

OPERATION SYSTEM

Modul 2



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INFORMATION TECHNOLOGY

FACULTY OF COMMUNICATION AND INFORMATICS

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1. Masuk ke direktori C:/OS. Lakukan setpath, kemudian masuk ke direktori lab/lab2. Kemudian lakukan dir untuk mengecek isi dari direktori.

```
Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>cd C:/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>
```

Activate Windows
Go to Settings to activate Windows.

```
Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

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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
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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>
```

2. Kemudian buat suatu file bernama “floppya.img”, dengan bantuan aplikasi bxiimage

```
C:\Windows\system32\cmd.exe
21/09/2018 20:53 1.474.560 floppya.img
19/09/2018 12:09 7.966 kernel.asm
08/09/2016 20:36 604 kernel.bin
15/12/2008 23:21 228 Makefile
15/12/2008 19:20 44 s.bat
12 File(s) 1.872.117 bytes
2 Dir(s) 87.873.486.848 bytes free

C:\OS\LAB\LAB2>del floppya.img
C:\OS\LAB\LAB2>bxiimage
-----
bximage
Disk Image Creation Tool for Bochs
$Id: bxiimage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp $
-----

Do you want to create a floppy disk image or a hard disk image?
Please type hd or fd. [hd] fd

Choose the size of floppy disk image to create, in megabytes.
Please type 0.16, 0.18, 0.32, 0.36, 0.72, 1.2, 1.44, 1.68, 1.72, or 2.88.
[1.44]

I will create a floppy image with
cyl=80
heads=2
sectors per track=18
total sectors=2880
total bytes=1474560

What should I name the image?
[a.img] floppya.img

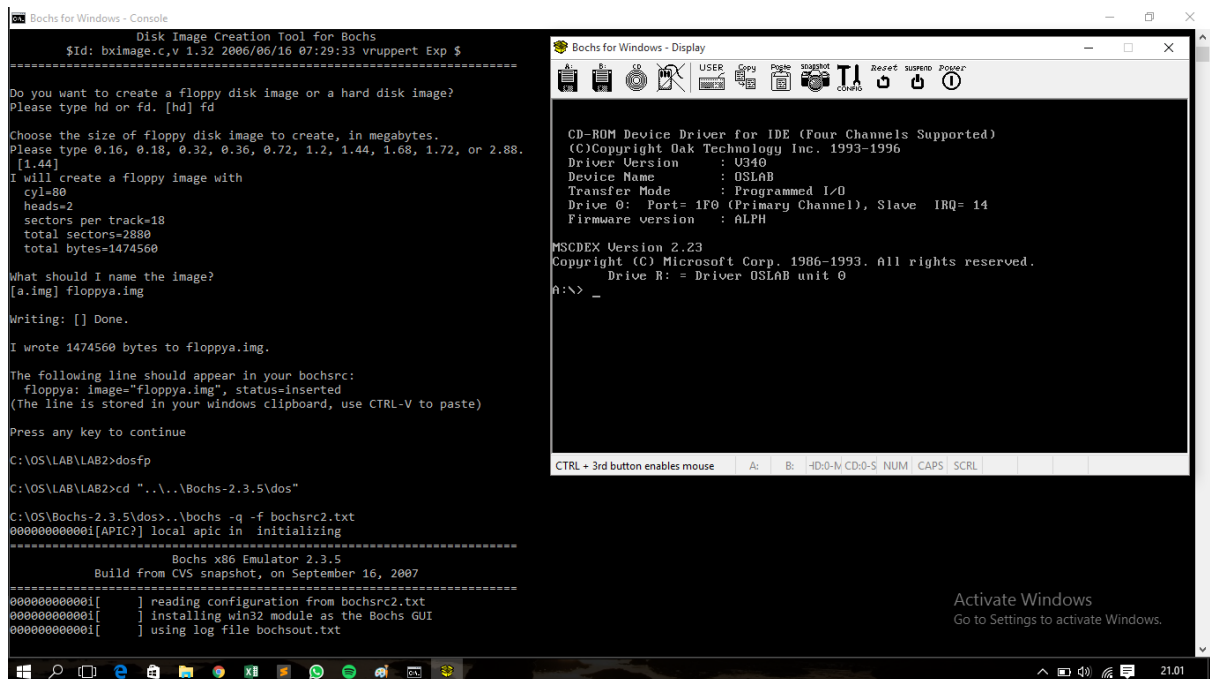
Writing: [] Done.

I wrote 1474560 bytes to floppya.img.

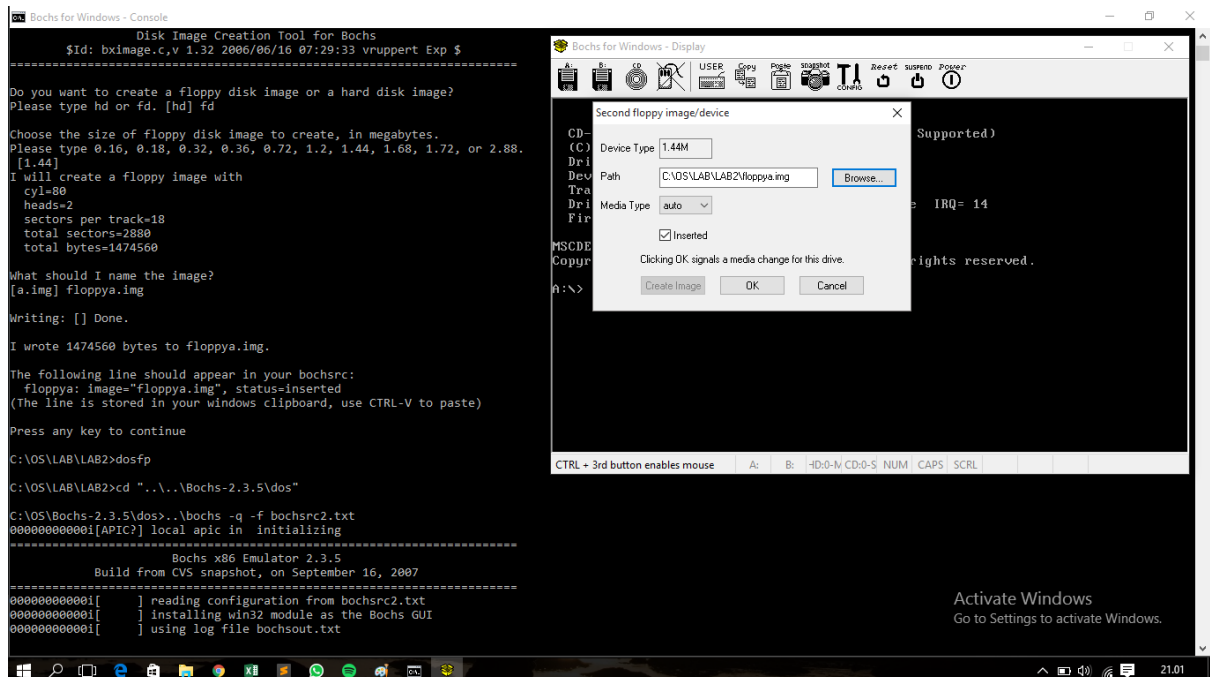
The following line should appear in your bochsrc:
floppya: image="floppya.img", status=inserted
(The line is stored in your windows clipboard, use CTRL-V to paste)

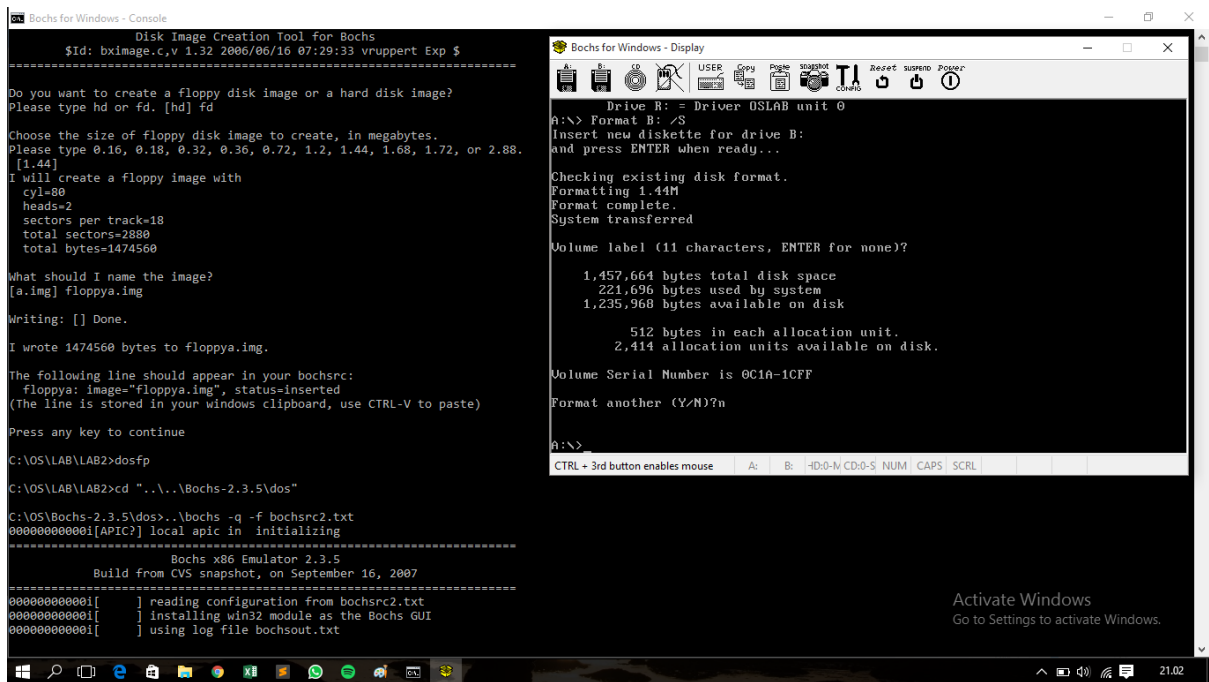
Press any key to continue
C:\OS\LAB\LAB2>
```

3. Kemudian format floppy.a.img dengan mengisi DOS ke dalamnya

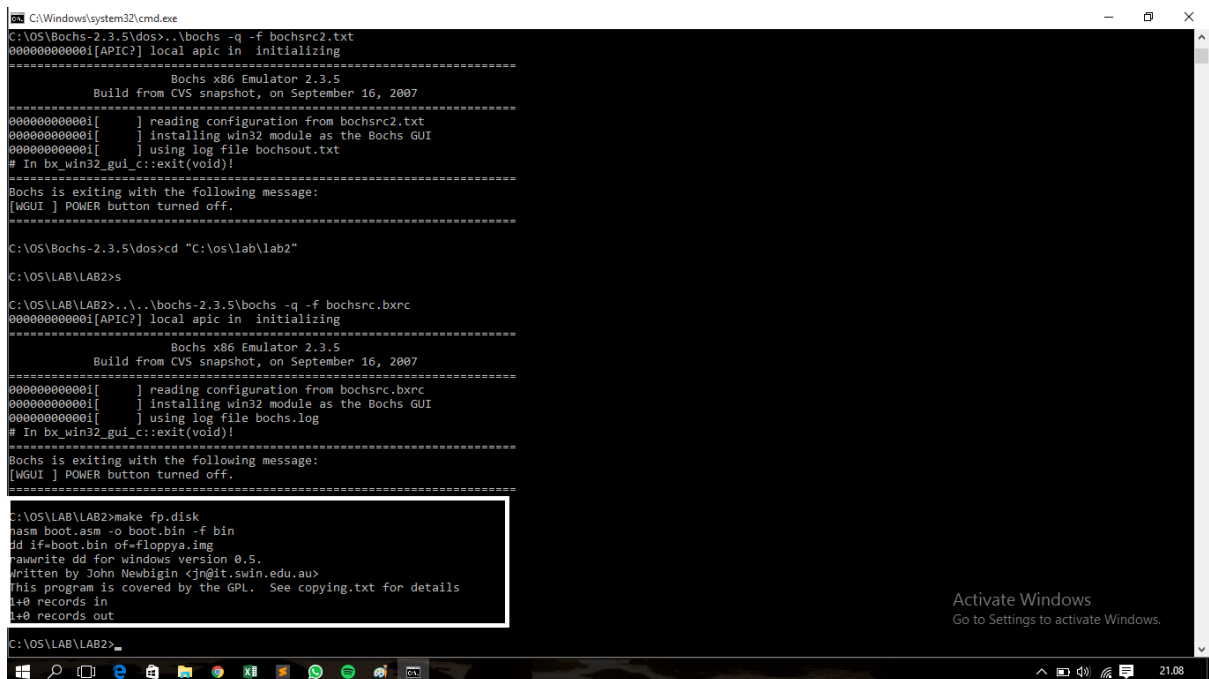


4. Atur lokasi floppya.img yang ada dalam folder lab2. Kemudian lakukan pemformatan.

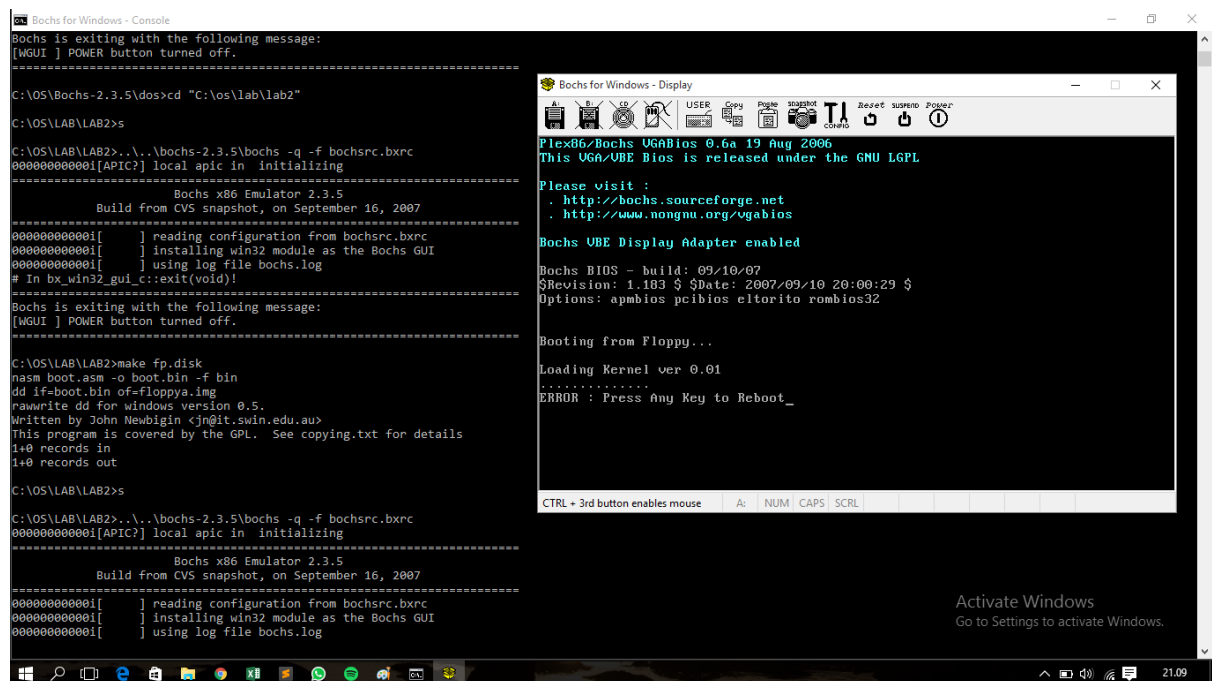




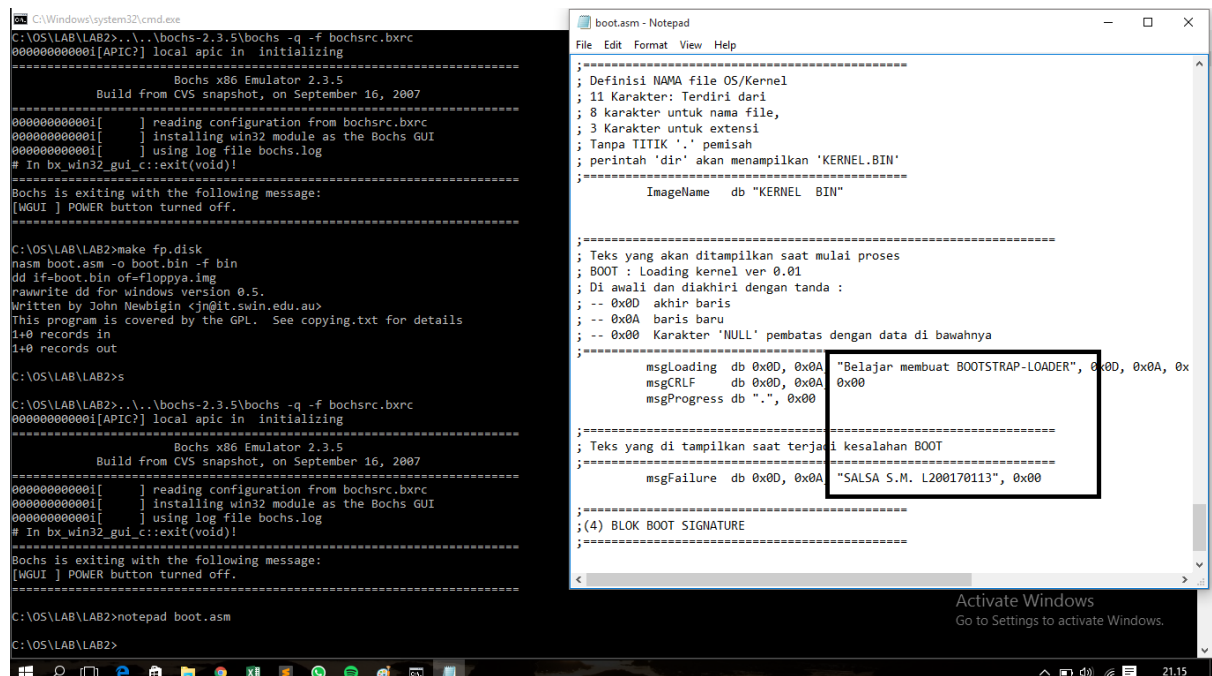
5. Memasukkan source code dari boot.asm ke bootsector “floppya.img”. Kemudian jalankan perintah make fp.disk

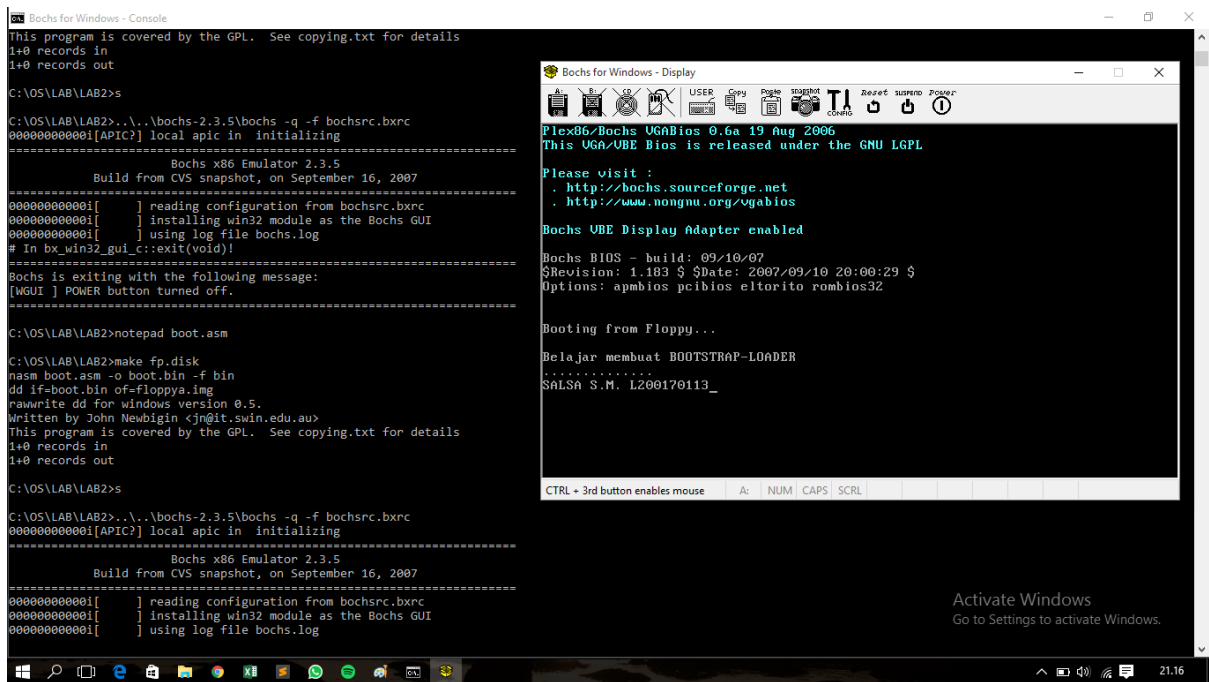


6. Lalu ketikkan 'S'

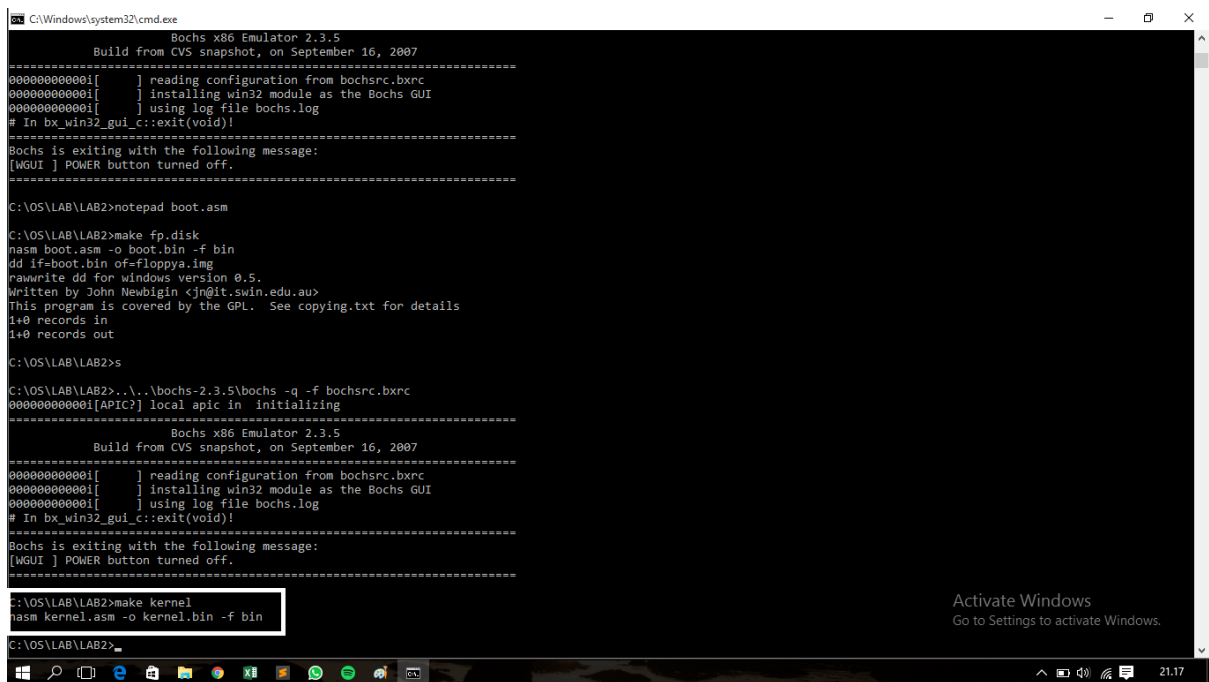


7. Selanjutnya untu boot.asm dengan mengetikkan 'notepad boot.asm' di mana membuka file boot.asm dengan menggunakan notepad. Kemudian ganti msgLoading sesuai perintah. Dan ganti error dengan nama dan nim.

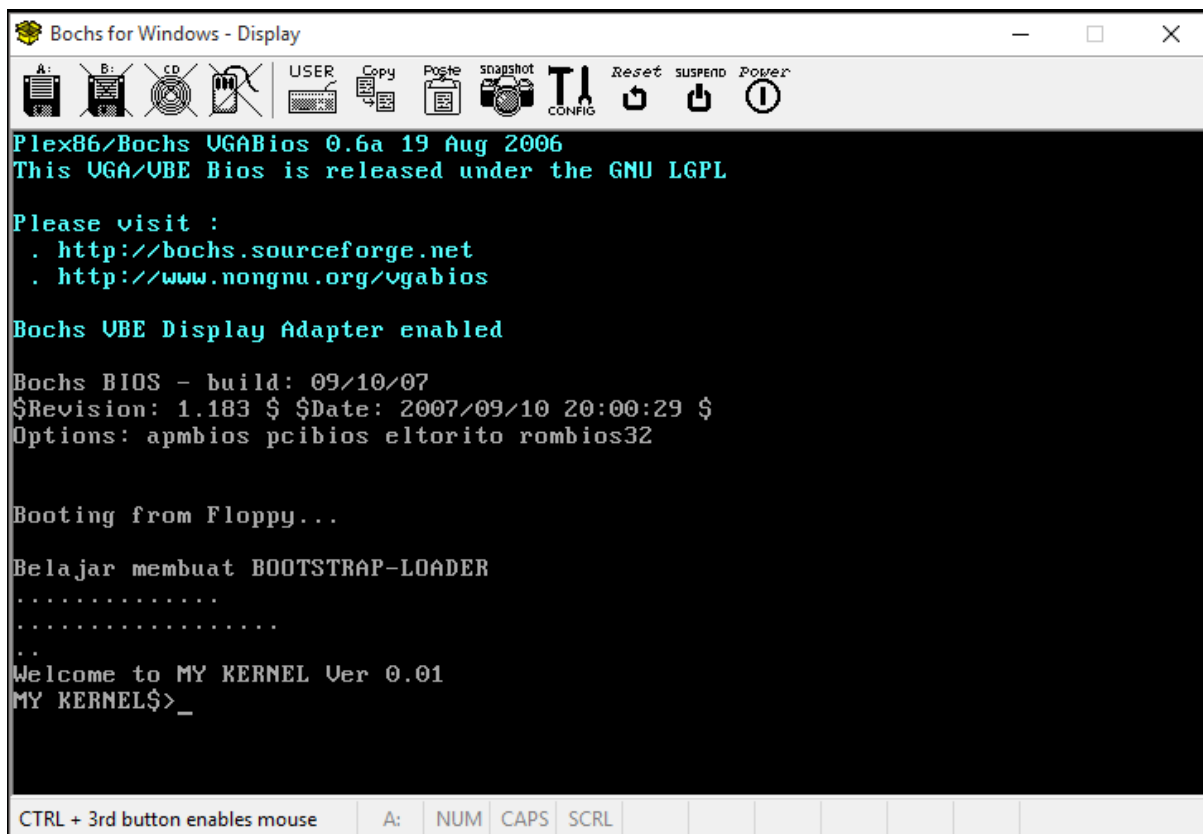




8. Ketikkan make kernel. Kemudian cek apakah sudah ada file baru bernama “kernel.bin”



10. Cek dengan “S”



The screenshot shows the Bochs for Windows - Display window. The title bar is "Bochs for Windows - Display". The menu bar includes A:, B:, CD, USER, Copy, Paste, snapshot, CONFIG, Reset, SUSPEND, and Power. The main display area shows the following text:

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

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

Bochs UBE Display Adapter enabled

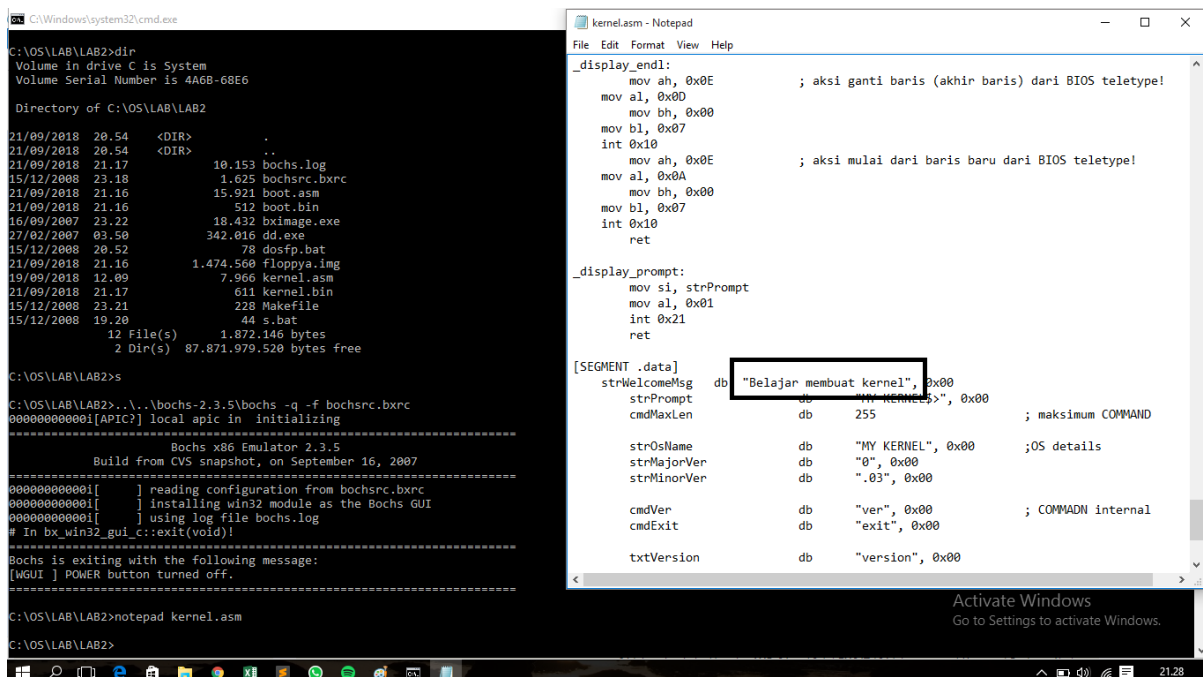
Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...

Belajar membuat BOOTSTRAP-LOADER
.....
..
Welcome to MY KERNEL Ver 0.01
MY KERNEL$>_

CTRL + 3rd button enables mouse
```

11. Modifikasi file kernel.asm. Ganti strWelcomeMsg sesuai perintah.



The screenshot shows two windows. The left window is a command prompt with the following commands and output:

```
C:\OS\LAB\LAB2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

21/09/2018  20:54    <DIR>          .
21/09/2018  20:54    <DIR>          ..
21/09/2018  21:17             10.153 bochs.log
15/12/2008  23:18             1.625 bochsrc.bxrc
21/09/2018  21:16             15.921 boot.asm
21/09/2018  21:16              512 boot.bin
16/09/2007  23:22            18.432 bximage.exe
27/02/2007  03:50            342.016 dd.exe
15/12/2008  20:52              78 dosfp.bat
21/09/2018  21:16            1.474.560 floppy.img
19/09/2018  12:09             7.966 kernel.asm
21/09/2018  21:17             611 kernel.bin
15/12/2008  23:21             228 Makefile
15/12/2008  19:20              44 s.bat
               12 File(s)      1.872.146 bytes free
               2 Dir(s)      87.871.979.520 bytes free

C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
000000000001[APIC?] local apic in initializing
=====
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
# In bx_win32_gui.c::exit(void)!
=====
Bochs is exiting with the following message:
[NGUI ] POWER button turned off.
=====

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

The right window is a Notepad editor showing the contents of kernel.asm. The text is as follows:

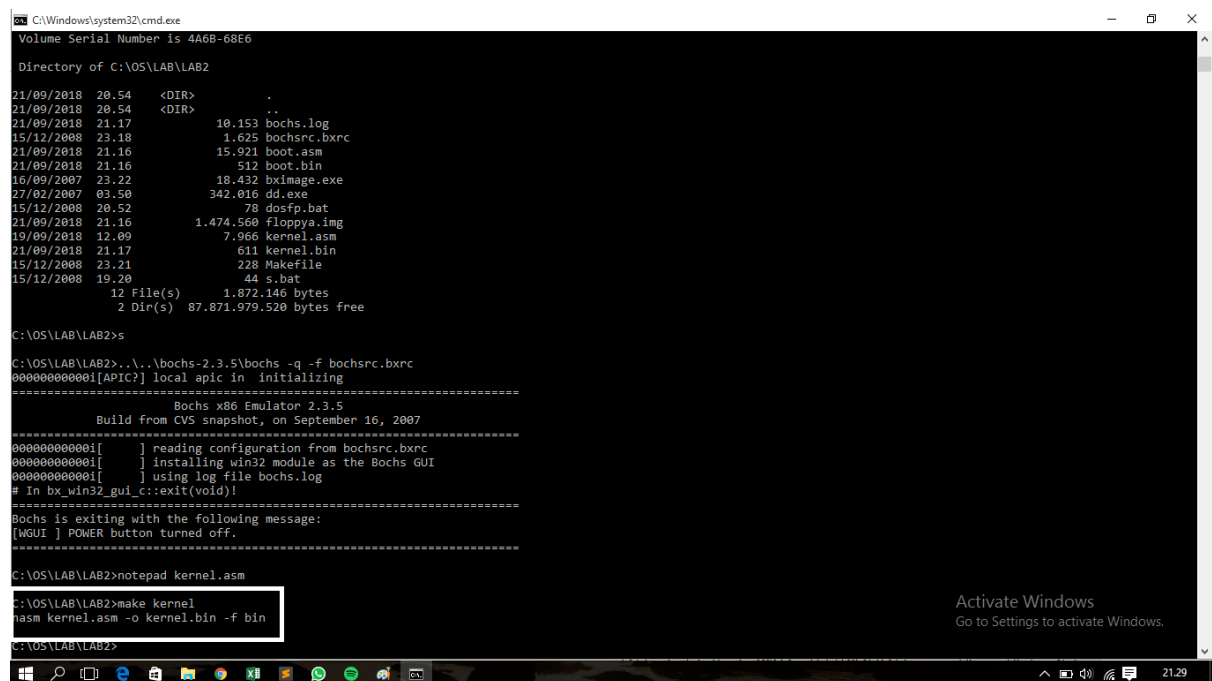
```
kernel.asm - Notepad
File Edit Format View Help

_display_end1:
    mov ah, 0x0E                ; aksi ganti baris (akhir baris) dari BIOS teletype!
    mov al, 0x0D
    mov bh, 0x00
    mov bl, 0x07
    int 0x10
    mov ah, 0x0E                ; aksi mulai dari baris baru dari BIOS teletype!
    mov al, 0x0A
    mov bh, 0x00
    mov bl, 0x07
    int 0x10
    ret

_display_prompt:
    mov si, strPrompt
    mov al, 0x01
    int 0x21
    ret

[SEGMENT .data]
strWelcomeMsg db "Belajar membuat kernel", 0x00
strPrompt     db "MY KERNEL$>", 0x00
cmdMaxLen     db 255                ; maksimum COMMAND
strOsName     db "MY KERNEL", 0x00 ; OS details
strMajorVer   db "0", 0x00
strMinorVer   db ".03", 0x00
cmdVer        db "ver", 0x00       ; COMMAND internal
cmdExit       db "exit", 0x00
txtVersion    db "version", 0x00
```

11. Kemudian make kernel kembali untuk merefresh.



```
C:\Windows\system32\cmd.exe
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

21/09/2018  20:54    <DIR>          .
21/09/2018  20:54    <DIR>          ..
21/09/2018  21:17                10.153 bochs.log
15/12/2008  23:18                1.625 bochssrc.bxrc
21/09/2018  21:16                15.921 boot.asm
21/09/2018  21:16                512 boot.bin
16/09/2007  23:22            18.432 bximage.exe
27/02/2007  03:50            342.016 dd.exe
15/12/2008  20:52                78 dosfp.bat
21/09/2018  21:16            1.474.560 floppy.img
19/09/2018  12:09                7.966 kernel.asm
21/09/2018  21:17                611 kernel.bin
15/12/2008  23:21                228 Makefile
15/12/2008  19:20                44 s.bat
               12 File(s)      1.872.146 bytes
               2 Dir(s)      87.871.979.520 bytes free

C:\OS\LAB\LAB2>s

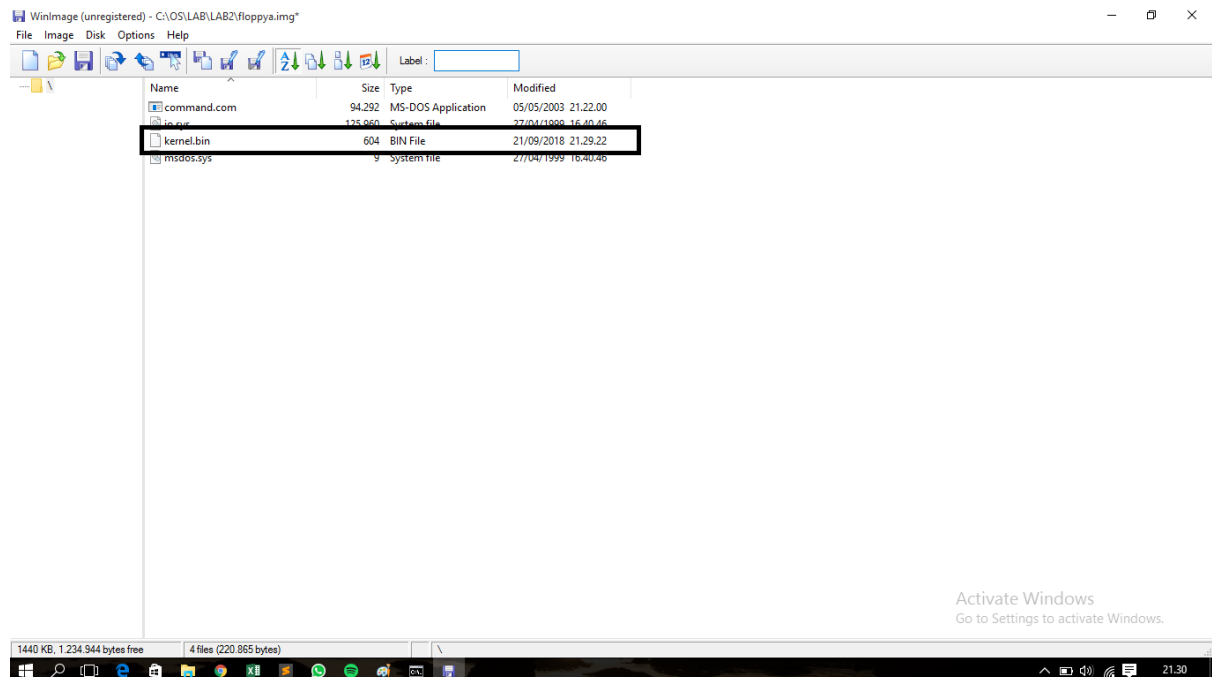
C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochssrc.bxrc
000000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000001[ ] reading configuration from bochssrc.bxrc
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

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>
```

12. Dan masukkan kembali kernel yang telah diperbaharui.



13. Kemudian cek dengan mengetikkan “S”

