

Nama : Muhammad Irfan
NIM : L200184165
Kelas : X

MODUL 2

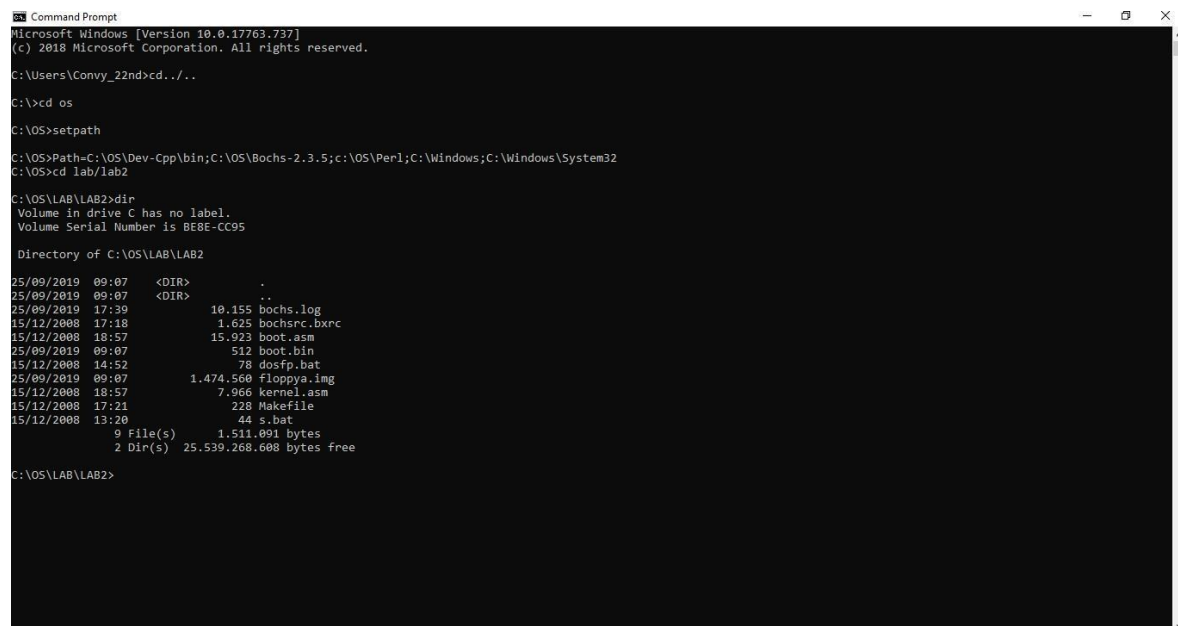
Menuju ke direktori kerja

*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 "floppy.img"



```
Command Prompt
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 BE8E-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      1.474.568 floppy.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

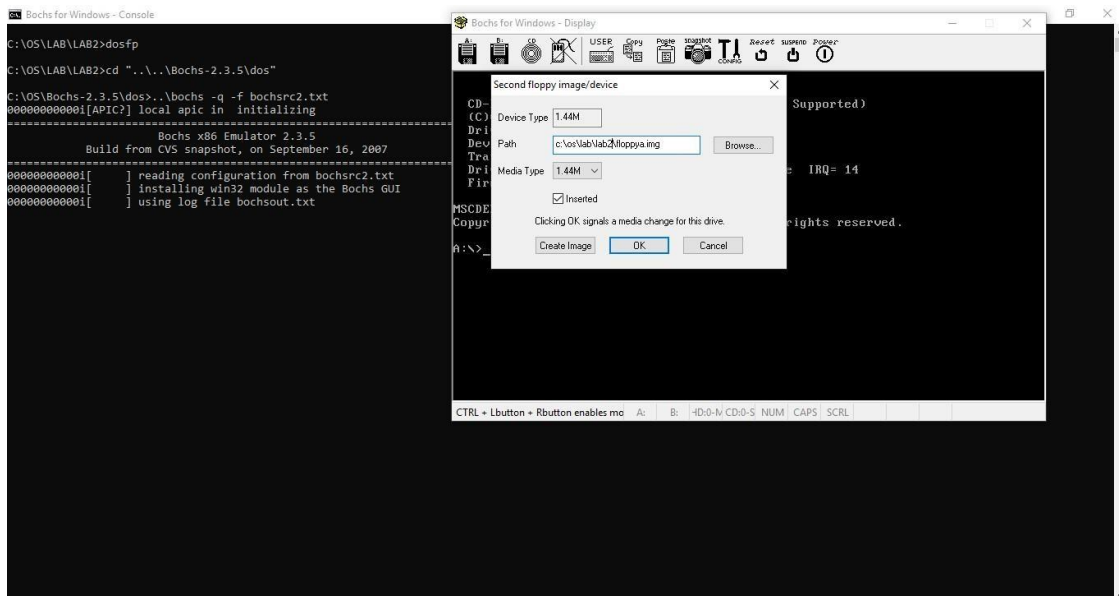
C:\OS\LAB\LAB2>
```

*Memformat file "floppya.img" dan mengisi dengan system Operasi DOS versi 7

*Jalankan perintah "dosfp"

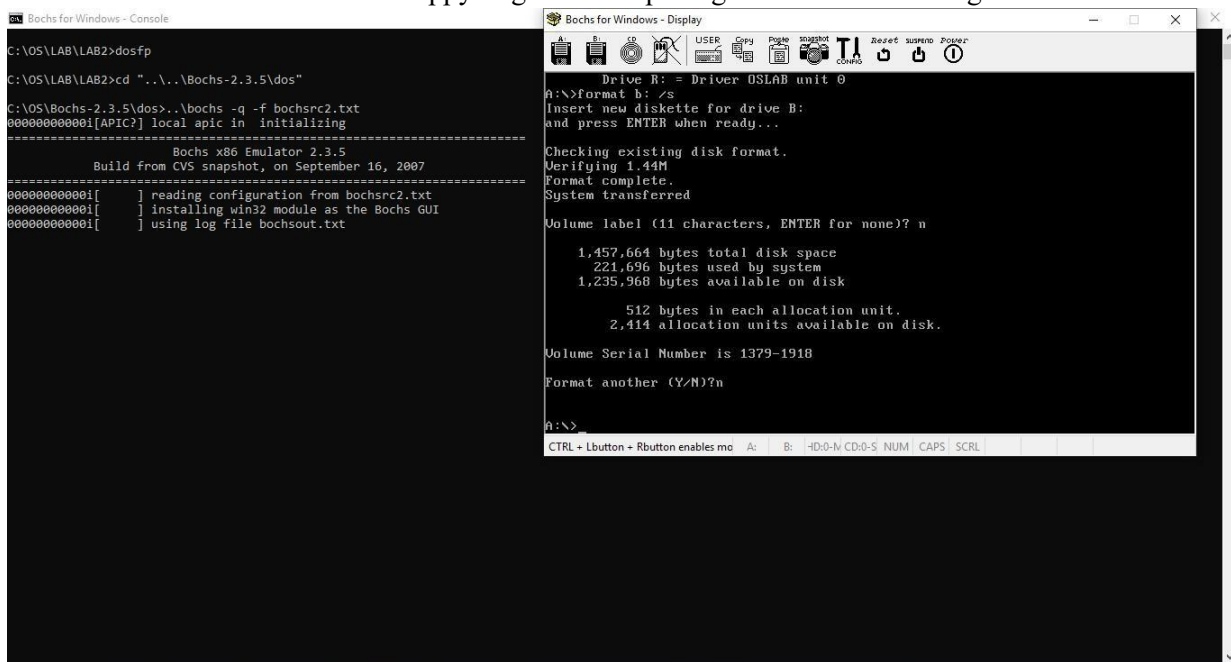
*Pada Bochs klik menu gambar floppy disk nomor dua dari kanan atau B

*Atur lokasi file image sehingga menunjukkan file "floppy.img" pada LAB2 dengan klik "Browser" dan atur lalu "Ok"



*Pada prompt “A:” ketik dengan “A:>Format B:/S”

*Jika tidak ada kesalahan maka “floppya.img” maka dapat digunakan untuk booting.



*Tutup Windows “Bochs” klik menu “Power” . Pada windows “Command Prompt” akan tampak bekas aktifitas “Bochs” seperti dibawah ini.

```
Command Prompt
C:\OS\LAB\LAB2>dosfp
C:\OS\LAB\LAB2>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
00000000000i[APIC?] local apic in  initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000000i[      ] reading configuration from bochsrc2.txt
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] using log file bochsout.txt
# In bx_win32_gui.c:exit(void)!
=====
Bochs is exiting with the following message:
[VGUI ] POWER button turned off.
=====
C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab2"
C:\OS\LAB\LAB2>
```

*BOOT PC-Simulator dengan file “floppy.img”

*Pindah direktori kerja pada windows “Command Prompt” dan jalankan perintah “s” lalu “Enter”

```
Bochs for Windows - Console
C:\OS\LAB\LAB2>dosfp
C:\OS\LAB\LAB2>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
00000000000i[APIC?] local apic in  initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000000i[      ] reading configuration from bochsrc2.txt
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] using log file bochsout.txt
# In bx_win32_gui.c:exit(void)!
=====
Bochs is exiting with the following message:
[VGUI ] POWER button turned off.
=====
C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab2"
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
=====
Bochs for Windows - Display
=====
Flex86/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/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...
Starting BootCD.....

Microsoft(R) MS-DOS 7.1
(C)Copyright Microsoft Corp 1981-1999.

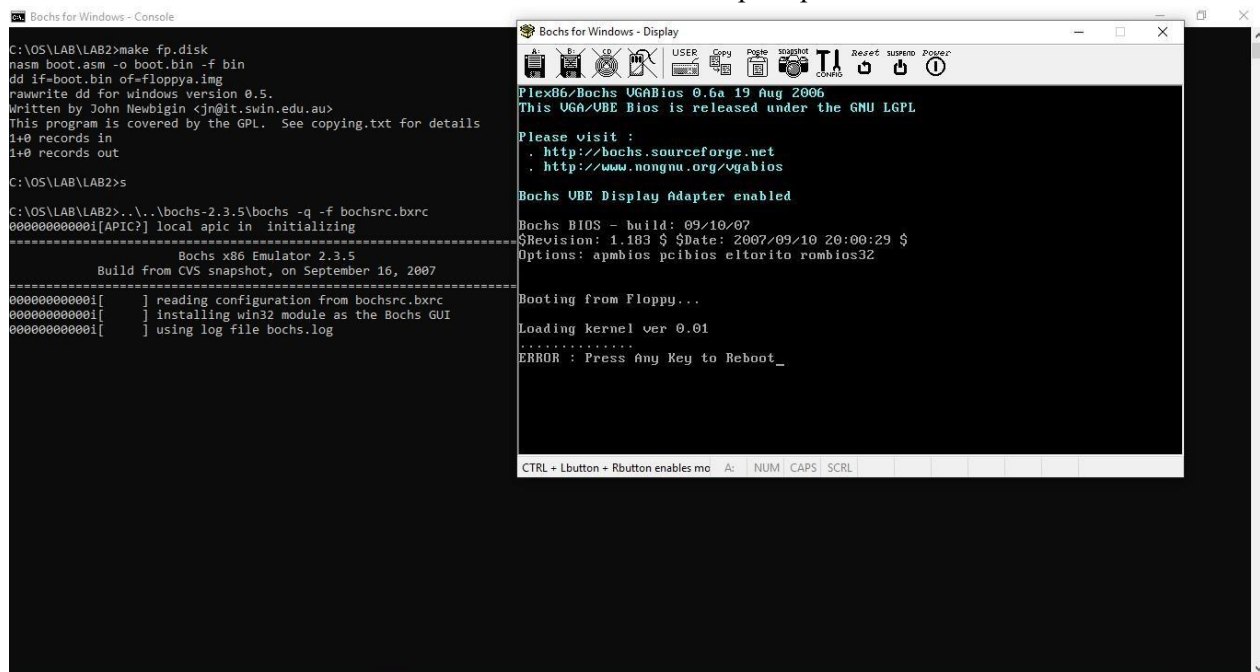
A:\>_
=====
CTRL + Lbutton + Rbutton enables mo  A: NUM CAPS SCRL
```

*Kompilasi source code “boot.asm” dan memindah hasil ke bootsector “floopya.img”. Pindah ke direktori kerja “LAB2”

*Jalankan perintah “make fp.disk”

```
Command Prompt
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

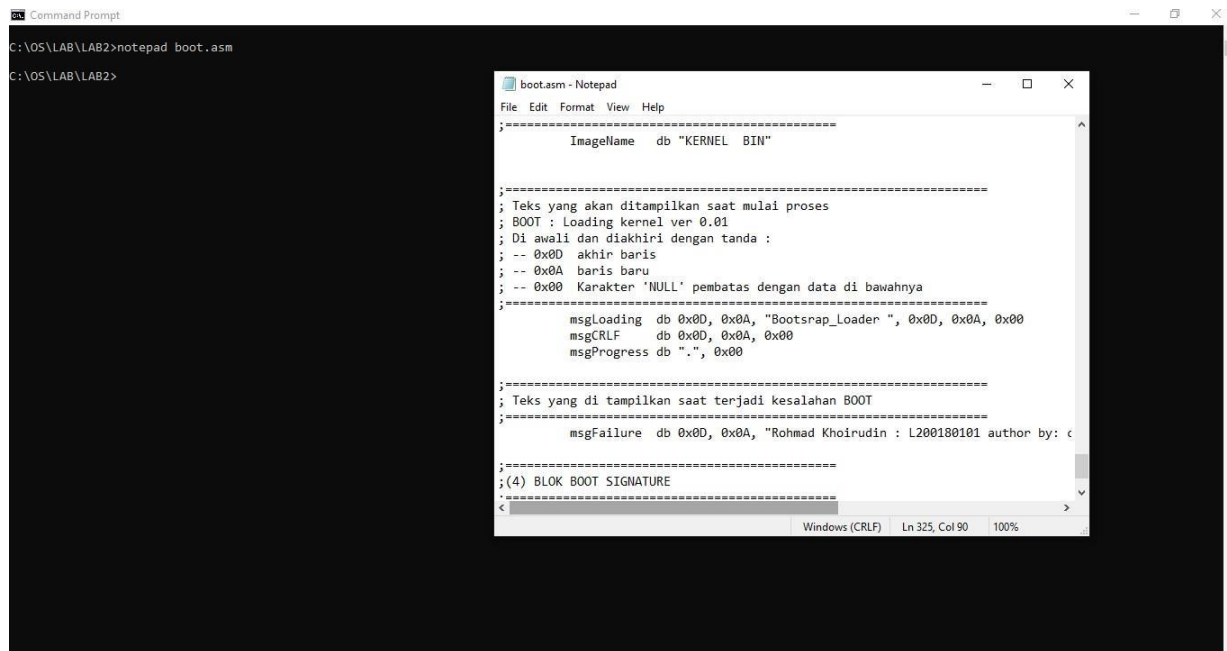


*Menyunting file “boot.asm” ketik “notepad boot.asm” lalu “Enter”, cari teks Loading Kernel” pada windows “Notepad”

*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 “Rohmad L2001180101”

*Simpan file “boot.asm” dengan CTRL+S



The image shows a Windows Command Prompt window with the following commands and output:

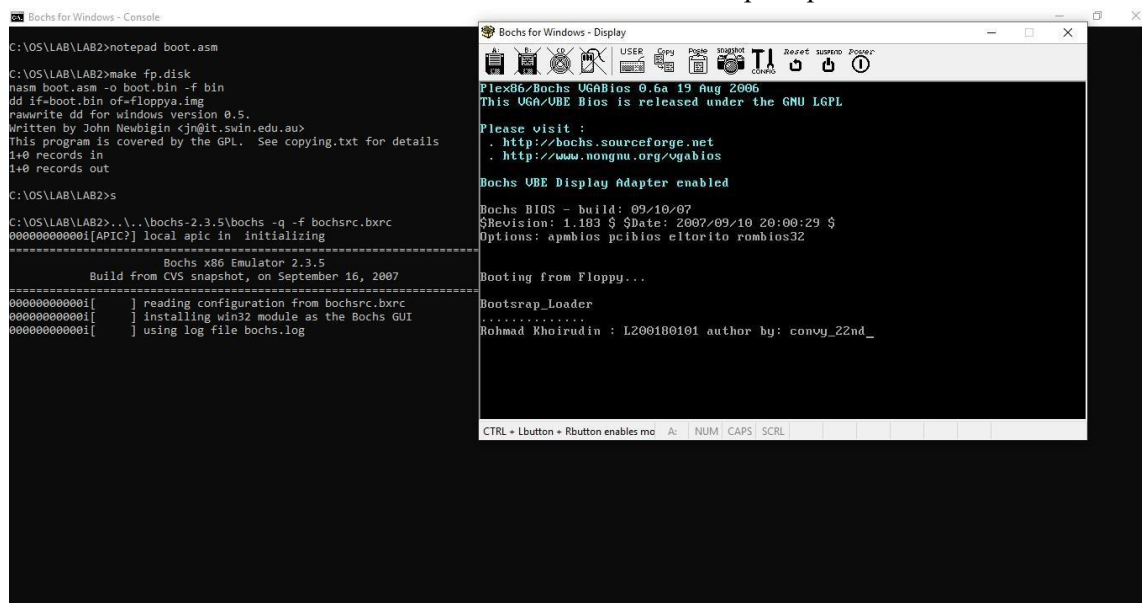
```
C:\OS\LAB\LAB2>notepad boot.asm
C:\OS\LAB\LAB2>
```

The Notepad window displays the contents of the file boot.asm:

```
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, "Bootsrap_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
;=====
```

*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



The image shows a Bochs PC simulator window. The left pane displays the command prompt with the following commands and output:

```
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
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
140 records in
140 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
```

The right pane shows the Bochs BIOS display with the following text:

```
Bochs for Windows - Display
Flex86/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/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...
Bootsrap_loader
Rohmad Khoirudin : L200180101 author by: convy_22nd_
```

*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

```
Command Prompt
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 BE8E-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 bochsrtc.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            1.474.560 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 s.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”

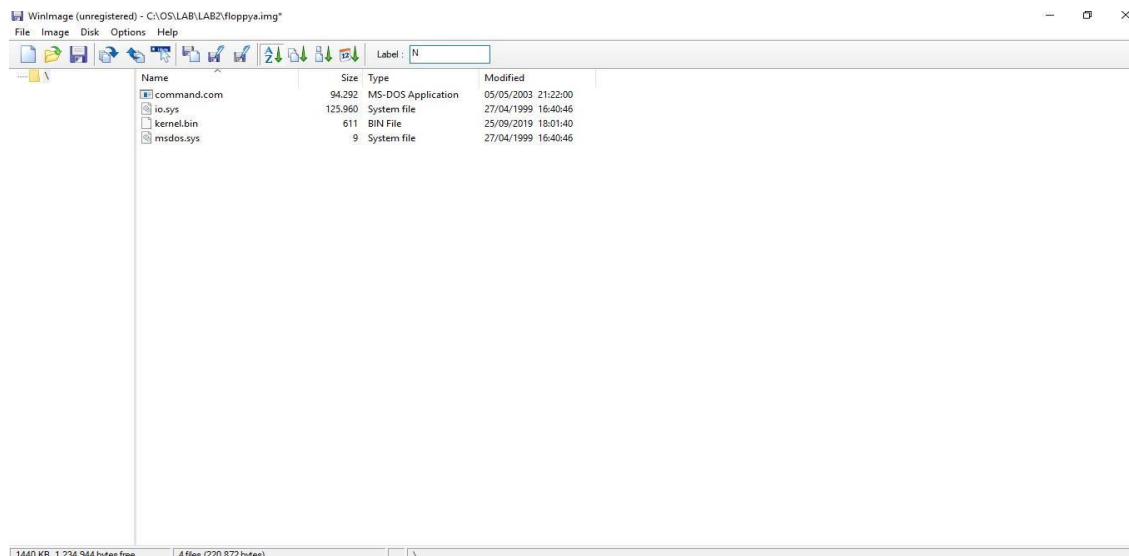
*Untuk melakukan ini dengan menggunakan program shareware namanya “winimage”

*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

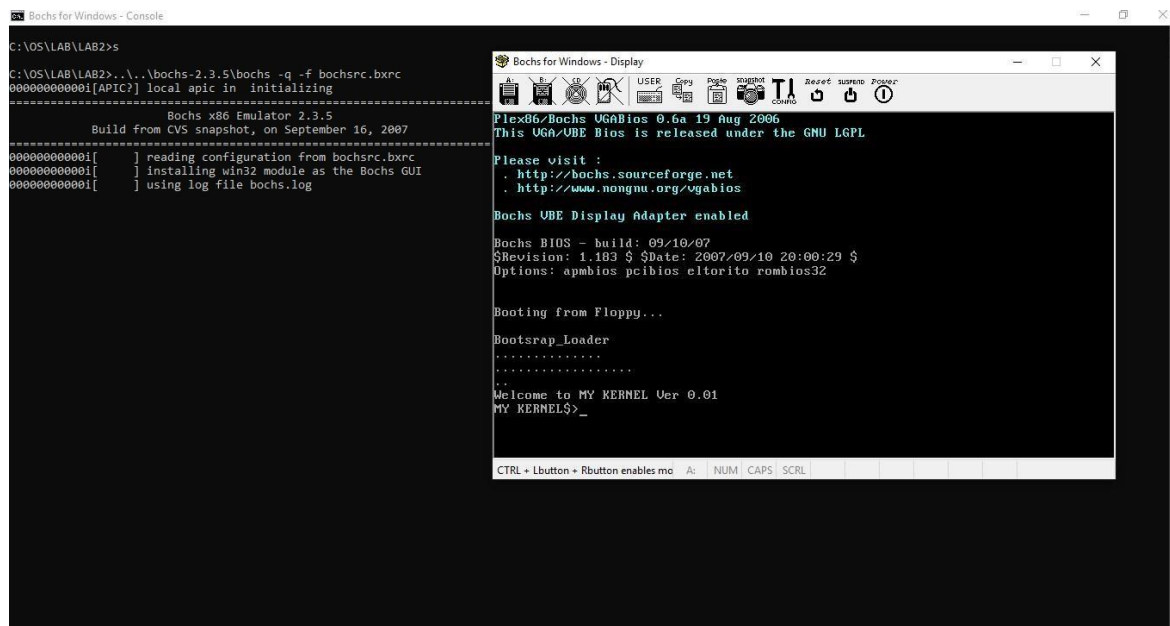
*Kemudian klik open dan cari file “floppy.img” pada direktori kerja untuk memasukkan file “kernel.bin” pada Windows “Winimage” klik menu “image| inject”

*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

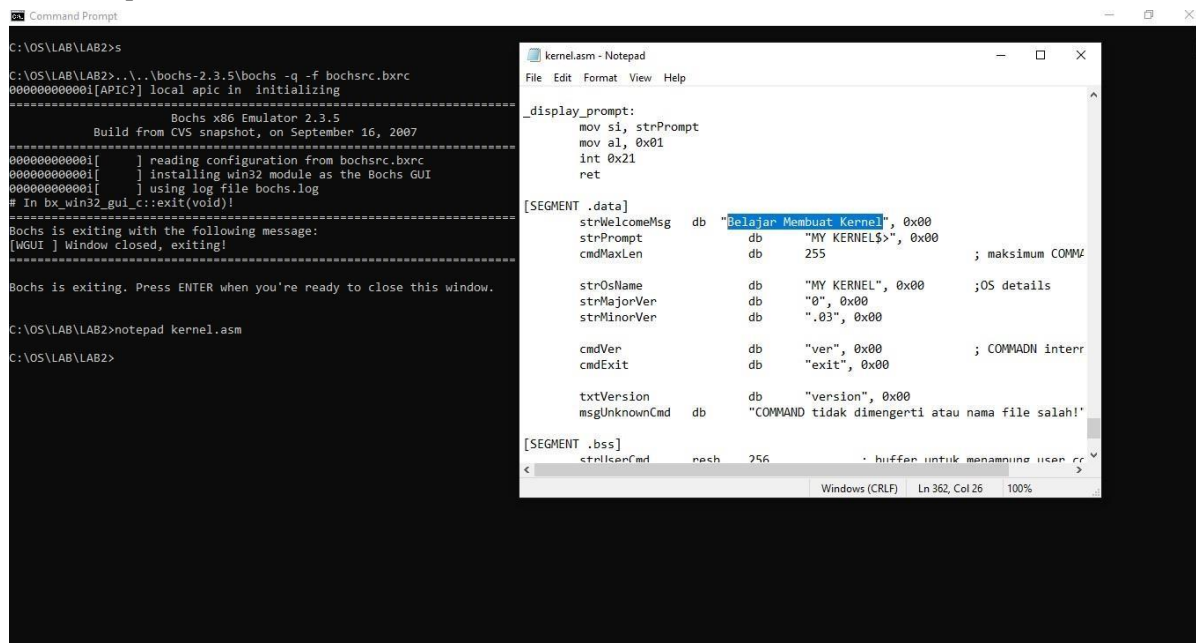
* Jalankan PC-Simulator ketik “s” lalu “Enter” maka akan tampil seperti ini



*Memodifikasi file “kernel.asm”

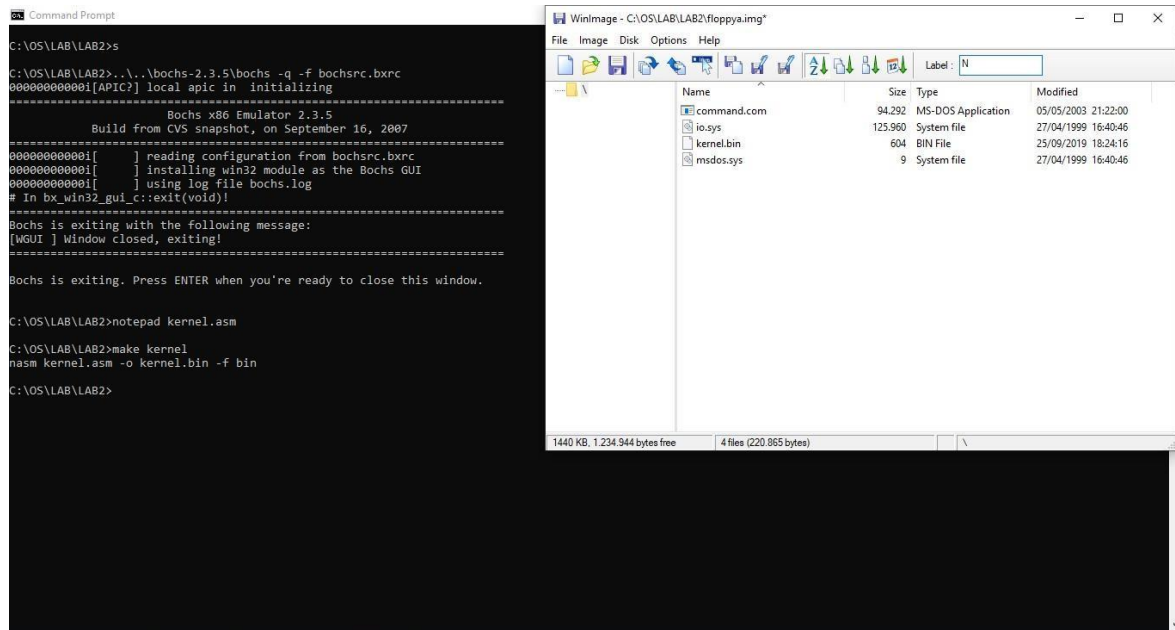
*Jalankan perintah “Notepad kernel.asm” lalu “Enter”. Cari teks “Welcome toMY KERNEL” ganti dengan teks “Belajar membuat KERNEL”

*Lalu simpan file “kernel.asm” tekan CTRL+S

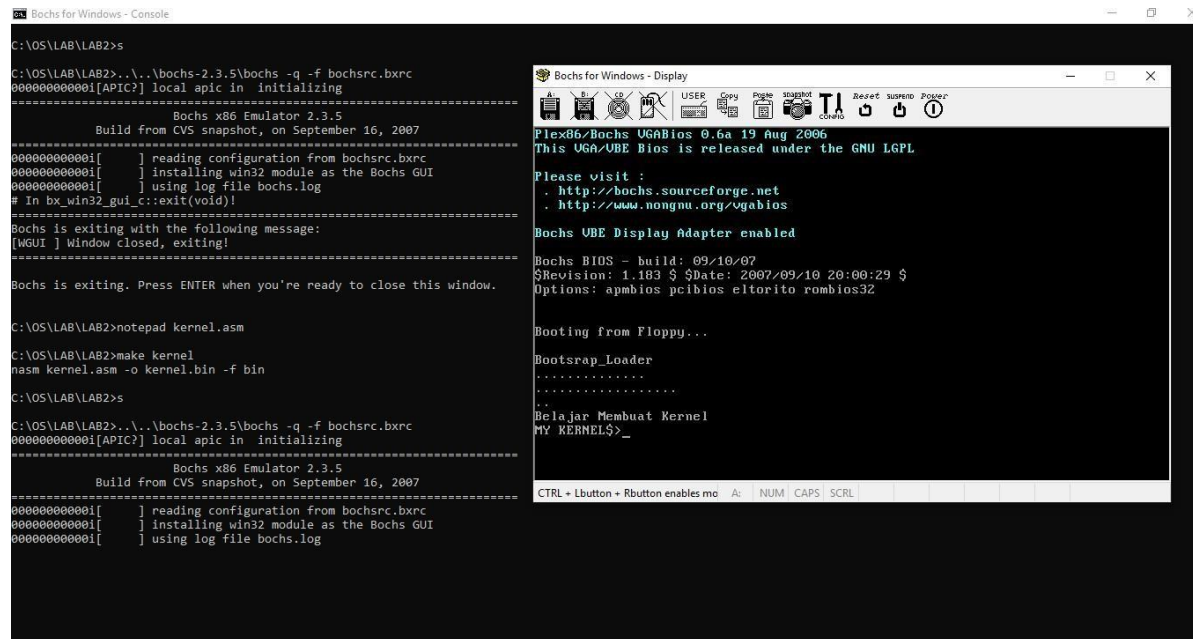


*Ulangi proses kompilasi dengan perintah “make kernel” lalu “Enter”

*Lalu lakukan proses memindahkan file “kernel.bin” kedalam file “kernel.bin” kedalam file “floppya.img” dengan Winimage



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



The screenshot shows a PC simulator window titled "Bochs for Windows - Console". The console displays the following text:

```
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
000000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000000i[ ] reading configuration from bochsrc.bxrc
000000000000i[ ] installing win32 module as the Bochs GUI
000000000000i[ ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!
=====
Bochs is exiting with the following message:
[WGUI ] 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
000000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000000i[ ] reading configuration from bochsrc.bxrc
000000000000i[ ] installing win32 module as the Bochs GUI
000000000000i[ ] using log file bochs.log
```

On the right side of the console window, there is a "Bochs for Windows - Display" window. It shows the BIOS screen with the following text:

```
FlexB6/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/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...

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

CTRL + Lbutton + Rbutton enables me  A:  NUM  CAPS  SCRL
```