

**PRAKTIKUM SISTEM OPERASI**

**MODUL 1**



**Disusun Oleh:**

NAMA : SURYA SUMIRAT

NIM : L200190217

KELAS : F

**INFORMATIKA**

**FAKULTAS KOMUNIKASI DAN INFORMATIKA**

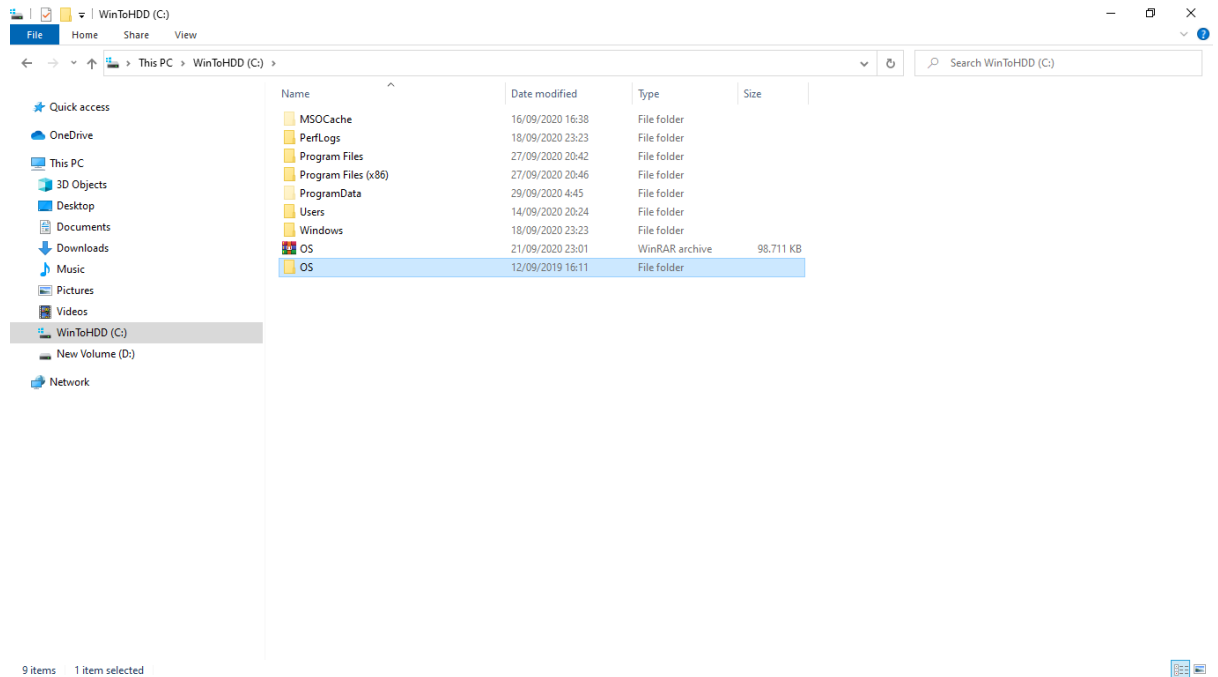
**UNIVERSITAS MUHAMMADIYAH SURAKARTA**

**2020 / 2021**

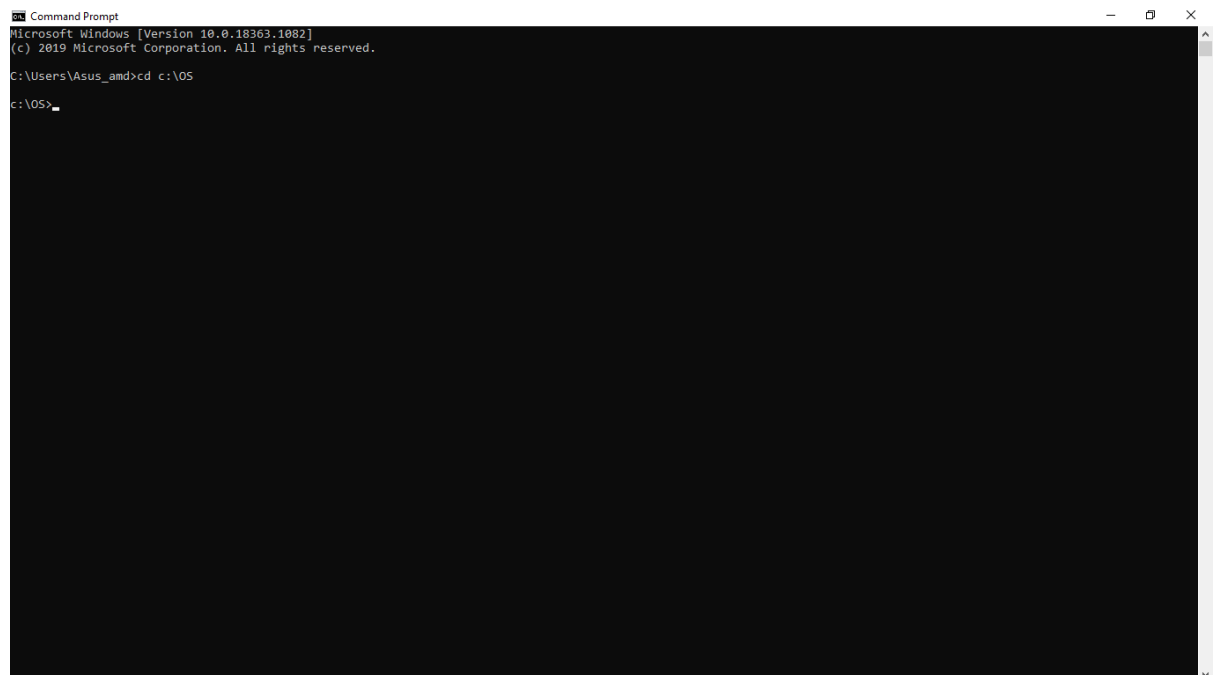
## Langkah Kerja

### Menuju ke Direktori Kerja

#### 1. Extract file OS.zip ke disk C



#### 2. Jalankan program “Command Prompt” atau “cmd”. Kemudian ketik C:\OS (enter)



### 3. ketik perintah 'dir' untuk melihat isi folder OS

```
Command Prompt
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Asus_amd>cd c:\OS

c:\OS>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
12/09/2019  16:11    <DIR>          Bochs-2.3.5
12/09/2019  16:11    <DIR>          Dev-Cpp
17/12/2008  00:08             1.096.291  i386.pdf
12/09/2019  16:11    <DIR>          LAB
17/12/2008  00:07             846.920  pccasm-book.pdf
17/12/2008  01:44              86  Setpath.bat
13/12/2008  14:12             716.512  winima81.exe
               4 File(s)              2.659.809 bytes
               5 Dir(s)  169.978.023.936 bytes free

c:\OS>
```

### 4. ketik perintah 'setpath' untuk menjalankan setpath

```
Command Prompt
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Asus_amd>cd c:\OS

c:\OS>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
12/09/2019  16:11    <DIR>          Bochs-2.3.5
12/09/2019  16:11    <DIR>          Dev-Cpp
17/12/2008  00:08             1.096.291  i386.pdf
12/09/2019  16:11    <DIR>          LAB
17/12/2008  00:07             846.920  pccasm-book.pdf
17/12/2008  01:44              86  Setpath.bat
13/12/2008  14:12             716.512  winima81.exe
               4 File(s)              2.659.809 bytes
               5 Dir(s)  169.978.023.936 bytes free

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>
```

5. Menuju ke folder LAB1 dengan perintah 'cd LAB\LAB1'

```
Command Prompt
Microsoft Windows [Version 10.0.18363.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\Users\Asus_amd>cd c:\OS

c:\OS>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
12/09/2019  16:11    <DIR>          Bochs-2.3.5
12/09/2019  16:11    <DIR>          Dev-Cpp
17/12/2008  00:08             1.096.291  i386.pdf
12/09/2019  16:11    <DIR>          LAB
17/12/2008  00:07             846.920  pcasm-book.pdf
17/12/2008  01:44                86  Setpath.bat
13/12/2008  14:12             716.512  winima81.exe
               4 File(s)              2.659.809 bytes
               5 Dir(s)  169.978.023.936 bytes free

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\LAB1

c:\OS\LAB\LAB1>
```

6. Ketik perintah 'dir' untuk melihat isi folder LAB1

```
Command Prompt

c:\OS>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
12/09/2019  16:11    <DIR>          Bochs-2.3.5
12/09/2019  16:11    <DIR>          Dev-Cpp
17/12/2008  00:08             1.096.291  i386.pdf
12/09/2019  16:11    <DIR>          LAB
17/12/2008  00:07             846.920  pcasm-book.pdf
17/12/2008  01:44                86  Setpath.bat
13/12/2008  14:12             716.512  winima81.exe
               4 File(s)              2.659.809 bytes
               5 Dir(s)  169.978.023.936 bytes free

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\LAB1

c:\OS\LAB\LAB1>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS\LAB\LAB1

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
10/09/2019  16:19             10.235  bochsout.txt
15/12/2008  16:17             1.628  bochsrc.bxrc
14/12/2008  12:02             14.365  boot.asm
07/09/2016  11:20                512  boot.bin
16/09/2015  07:51                512  boots.bin
15/12/2008  00:47                78  dosfp.bat
10/09/2019  15:23             1.474.560  floppy.img
14/12/2008  11:45                7.966  kernel.asm
15/12/2008  16:21                227  Makefile
15/12/2008  12:20                44  s.bat
               10 File(s)             1.510.127 bytes
               2 Dir(s)  169.977.585.664 bytes free

c:\OS\LAB\LAB1>
```

7. Ketik perintah 'del floppy.img' untuk menghapus file floppy.img

```
Command Prompt
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS

12/09/2019 16:11 <DIR> .
12/09/2019 16:11 <DIR> ..
12/09/2019 16:11 <DIR> Bochs-2.3.5
12/09/2019 16:11 <DIR> Dev-Cpp
17/12/2008 00:08 1.096.291 1386.pdf
12/09/2019 16:11 <DIR> LAB
17/12/2008 00:07 846.920 pcasm-book.pdf
17/12/2008 01:44 86 Setpath.bat
13/12/2008 14:12 716.512 winima81.exe
4 File(s) 2.659.809 bytes
5 Dir(s) 169.978.023.936 bytes free

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\LAB1

c:\OS\LAB\LAB1>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS\LAB\LAB1

12/09/2019 16:11 <DIR> .
12/09/2019 16:11 <DIR> ..
10/09/2019 16:19 10.235 bochsout.txt
15/12/2008 16:17 1.628 bochsrc.bxrc
14/12/2008 12:02 14.365 boot.asm
07/09/2016 11:20 512 boot.bin
16/09/2015 07:51 512 boots.bin
15/12/2008 00:47 78 dosfp.bat
10/09/2019 15:23 1.474.560 floppy.img
14/12/2008 11:45 7.966 kernel.asm
15/12/2008 16:21 227 Makefile
15/12/2008 12:20 44 s.bat
10 File(s) 1.510.127 bytes
2 Dir(s) 169.977.585.664 bytes free

c:\OS\LAB\LAB1>del floppy.img

c:\OS\LAB\LAB1>
```

8. Untuk melakukan kompilasi source code program 'boot.asm' dengan perintah 'make fp.disk' lalu akan muncul output boot.bin yang isinya disalin ke floppy.img

```
Command Prompt
17/12/2008 00:08 1.096.291 1386.pdf
12/09/2019 16:11 <DIR> LAB
17/12/2008 00:07 846.920 pcasm-book.pdf
17/12/2008 01:44 86 Setpath.bat
13/12/2008 14:12 716.512 winima81.exe
4 File(s) 2.659.809 bytes
5 Dir(s) 169.978.023.936 bytes free

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\LAB1

c:\OS\LAB\LAB1>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS\LAB\LAB1

12/09/2019 16:11 <DIR> .
12/09/2019 16:11 <DIR> ..
10/09/2019 16:19 10.235 bochsout.txt
15/12/2008 16:17 1.628 bochsrc.bxrc
14/12/2008 12:02 14.365 boot.asm
07/09/2016 11:20 512 boot.bin
16/09/2015 07:51 512 boots.bin
15/12/2008 00:47 78 dosfp.bat
10/09/2019 15:23 1.474.560 floppy.img
14/12/2008 11:45 7.966 kernel.asm
15/12/2008 16:21 227 Makefile
15/12/2008 12:20 44 s.bat
10 File(s) 1.510.127 bytes
2 Dir(s) 169.977.585.664 bytes free

c:\OS\LAB\LAB1>del floppy.img

c:\OS\LAB\LAB1>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppy.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\LAB1>
```

## 9. Ketik perintah 'bxiimage' untuk membuat file floppy.img baru

```
Command Prompt - bxiimage
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\LAB1

c:\OS\LAB\LAB1>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS\LAB\LAB1

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
10/09/2019  16:19             10.235 bochsout.txt
15/12/2008  16:17             1.628 bochsrc.bxrc
14/12/2008  12:02             14.365 boot.asm
07/09/2016  11:20              512 boot.bin
16/09/2015  07:51              512 boots.bin
15/12/2008  00:47              78 dosfp.bat
10/09/2019  15:23           1.474.560 floppypa.img
14/12/2008  11:45             7.966 kernel.asm
15/12/2008  16:21             227 Makefile
15/12/2008  12:20              44 s.bat
                10 File(s)          1.510.127 bytes
                2 Dir(s)  169.977.585.664 bytes free

c:\OS\LAB\LAB1>del floppypa.img

c:\OS\LAB\LAB1>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\LAB1>bxiimage
=====
                    bxiimage
                    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]
```

## 10. Ketik 'fd' untuk memilih type file fd karena yang lebih kecil

```
Command Prompt - bxiimage
c:\OS\LAB\LAB1>dir
Volume in drive C is WinToHDD
Volume Serial Number is 7436-E297

Directory of c:\OS\LAB\LAB1

12/09/2019  16:11    <DIR>          .
12/09/2019  16:11    <DIR>          ..
10/09/2019  16:19             10.235 bochsout.txt
15/12/2008  16:17             1.628 bochsrc.bxrc
14/12/2008  12:02             14.365 boot.asm
07/09/2016  11:20              512 boot.bin
16/09/2015  07:51              512 boots.bin
15/12/2008  00:47              78 dosfp.bat
10/09/2019  15:23           1.474.560 floppypa.img
14/12/2008  11:45             7.966 kernel.asm
15/12/2008  16:21             227 Makefile
15/12/2008  12:20              44 s.bat
                10 File(s)          1.510.127 bytes
                2 Dir(s)  169.977.585.664 bytes free

c:\OS\LAB\LAB1>del floppypa.img

c:\OS\LAB\LAB1>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\LAB1>bxiimage
=====
                    bxiimage
                    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]
```

## 11. Pilih type floppy dengan kapasitas 1.44 MB dengan mengetik '1.44'

```
Command Prompt - bximage
10/09/2019 16:19      10.235 bochsout.txt
15/12/2008 16:17      1.628 bochsrc.bxrc
14/12/2008 12:02      14.365 boot.asm
07/09/2016 11:20      512 boot.bin
16/09/2015 07:51      512 boots.bin
15/12/2008 00:47      78 dosfp.bat
10/09/2019 15:23      1.474.560 floppy.img
14/12/2008 11:45      7.966 kernel.asm
15/12/2008 16:21      227 Makefile
15/12/2008 12:20      44 s.bat
      10 File(s)      1.510.127 bytes
      2 Dir(s)      169.977.585.664 bytes free

c:\OS\LAB\LAB1>del floppy.img

c:\OS\LAB\LAB1>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 Newbiggin <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\LAB1>bximage
=====
bximage
Disk Image Creation Tool for Bochs
$Id: bximage.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] 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]
```

## 12. Ketik 'floppya.img' untuk memberi nama image

```
Command Prompt - bximage

c:\OS\LAB\LAB1>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 Newbiggin <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\LAB1>bximage
=====
bximage
Disk Image Creation Tool for Bochs
$Id: bximage.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] 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

The disk image 'floppya.img' already exists. Are you sure you want to replace it?
Please type yes or no. [no] yes

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
```

### 13. Ketik perintah 'yes' untuk me-replace floppy.img lama dengan yang baru

```
Command Prompt
c:\OS\LAB\LAB1>make fp.disk
nasm boot.asm -o boot.bin
dd if=boot.bin of=floppya.img
rawwrite dd for windows version 0.5.
Written by John Newbiggin <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\LAB1>bximage
=====
bximage
Disk Image Creation Tool for Bochs
$Id: bximage.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] 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

The disk image 'floppya.img' already exists. Are you sure you want to replace it?
Please type yes or no. [no] yes

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\LAB1>
```

### 14. Jalankan PC-Simulator dengan mengetik perintah 'dosfp'

```
Bochs for Windows - Console
$Id: bximage.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] 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

The disk image 'floppya.img' already exists. Are you sure you want to replace it?
Please type yes or no. [no] yes

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\LAB1>dosfp

c:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"

c:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
00000000000i[ ] reading configuration from bochsrc2.txt
00000000000i[ ] installing win32 module as the Bochs GUI
00000000000i[ ] using log file bochsout.txt

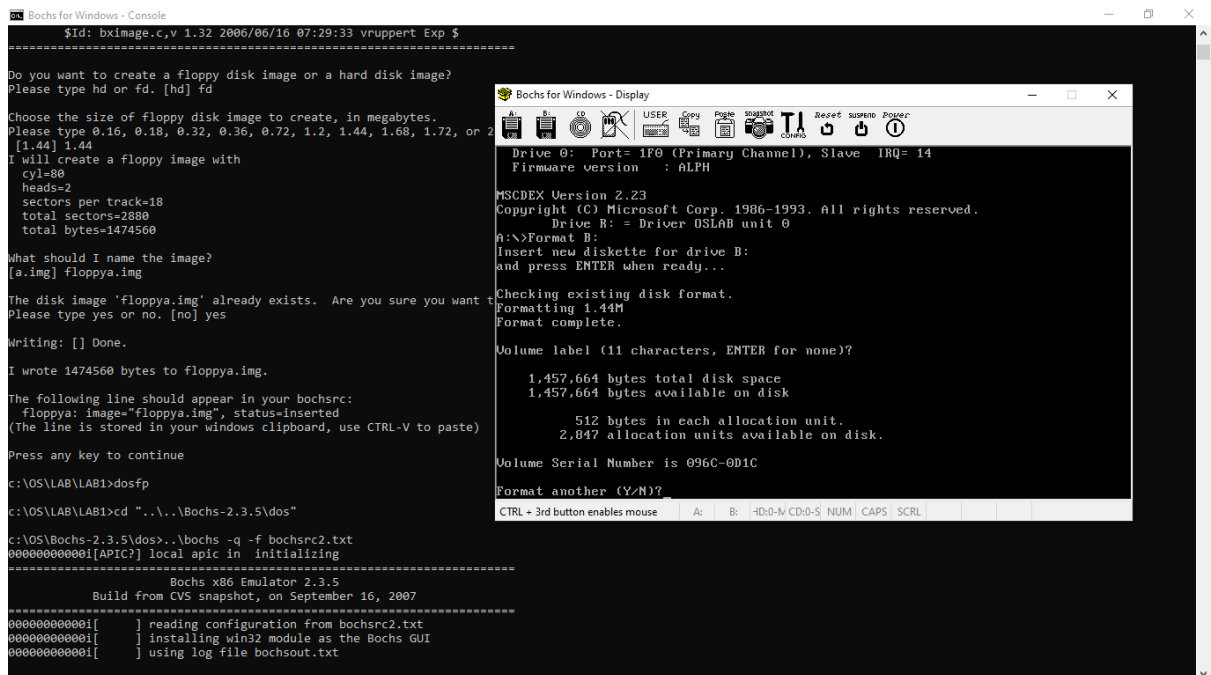
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
CD-ROM Device Driver for IDE (Four Channels Supported)
(C)Copyright Oak Technology Inc. 1993-1996
Driver Version : U340
Device Name : OSLAB
Transfer Mode : Programmed I/O
Drive 0: Port= 1F0 (Primary Channel), Slave IRQ= 14
Firmware version : ALPH

MSCDEX Version 2.23
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.
Drive R: = Driver OSLAB unit 0
A:\>_

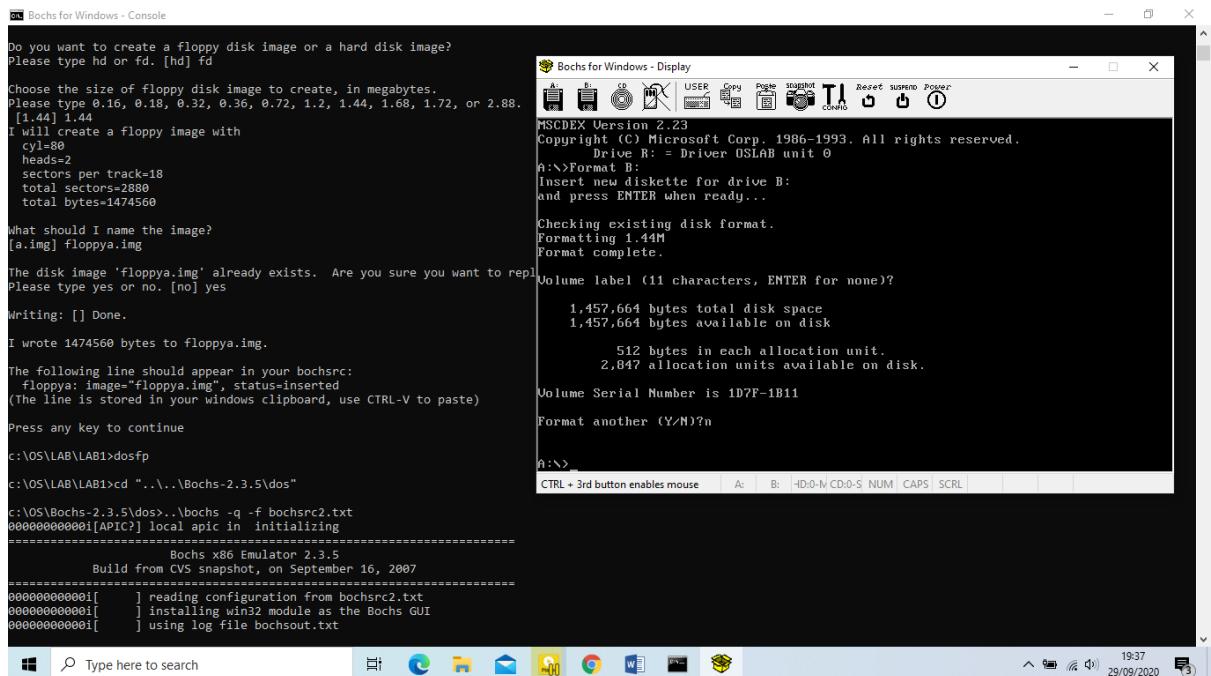
CTRL + 3rd button enables mouse A: B: HD0-H CD0-S NUM CAPS SCRL
```



## 15. Ketik 'Format B:' setelah format selesai klik enter



## 16. Tutup kembali dengan mengetik 'n' lalu tutup simulator dengan mengklik tombol power



## 17. Ketik 'tdump boots.bin' untuk memindah data

```
Command Prompt
Bochs is exiting with the following message:
[NGUI ] POWER button turned off.

c:\OS\Bochs-2.3.5>cd "C:\os\lab\lab1"

C:\OS\LAB\LAB1>tdump boots.bin
Turbo Dump Version 5.0.16.12 Copyright (c) 1988, 2000 Inprise Corporation
Display of File BOOTS.BIN

000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 <.MSWIN4.1....
000010: 02 E0 00 40 0B F0 09 00 12 00 02 00 00 00 00 00 ...@.....
000020: 00 00 00 00 00 00 29 E7 0F 15 2C 4E 4F 20 4E 41 .....),NO NA
000030: 4D 45 20 20 20 20 46 41 54 31 32 20 20 20 33 C9 ME FAT12 3.
000040: 8E D1 BC FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 ....{...X...V..V.
000050: 55 BF 22 05 89 7E 00 89 4E 02 B1 08 FC F3 A4 06 U"...N.....
000060: 1F BD 00 7C C6 45 FE 0F 38 4E 24 70 20 88 C1 99 ...|.E.BN$} ...
000070: E8 7E 01 83 E9 3A 66 A1 1C 70 66 38 07 8A 57 FC .....f...|f...M.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u....V...s3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..}.F...f..F..V.
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 FC 89 56 FE B8 .F...v...F..V..
0000B0: 20 00 F7 E6 8B 5E 0B 03 C3 48 F7 F3 01 46 FC 11 ....^..H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(r>S8-t..
0000D0: B1 08 BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....).at=Nt...
0000E0: 3B FB 72 E7 EB D0 FE 0E 08 7D 78 A7 BE 7F 7D AC ;.p....}{...}.
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E BB 07 00 ....@t.Ht.....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....}.....
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 88 70 1A 8D 45 FE ^..f.....}.E.
000120: 8A 4E 00 F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V.....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 10 91 r....p.RP.Sj..j.
000140: 8B 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 F6 42 .F.&...3.....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC B8 01 ...V.....
000160: 02 80 7E 02 0E 75 04 B4 42 8B F4 8A 56 24 CD 13 ...u..B...V$..
000170: 61 61 72 0A 40 75 01 42 03 5E 08 49 75 77 C3 03 aar.@.B.^Iuw..
000180: 18 01 27 00 0A 49 6E 76 61 6C 69 64 20 73 79 73 ...'.invalid sys
000190: 74 65 6D 20 64 69 73 68 FF 00 0A 44 69 73 68 20 tem disk...Disk
0001A0: 49 2F 4F 20 65 72 72 6F 72 FF 00 0A 52 65 70 6C I/O error...Repl
0001B0: 61 63 65 20 74 68 65 20 64 69 73 68 2C 20 61 6E ace the disk, an
0001C0: 64 20 74 68 65 6E 20 70 72 65 73 73 20 61 6E 79 d then press any
0001D0: 20 68 65 79 00 0A 00 00 49 4F 20 20 20 20 20 20 key....IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYMSDOS SYS..
0001F0: 00 41 B8 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...fj...U..

C:\OS\LAB\LAB1>
```

## 18. Ketik perintah 's' untuk membuka simulator, kemudian tutup dengan tombol power

```
Bochs for Windows - Console
000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 <.MSWIN4.1....
000010: 02 E0 00 40 0B F0 09 00 12 00 02 00 00 00 00 00 ...@.....
000020: 00 00 00 00 00 00 29 E7 0F 15 2C 4E 4F 20 4E 41 .....),NO NA
000030: 4D 45 20 20 20 20 46 41 54 31 32 20 20 20 33 C9 ME FAT12 3.
000040: 8E D1 BC FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 ....{...X...V..V.
000050: 55 BF 22 05 89 7E 00 89 4E 02 B1 08 FC F3 A4 06 U"...N.....
000060: 1F BD 00 7C C6 45 FE 0F 38 4E 24 70 20 88 C1 99 ...|.E.BN$} ...
000070: E8 7E 01 83 E9 3A 66 A1 1C 70 66 38 07 8A 57 FC .....f...|f...M.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u....V...s3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..}.F...f..F..V.
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 FC 89 56 FE B8 .F...v...F..V..
0000B0: 20 00 F7 E6 8B 5E 0B 03 C3 48 F7 F3 01 46 FC 11 ....^..H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(r>S8-t..
0000D0: B1 08 BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....).at=Nt...
0000E0: 3B FB 72 E7 EB D0 FE 0E 08 7D 78 A7 BE 7F 7D AC ;.p....}{...}.
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E BB 07 00 ....@t.Ht.....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....}.....
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 88 70 1A 8D 45 FE ^..f.....}.E.
000120: 8A 4E 00 F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V.....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 10 91 r....p.RP.Sj..j.
000140: 8B 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 F6 42 .F.&...3.....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC B8 01 ...V.....
000160: 02 80 7E 02 0E 75 04 B4 42 8B F4 8A 56 24 CD 13 ...u..B...V$..
000170: 61 61 72 0A 40 75 01 42 03 5E 08 49 75 77 C3 03 aar.@.B.^Iuw..
000180: 18 01 27 00 0A 49 6E 76 61 6C 69 64 20 73 79 73 ...'.invalid sys
000190: 74 65 6D 20 64 69 73 68 FF 00 0A 44 69 73 68 20 tem disk...Disk
0001A0: 49 2F 4F 20 65 72 72 6F 72 FF 00 0A 52 65 70 6C I/O error...Repl
0001B0: 61 63 65 20 74 68 65 20 64 69 73 68 2C 20 61 6E ace the disk, and then press any key
0001C0: 64 20 74 68 65 6E 20 70 72 65 73 73 20 61 6E 79 d then press any key
0001D0: 20 68 65 79 00 0A 00 00 49 4F 20 20 20 20 20 20 key....IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYMSDOS SYS..
0001F0: 00 41 B8 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...fj...U..

C:\OS\LAB\LAB1>s

C:\OS\LAB\LAB1>.\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
00000000000i[APIC2] 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 bochsout.txt

Bochs for Windows - Display
USER: USER
This UGA/UE 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: ampbios pcibios eltorito rombios32
Booting from Floppy...
Invalid system disk
Replace the disk, and then press any key
CTRL + 3rd button enables mouse  A: NUM CAPS SCRL
```

19. Boot invalid karena floppy.img belum diisi system file atau kernel, kemudian ketik perintah 'del floppy.img', untuk membuat img baru dengan perintah 'bxiimage' lalu pilih type fd dan ukuran 1.44 MB. Lalu beri nama 'floppy.img'

```
Command Prompt
0000000000i[ ] reading configuration from bochsrc.bxrc
0000000000i[ ] installing win32 module as the Bochs GUI
0000000000i[ ] using log file bochsout.txt
# In bx win32_gui c:\exit(void)

Bochs is exiting with the following message:
[WGUI ] POWER button turned off.

C:\OS\LAB\LAB1>del floppy.img
Could Not Find C:\OS\LAB\LAB1\Floppy.img

C:\OS\LAB\LAB1>bxiimage
=====
bxiimage
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] 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] floppy.img

Writing: [ ] Done.

I wrote 1474560 bytes to floppy.img.

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

Press any key to continue

C:\OS\LAB\LAB1>
```

20. Buka simulator dengan ketik 'dosfp' lalu masukkan perintah 'Format B:/S', (enter)

```
Bochs for Windows - Console
=====
bxiimage
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] 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] floppy.img

Writing: [ ] Done.

I wrote 1474560 bytes to floppy.img.

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

Press any key to continue

C:\OS\LAB\LAB1>dosfp

C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"

C:\Bochs-2.3.5\dos>.\bochs -q -f bochsrc2.txt
0000000000i[APIC2] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
0000000000i[ ] reading configuration from bochsrc2.txt
0000000000i[ ] installing win32 module as the Bochs GUI
0000000000i[ ] using log file bochsout.txt

Bochs for Windows - Display
=====
MSCDEx Version 2.23
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.
Drive R: = Driver OSLAB unit 0
A:\>Format B:/S
Insert new diskette for drive B:
and press ENTER when ready...

Checking existing disk format.
Verifying 1.44M
Format complete.
System transferred

Volume label (11 characters, ENTER for none)?

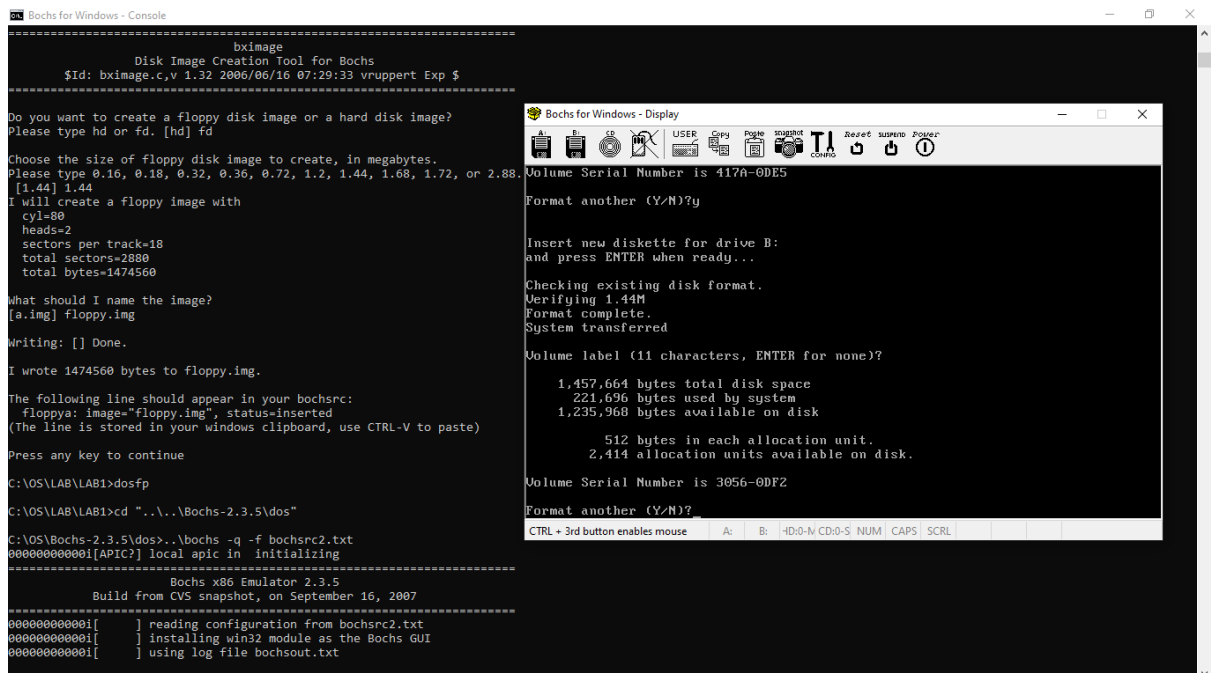
1,457,664 bytes total disk space
221,696 bytes used by system
1,235,968 bytes available on disk

512 bytes in each allocation unit.
2,414 allocation units available on disk.

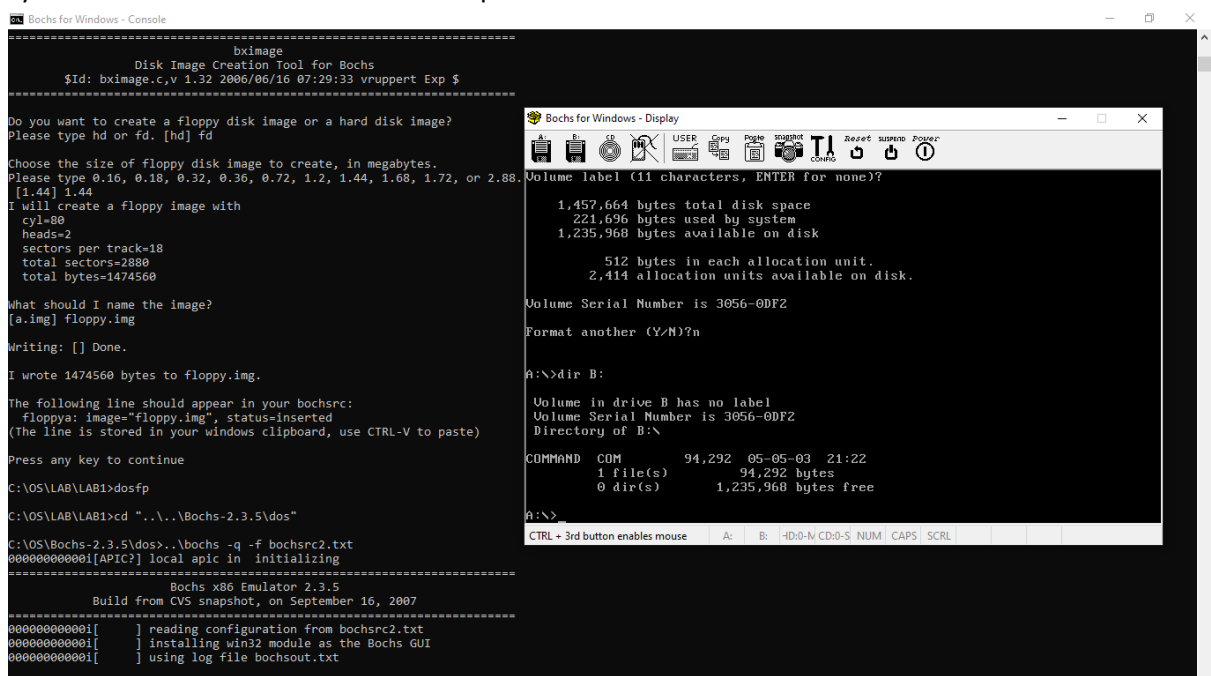
Volume Serial Number is 417A-0DE5
Format another (Y/N)?

CTRL + 3rd button enables mouse  A: B: -HD:0-M CD:0-S NUM CAPS SCRL
```

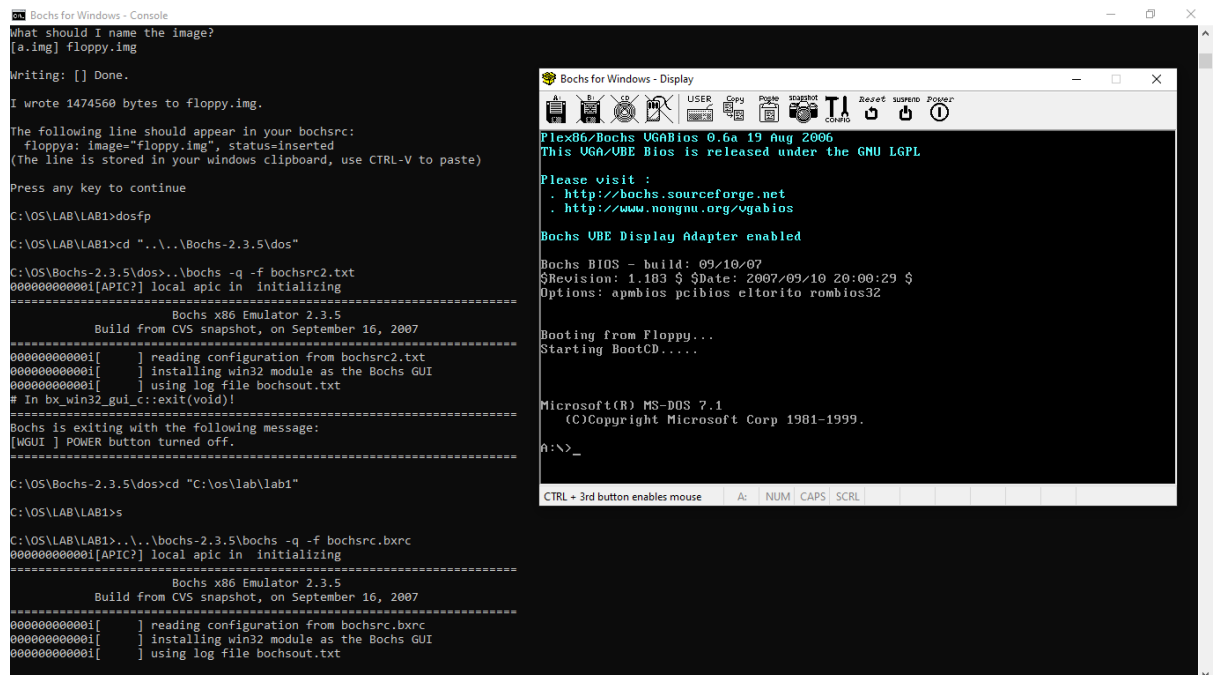
## 21. Ketik 'y', (enter) untuk menformat lagi



## 22. karena format selesai, lalu ketik 'n', untuk mengecek bahwa floppy.img telah terisi system file ketik 'dir B:' lalu klik tombol power off.



23. sekarang mencoba menggunakan floppy.img sebagai boot.disk dengan perintah 's'



The screenshot shows two windows from the Bochs emulator. The 'Bochs for Windows - Console' window on the left displays the command-line interface where the user sets the floppy image, writes it, and then boots the system. The 'Bochs for Windows - Display' window on the right shows the BIOS boot screen, including version information and the message 'Booting from Floppy...'. The console output shows the user navigating to the correct directory and running the command to boot from the floppy disk.

```
Bochs for Windows - Console
What should I name the image?
[a.img] floppy.img
Writing: [] Done.
I wrote 1474560 bytes to floppy.img.
The following line should appear in your bochsrc:
floppya: image="floppy.img", status=inserted
(The line is stored in your windows clipboard, use CTRL-V to paste)
Press any key to continue
C:\OS\LAB\LAB1>dosfp
C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
0000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
0000000000i[ ] reading configuration from bochsrc2.txt
0000000000i[ ] installing win32 module as the Bochs GUI
0000000000i[ ] using log file bochsout.txt
# In bx_win32_gui_c::exit(void)!
Bochs is exiting with the following message:
[!GUI ] POWER button turned off.
=====
C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab1"
C:\OS\LAB\LAB1>s
C:\OS\LAB\LAB1>..\..\bochs-2.3.5\bochs -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 bochsout.txt
```

Bochs for Windows - Display

Flex86/Bochs VGABios 0.6a 19 Aug 2006  
This VGA/VBE Bios is released under the GNU LGPL

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

Bochs VBE 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:\N>\_

CTRL + 3rd button enables mouse A: NUM CAPS SCRL

24. Selesai.