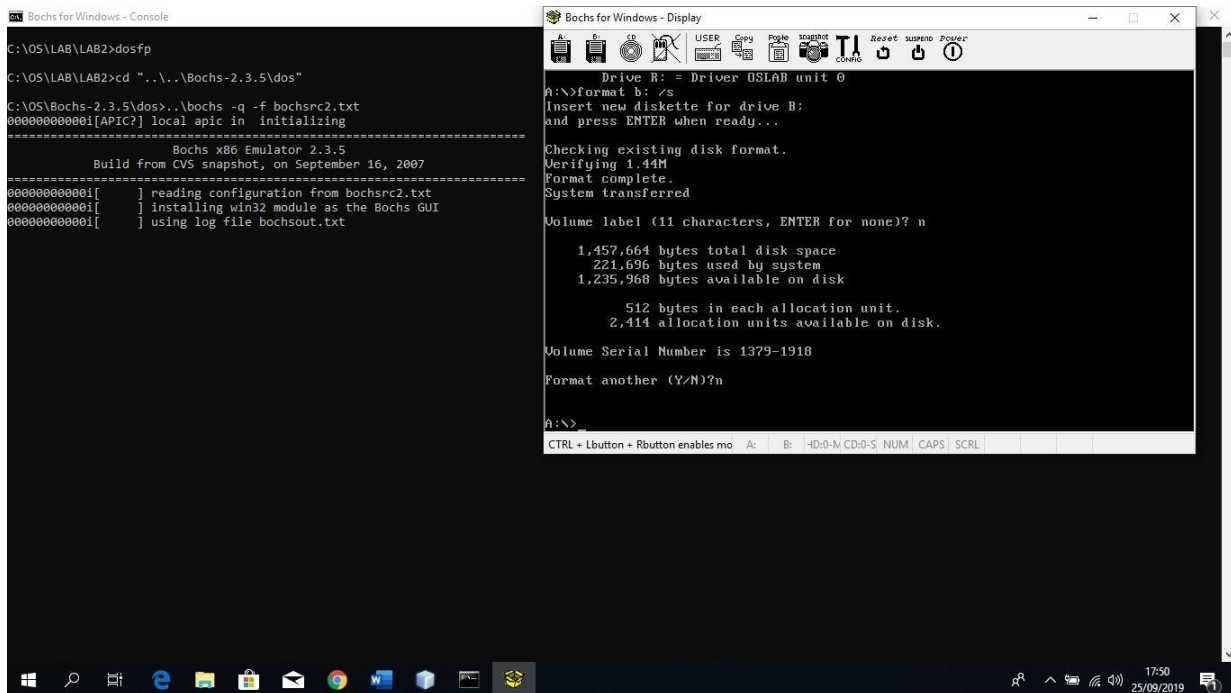
25/09/2019  09:07    <DIR>          .
25/09/2019  09:07    <DIR>          ..
25/09/2019  17:39             10.155 bochs.log
15/12/2008  17:18             1.625 bochsrc.bxrc
15/12/2008  18:57             15.923 boot.asm
25/09/2019  09:07             512 boot.bin
15/12/2008  14:52              78 dosfp.bat
25/09/2019  09:07          1.474.560 floppya.img
15/12/2008  18:57             7.966 kernel.asm
15/12/2008  17:21             228 Makefile
15/12/2008  13:20              44 s.bat
               9 File(s)      1.511.091 bytes
               2 Dir(s)  25.539.268.608 bytes free

C:\OS\LAB\LAB2>
```

- Memformat file “floppya.img” dan mengisi dengan system Operasi DOS versi 7
- alankan perintah “dosfp”
- Pada Bochs klik menu gambar floppy disk nomor dua dari kanan atau B
- Atur lokasi file image sehingga menunjukkan file “floppya.img” pada LAB2 dengan klik “Browser” dan atur lalu “Ok”



- Pada prompt “A:” ketik dengan “A:>Format B:/S”
- Jika tidak ada kesalahan maka “floppy.img” maka dapat digunakan untuk booting.



- Kompilasi source code “boot.asm” dan memindah hasil ke bootsector “floppya.img”.
Pindah ke direktori kerja “LAB2”
- Jalankan perintah “make fp.disk”

```

C:\OS\LAB\LAB2>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
rawwrite dd for windows version 0.5.
Written by John Newbigin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out
C:\OS\LAB\LAB2>

```

- Jalankan PC-Simulator ketik “s” lalu “Enter” maka akan tampil seperti ini

Bochs for Windows - Console

```

C:\OS\LAB\LAB2>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
rawwrite dd for windows version 0.5.
Written by John Newbigin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
000000000001[APIC?] local apic in initializing
-----
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
-----
000000000001[ ] reading configuration from bochsrc.bxrc
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochs.log

```

Bochs for Windows - Display

```

Flex86/Bochs UGABios 0.6a 19 Aug 2006
This UGA/VE Bios is released under the GNU LGPL

Please visit :
. http://bochs.sourceforge.net
. http://www.nongnu.org/vgabios

Bochs UBE Display Adapter enabled

Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...
Loading kernel ver 0.01
.....
ERROR : Press Any Key to Reboot_

```

- Menyunting file “boot.asm” ketik “notepad boot.asm” lalu “Enter”, cari teks Loading Kernel” pada windows “Notepad”
- Sunting baris “Loading kernel ver 0.01” menjadi dengan “Belajar membuat BOOTSTRAP_LOADER”
- Sunting juga baris “ERROR: Press Any Key to Reboot” dengan cara yang sama dengan nama “msgFailure”
- Simpan file “boot.asm” dengan CTRL+S

```

C:\OS\LAB\LAB2>notepad boot.asm
C:\OS\LAB\LAB2>

boot.asm - Notepad
File Edit Format View Help
=====
ImageName db "KERNEL BIN"

;=====
; Teks yang akan ditampilkan saat mulai proses
; BOOT : Loading kernel ver 0.01
; Di awali dan diakhiri dengan tanda :
; -- 0x0D akhir baris
; -- 0x0A baris baru
; -- 0x00 Karakter 'NULL' pembatas dengan data di bawahnya
;=====
msgLoading db 0x0D, 0x0A, "Bootstrap_Loader ", 0x0D, 0x0A, 0x00
msgCRLF db 0x0D, 0x0A, 0x00
msgProgress db ".", 0x00

;=====
; Teks yang di tampilkan saat terjadi kesalahan BOOT
;=====
msgFailure db 0x0D, 0x0A, "Rohmad Khoirudin : L200180101 author by: c

;=====
;(4) BLOK BOOT SIGNATURE
;=====
Windows (CRLF) Ln 325, Col 90 100%

```

- Ulangi kompilasi file “boot.asm” dan jalankan perintah “Make fp.disk” lalu “Enter”
- Jalankan PC-Simulator ketik “s” lalu “Enter” maka akan tampil seperti ini

```

C:\OS\LAB\LAB2>notepad boot.asm
C:\OS\LAB\LAB2>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
mawrite dd for windows version 0.5,
written by John Newbigin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>.\bochs-2.3.5\bochs -q -f bochsrc.bxrc
000000000000[APIC?] local apic in initializing

Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007

000000000000[ ] reading configuration from bochsrc.bxrc
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] using log file bochs.log

Bochs for Windows - Display
=====
Plex86/Bochs UGABios 0.6a 19 Aug 2006
This UGA/UBE Bios is released under the GNU LGPL

Please visit :
. http://bochs.sourceforge.net
. http://www.nongnu.org/ugabios

Bochs UBE Display Adapter enabled
Bochs BIOS - build: 09/10/07
$Revision: 1.103 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcbios citorito rombios32

Booting from Floppy...
Bootstrap_Loader
.....
Rohmad Khoirudin : L200180101 author by: convy_22nd_

CTRL + Lbutton + Rbutton enables mo A: NUM CAPS SCRL

```

- Menyiapkan file “kernel.bin” Prototype source code program kernel disimpan pada file “kernel.asm” lalu periksa pada direktori kerja anda.
- Lakukan proses kompilasi untuk menghasilkan file “kernel.bin”
- Lalu jalankan perintah “make kernel”
- Apabila tidak ada kesalahan, berarti proses kompilasi berhasil pada direktori kerja dan terdapat file baru yaitu “kernel.bin”
- Ketik perintah “dir” untuk melihat isi file didalamnya

```

C:\OS\LAB\LAB2>make kernel
nasm kernel.asm -o kernel.bin -f bin

C:\OS\LAB\LAB2>dir
Volume in drive C has no label.
Volume Serial Number is BEBE-CC95

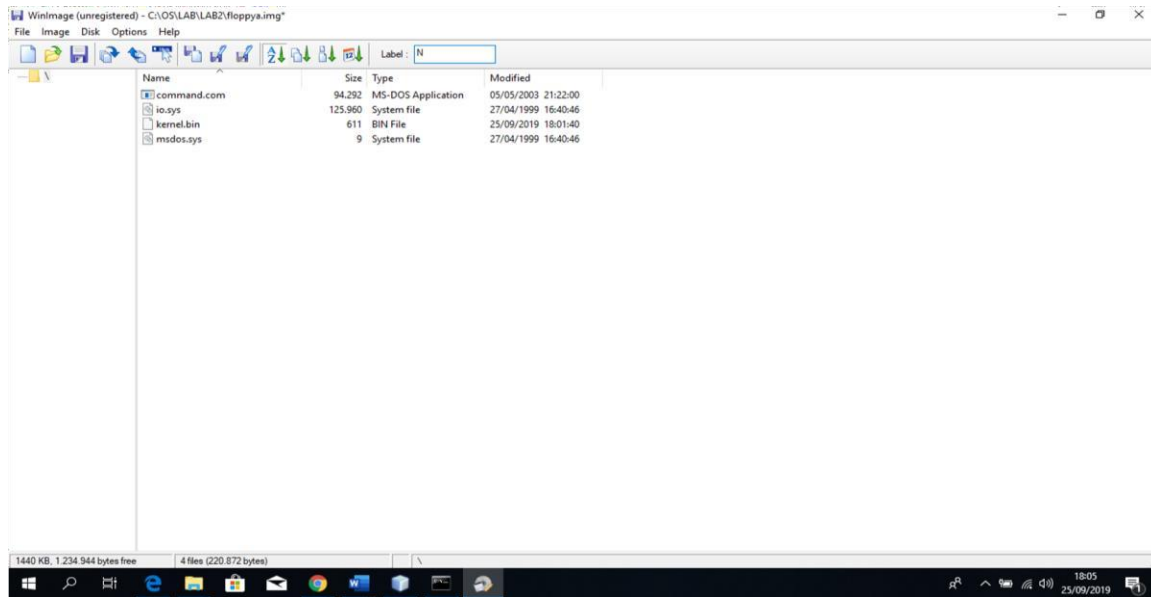
Directory of C:\OS\LAB\LAB2

25/09/2019  18:01    <DIR>          .
25/09/2019  18:01    <DIR>          ..
25/09/2019  18:01             10.153 bochs.log
15/12/2008  17:18             1.625 bochssrc.bxrc
25/09/2019  17:59             15.935 boot.asm
25/09/2019  17:59              512 boot.bin
15/12/2008  14:52              78 dosfp.bat
25/09/2019  17:59          1.474.566 floppy.img
15/12/2008  18:57              7.966 kernel.asm
25/09/2019  18:01              611 kernel.bin
15/12/2008  17:21              228 Makefile
15/12/2008  13:20              44 t.bat
                10 File(s)          1.511.712 bytes
                2 Dir(s)          25.539.022.848 bytes free

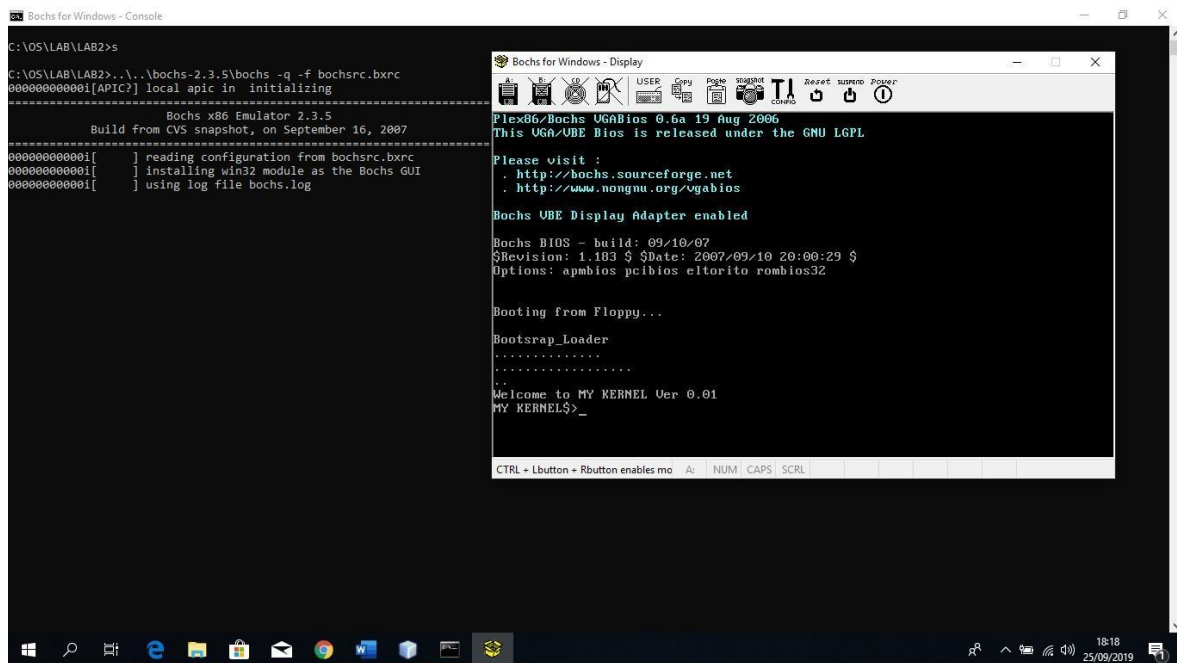
C:\OS\LAB\LAB2>

```

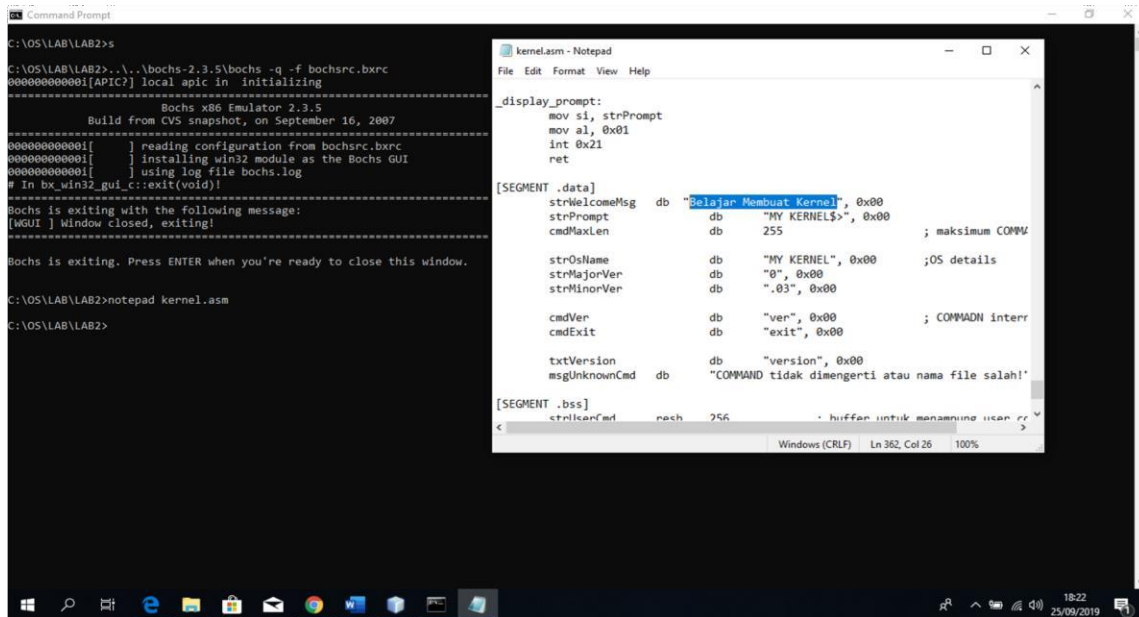
- Memindahkan file “kernel.bin” ke dalam file image “floppy.img”
- Untuk melakukan ini dengan menggunakan program shareware namanya “winimage”
- Buka direktori kerja “C:\OS\LAB\LAB2” dengan Windows Explore
- Klik double pada file “floppy.img” atau panggil program winimage klik “Start | All Programs| Winimage| Winimage
- Kemudian klik open dan cari file “floppy.img” pada direktori kerja untuk memasukkan file “kernel.bin” pada Windows “Winimage” klik menu “image| inject”
- Lalu cari file “kernel.bin” pada direktori kerja dan OK. Lalu simpan dengan “File| Save” dan keluar dari Winimage



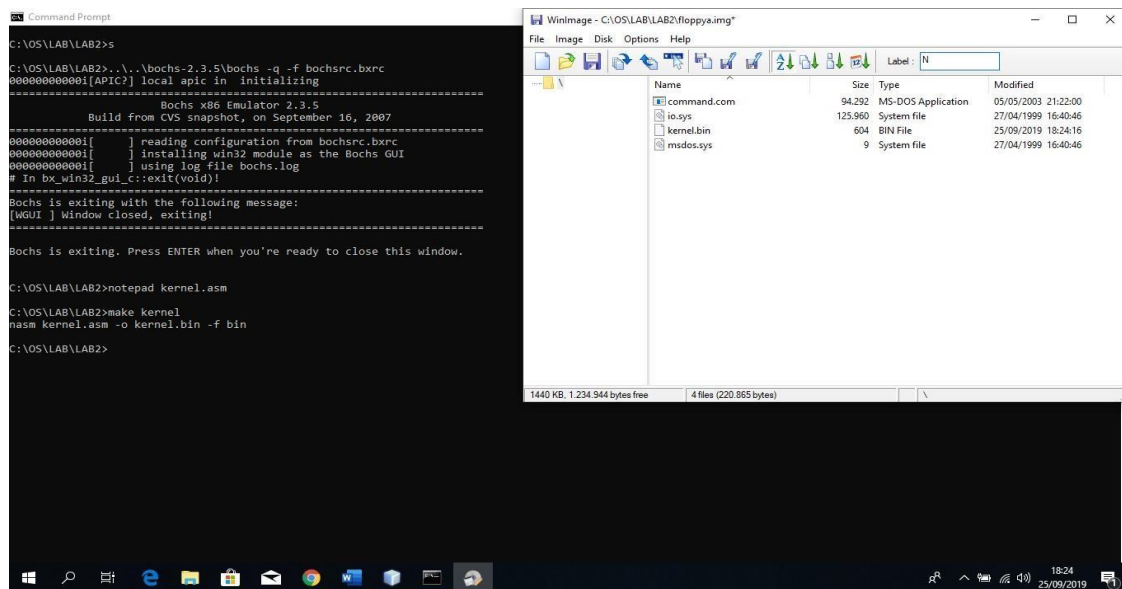
- Kembali ke Windows “Command Prompt” direktori kerja
- Jalankan PC-Simulator ketik “s” lalu “Enter” maka akan tampil seperti ini



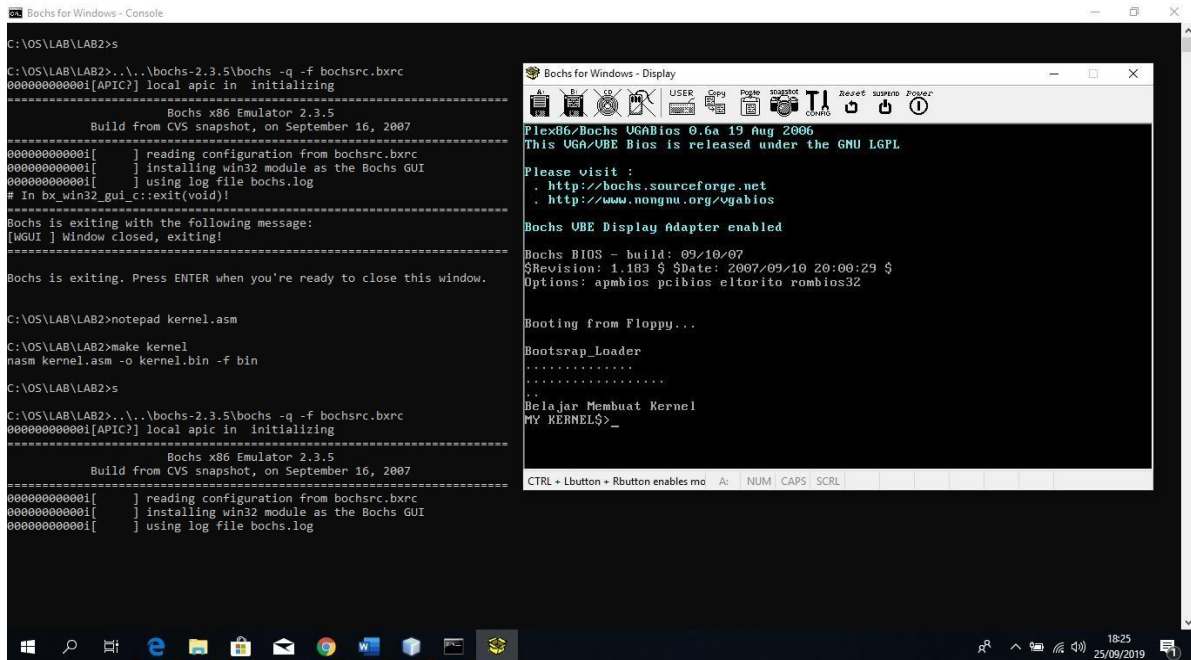
- Memodifikasi file “kernel.asm”
- Jalankan perintah “Notepad kernel.asm” lalu “Enter”. Cari teks “Welcome to MY KERNEL.....” ganti dengan teks “Belajar membuat KERNEL”
- Lalu simpan file “kernel.asm” tekan CTRL+S



- Ulangi proses kompilasi dengan perintah “make kernel” lalu “Enter”
- Lalu lakukan proses memindahkan file “kernel.bin” kedalam file “floppya.img” dengan Winimage



- Jalankan PC-Simulator ketik “s” lalu “Enter” maka akan tampil seperti ini



The screenshot shows a Windows 7 desktop with two windows open. The 'Bochs for Windows - Console' window displays the following text:

```
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
00000000000i[APIC?] local apic in  initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
00000000000i[      ] reading configuration from bochsrc.bxrc
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] using log file bochs.log
# In bx_win32_gui.c:exit(void)!
=====
Bochs is exiting with the following message:
[MGUI ] Window closed, exiting!
=====
Bochs is exiting. Press ENTER when you're ready to close this window.

C:\OS\LAB\LAB2>notepad kernel.asm

C:\OS\LAB\LAB2>make kernel
nasm kernel.asm -o kernel.bin -f bin

C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
00000000000i[APIC?] local apic in  initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
00000000000i[      ] reading configuration from bochsrc.bxrc
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] using log file bochs.log
```

The 'Bochs for Windows - Display' window shows the UGA BIOS screen with the following text:

```
Plex86/Bochs UGA BIOS 0.6a 19 Aug 2006
This UGA/UBE Bios is released under the GNU LGPL

Please visit :
. http://bochs.sourceforge.net
. http://www.nongnu.org/ugabios

Bochs UBE Display Adapter enabled

Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting From Floppy...

Bootstrap Loader
.....
..
..
Belajar Membuat Kernel
MY KERNEL$>_

CTRL + Lbutton + Rbutton enables mg  A: | NUM | CAPS | SCRL |
```

The taskbar at the bottom shows the Start button, search icon, and several application icons including Internet Explorer, File Explorer, and the Bochs emulator. The system clock in the bottom right corner shows 18:25 on 25/09/2019.