

PRAKTIKUM SISTEM OPERASI

LAPORAN KEGIATAN 1



FATMAWATI ERSAPUTRI

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F

PROGRAM STUDI INFORMATIKA

FAKULTAS KOMUNIKASI DAN INFORMATIKA

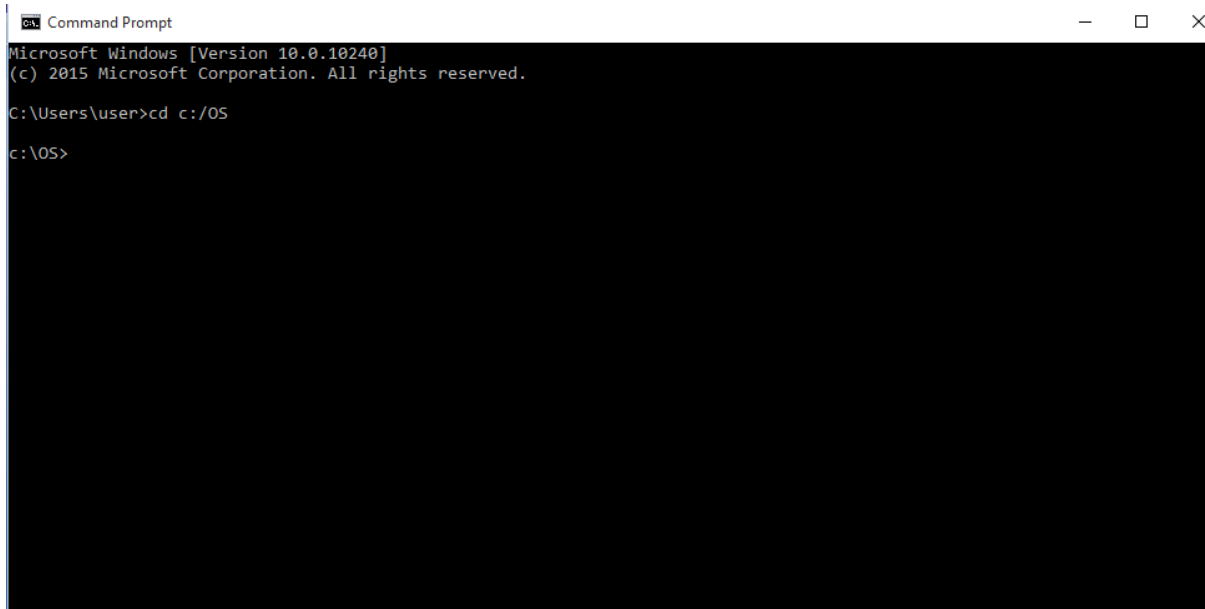
UNIVERSITAS MUHAMMADIYAH

SURAKARTA

Langkah Kerja

Menuju ke Direktori kerja.

- Jalankan program “Command Prompt” atau “cmd”.
- Masuk ke direktori kerja “C:\OS” seperti pada gambar dibawah, dan kemudian tekan <ENTER>.

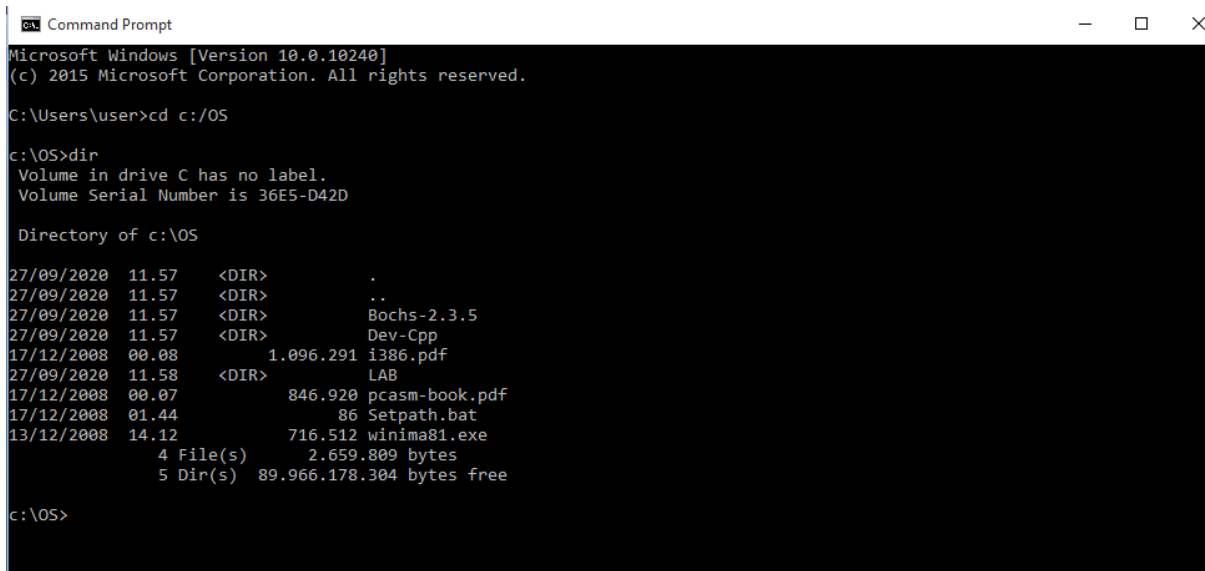


```
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\user>cd c:/OS

c:\OS>
```

- Masukkan perintah ‘dir’ untuk isi mengetahui isi direktori dalam folder OS



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

C:\Users\user>cd c:/OS

c:\OS>dir
Volume in drive C has no label.
Volume Serial Number is 36E5-D42D

Directory of c:\OS

27/09/2020  11.57  <DIR>          .
27/09/2020  11.57  <DIR>          ..
27/09/2020  11.57  <DIR>          Bochs-2.3.5
27/09/2020  11.57  <DIR>          Dev-Cpp
17/12/2008  00.08          1.096.291 i386.pdf
27/09/2020  11.58  <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)  89.966.178.304 bytes free

c:\OS>
```

- jalankan file setpath dengan cara menuliskan ‘setpath’ dan kemudian di <ENTER>

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

C:\Users\user>cd c:/OS

c:\OS>dir
Volume in drive C has no label.
Volume Serial Number is 36E5-D42D

Directory of c:\OS

27/09/2020  11.57  <DIR>      .
27/09/2020  11.57  <DIR>      ..
27/09/2020  11.57  <DIR>      Bochs-2.3.5
27/09/2020  11.57  <DIR>      Dev-Cpp
17/12/2008  00.08          1.096.291 i386.pdf
27/09/2020  11.58  <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)  89.966.178.304 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>
```

Melihat isi Direktori kerja

- a. Masuk ke direktori kerja “C:\OS\LAB\LAB1” dengan menuliskan “cd lab\lab1” <ENTER>

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

C:\Users\user>cd c:/OS

c:\OS>dir
Volume in drive C has no label.
Volume Serial Number is 36E5-D42D

Directory of c:\OS

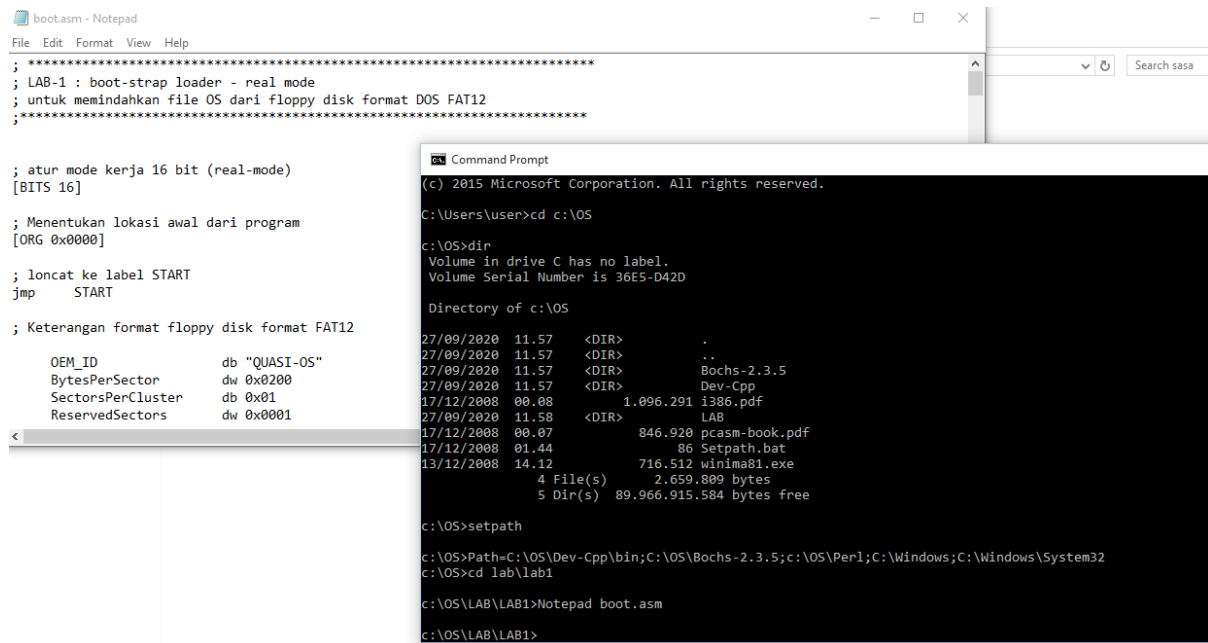
27/09/2020  11.57  <DIR>      .
27/09/2020  11.57  <DIR>      ..
27/09/2020  11.57  <DIR>      Bochs-2.3.5
27/09/2020  11.57  <DIR>      Dev-Cpp
17/12/2008  00.08          1.096.291 i386.pdf
27/09/2020  11.58  <DIR>      LAB
17/12/2008  00.07          846.920 pcasm-book.pdf
17/12/2008  01.44           86 Setpath.bat
13/12/2008  14.12          716.512 winima81.exe
               4 File(s)      2.659.809 bytes
               5 Dir(s)  89.966.915.584 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>
```

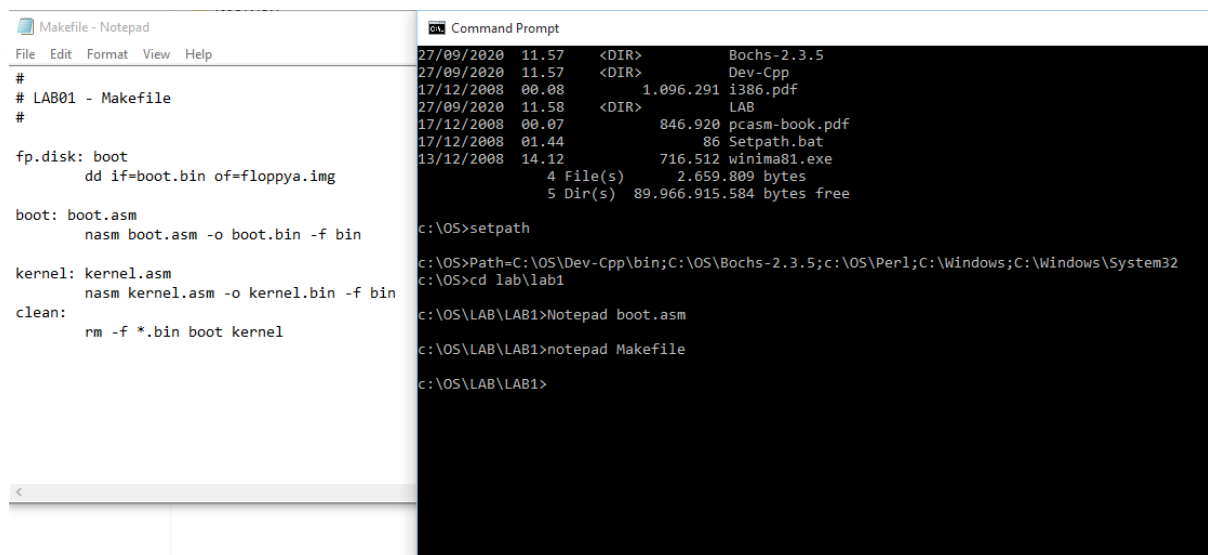
- b. Untuk membuka file tsb, tuliskan “notepad boot.asm” kemudian <ENTER> dan jika yang dituliskan itu benar, akan muncul tampilan dari notepad.



Jangan lakukan modifikasi terhadap program tersebut, dan langsung tutup kembali tampilan program yang dari notepad.

Sekilas tentang Makefile

- Membuka file “Makefile” dari direktori kerja “C:\OS\LAB\LAB1” dengan menuliskan “notepad M” kemudian tekan “Tab” hingga muncul “notepad Makefile” lalu tekan <ENTER>. Jika benar, maka akan muncul tampilan dari notepad.



Jangan lakukan modifikasi terhadap program tersebut, dan langsung tutup kembali tampilan program yang dari notepad.

- Kembali ke “cmd”, untuk melakukan kompilasi terhadap source code program “ pada direktori “C:\OS\LAB\LAB1” tuliskan “make fp.disk” kemudian <ENTER>

```
Command Prompt
27/09/2020 11.57 <DIR>      Bochs-2.3.5
27/09/2020 11.57 <DIR>      Dev-Cpp
17/12/2008 00.08      1.096.291 i386.pdf
27/09/2020 11.58 <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)      89.966.915.584 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>Notepad boot.asm

c:\OS\LAB\LAB1>notepad Makefile

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>
```

Mengenal ‘BOOT DISK’

- Menghapus file “floppya.img” jika sudah ada pada direktori kerja. Tuliskan “del floppya.img /P” kemudian <ENTER> lalu tekan”Y” dan <ENTER> Kemudian Tuliskan “dir” untuk memastikan file “floppya.img” sudah terhapus.

```
Command Prompt
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)      1.508.322 bytes
          2 Dir(s)      89.963.581.440 bytes free

c:\OS\LAB\LAB1>del floppya.img /P
c:\OS\LAB\LAB1>floppya.img, Delete (Y/N)? Y

c:\OS\LAB\LAB1>dir
Volume in drive C has no label.
Volume Serial Number is 36E5-D42D

Directory of c:\OS\LAB\LAB1

27/09/2020 16.15 <DIR>      .
27/09/2020 16.15 <DIR>      ..
27/09/2020 14.45      8.430 bochsout.txt
15/12/2008 16.17      1.628 bochsrc.bxrc
14/12/2008 12.02      14.365 boot.asm
27/09/2020 16.10      512 boot.bin
27/09/2020 13.07      512 boots.bin
15/12/2008 00.47      78 dosfp.bat
14/12/2008 11.45      7.966 kernel.asm
15/12/2008 16.21      227 Makefile
15/12/2008 12.20      44 s.bat
          9 File(s)      33.762 bytes
          2 Dir(s)      89.966.051.328 bytes free

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

- Jika sudah, tuliskan “bximage” untuk menampilkan windows seperti pada gambar di bawah ini.

Command Prompt - bximage

```
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]
```

- c. Membuat 'floppy image' dengan menuliskan "fd" kemudian <ENTER> 2x

Command Prompt - bximage

```
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]
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]
```

- d. Untuk memberikan nama file, tuliskan "floppya.img" kemudian <ENTER> lalu tekan tombol bebas untuk melanjutkan.

```
Command Prompt
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>
```

- e. Untuk memastikan file tersebut sudah ada atau belum, tuliskan “dir” kemudian <ENTER>.

```
Command Prompt
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>dir
Volume in drive C has no label.
Volume Serial Number is 36E5-D42D

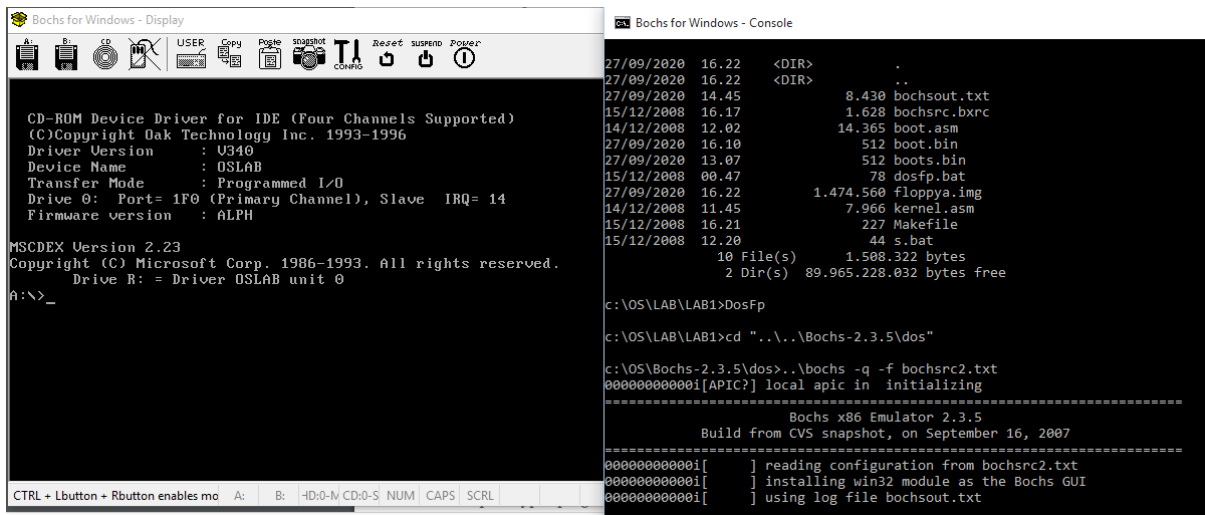
Directory of c:\OS\LAB\LAB1

27/09/2020  16.22    <DIR>          .
27/09/2020  16.22    <DIR>          ..
27/09/2020  14.45             8.430 bochsout.txt
15/12/2008  16.17             1.628 bochsrc.bxrc
14/12/2008  12.02            14.365 boot.asm
27/09/2020  16.10              512 boot.bin
27/09/2020  13.07              512 boots.bin
15/12/2008  00.47              78 dosfp.bat
27/09/2020  16.22           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)          1.508.322 bytes
          2 Dir(s)  89.965.228.032 bytes free

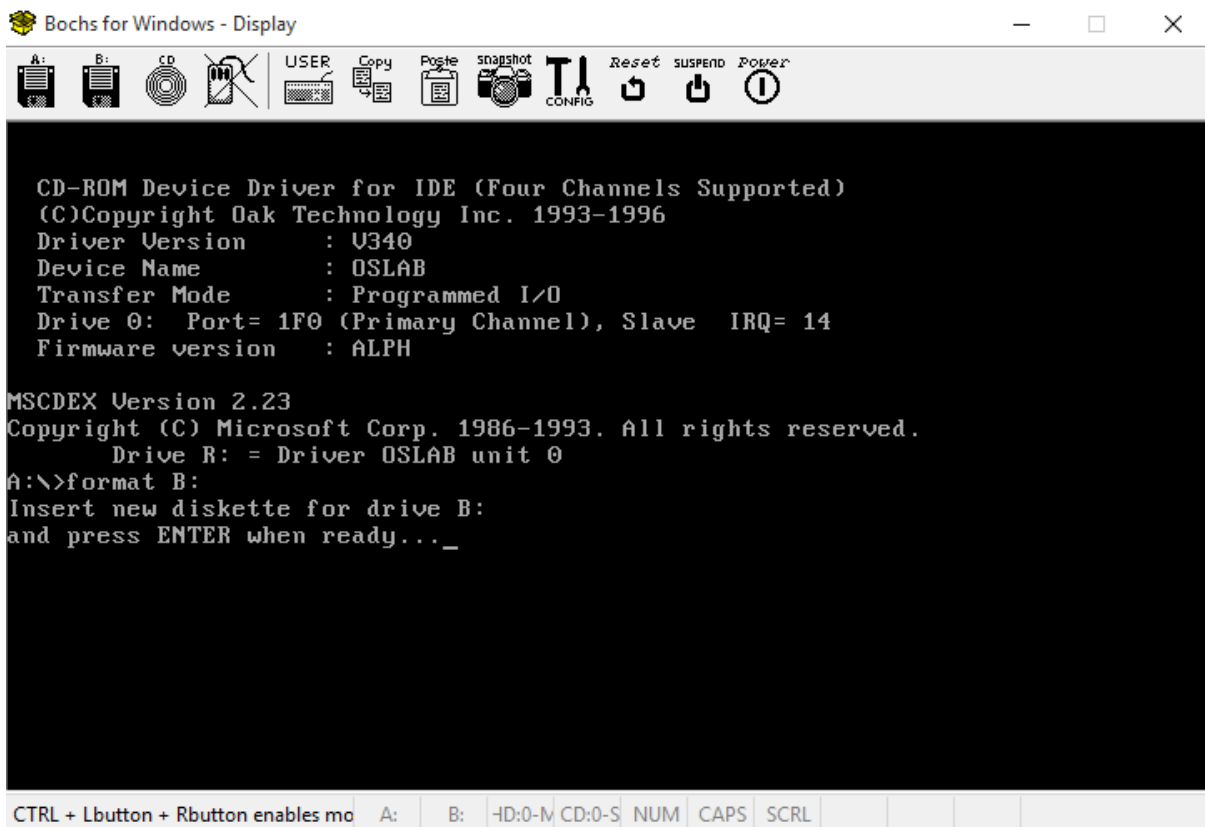
c:\OS\LAB\LAB1>
```

File image floppy di atas belum dapat digunakan jika belum di format, cara untuk memformat “floppy.img” agar dapat digunakan adalah:

1. jalankan PC-simulator dari “Command Prompt” atau “cmd” dengan perintah “DosFp” <ENTER>. Dan jika benar akan muncul tampilan dari bochs PC-simulator seperti gambar di bawah.



2. Selanjutnya dari prompt “A:\>” ketikkan “format B:” <ENTER> 2x



Melihat Data dalam Boot Sector

Untuk memindah data dalam file ‘boots.bin’ ke dalam memori kerja ‘debug’ bisa dengan menuliskan “debug boots.bin” atau dengan “tdump boots.bin”

- a. Tuliskan “tdump boots.bin” kemudian <ENTER>


```
Command Prompt
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 FB 14 1E 3A 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 0B FC F3 A4 06 U."...~..N.....
000060: 1F BD 00 7C C6 45 FE 0F 38 4E 24 7D 20 8B C1 99 ...|.E..8N$} ...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ~....:f...[f;..W.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u....V....s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..}.F...f..F..V.
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 FC 89 56 FE B8 .F....v.`.F..V..
0000B0: 20 00 F7 E6 8B 5E 0B 03 C3 48 F7 F3 01 46 FC 11 ....^...H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(.r>8-t.`
0000D0: B1 0B BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 .....:..at=Nt...
0000E0: 3B FB 72 E7 EB DD FE 0E D8 7D 7B A7 BE 7F 7D AC ;.r.....){...}.
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E BB 07 00 .....@.Ht.....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....}.....}....
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 8B 7D 1A 8D 45 FE ^.f.....}.}..E.
000120: 8A 4E 0D F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V.....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 10 91 r....p.RP.Sj..j..
000140: 8B 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 F6 42 .F..&...3.....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC B8 01 ...V.....
000160: 02 80 7E 02 0E 75 04 B4 42 8B F4 8A 56 24 CD 13 ..~...u..B...V$.
000170: 61 61 72 0A 40 75 01 42 03 5E 0B 49 75 77 C3 03 aar.@u.B.^..Iuw..
000180: 18 01 27 0D 0A 49 6E 76 61 6C 69 64 20 73 79 73 ..'..Invalid sys
000190: 74 65 6D 20 64 69 73 6B FF 0D 0A 44 69 73 6B 20 tem disk...Disk
0001A0: 49 2F 4F 20 65 72 72 6F 72 FF 0D 0A 52 65 70 6C I/O error...Repl
0001B0: 61 63 65 20 74 68 65 20 64 69 73 6B 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 0D 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 SYSMSDOS SYS..
0001F0: 00 41 BB 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...`fj...;...U.

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

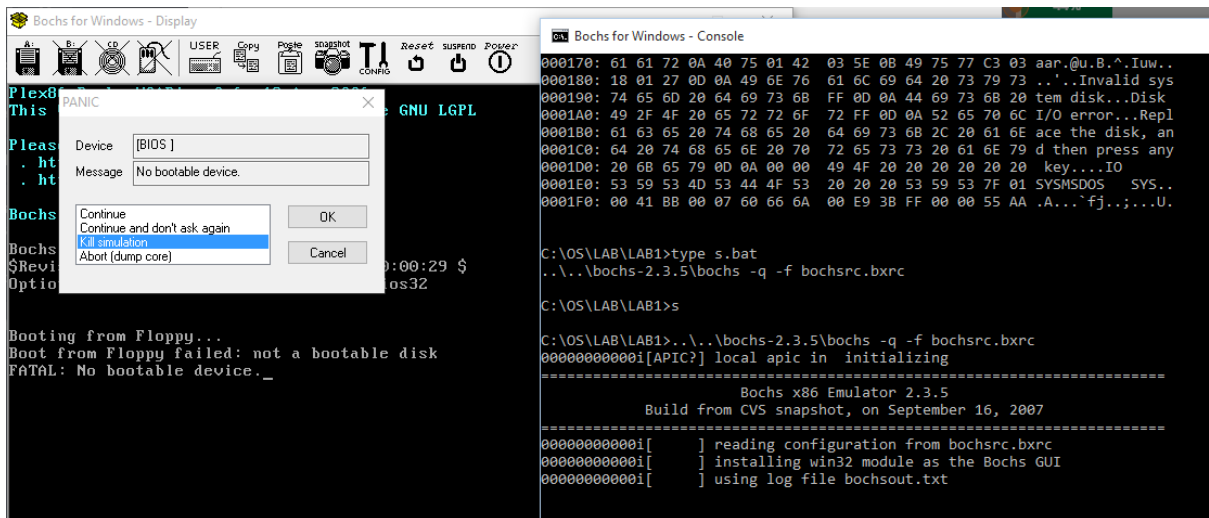
‘Boot’ PC-Simulator dengan File Image ‘floppya.img’

- a. Tuliskann “type s.bat” kemudian <ENTER>

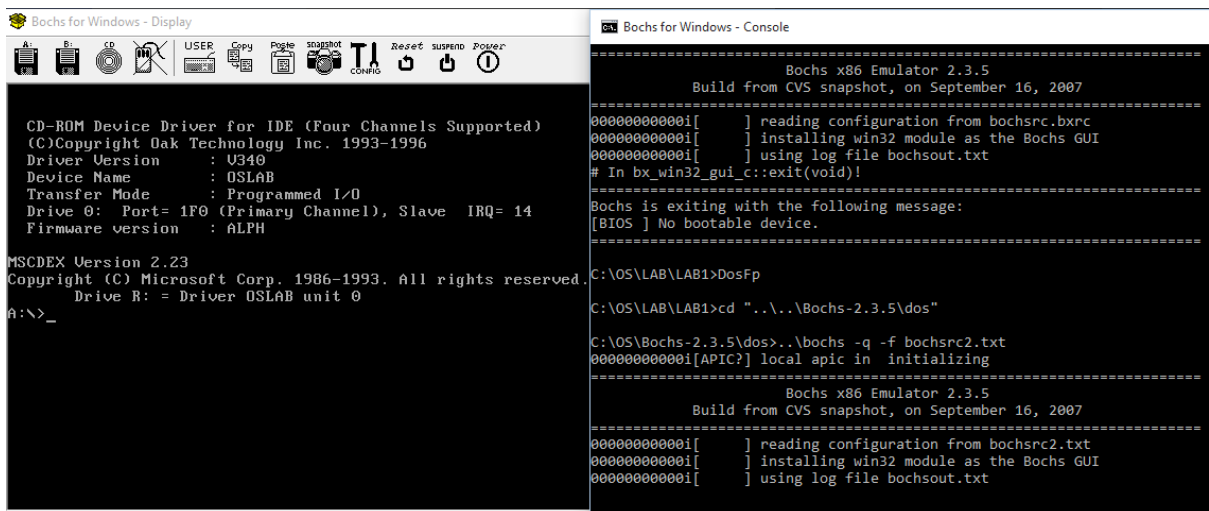
```
Command Prompt
000170: 61 61 72 0A 40 75 01 42 03 5E 0B 49 75 77 C3 03 aar.@u.B.^..Iuw..
000180: 18 01 27 0D 0A 49 6E 76 61 6C 69 64 20 73 79 73 ..'..Invalid sys
000190: 74 65 6D 20 64 69 73 6B FF 0D 0A 44 69 73 6B 20 tem disk...Disk
0001A0: 49 2F 4F 20 65 72 72 6F 72 FF 0D 0A 52 65 70 6C I/O error...Repl
0001B0: 61 63 65 20 74 68 65 20 64 69 73 6B 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 0D 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 SYSMSDOS SYS..
0001F0: 00 41 BB 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...`fj...;...U.

C:\OS\LAB\LAB1>type s.bat
..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
C:\OS\LAB\LAB1>
```

- b. Kemudian tuliskan “s” kemudian <ENTER> dan akan muncul tampilan dari bochs



c. Kemudian tekan tombol “OK”, lalu panggil “DosFp” dan <ENTER>



d. Pada tampilan ‘Bochs’ masukkan perintah “formatnB:/S” kemudian <ENTER> lalu tuliskan “n” dan <ENTER>

```

Bochs for Windows - Display

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:\>format B:/S
Insert new diskette for drive B:
and press ENTER when ready...

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

Volume label (11 characters, ENTER for none)? n_

```

- e. Selanjutnya Matikan PC-Simulator dengan klik tombol power dan coba ketik “s” lalu <ENTER> pada “cmd”. Jika berhasil akan seperti di bawah ini.

```

Bochs for Windows - Display
PlexB6/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:\>_

Bochs for Windows - Console
000000000000i[      ] reading configuration from bochsrc2.txt
000000000000i[      ] installing win32 module as the Bochs GUI
000000000000i[      ] 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\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
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 bochsout.txt

```