

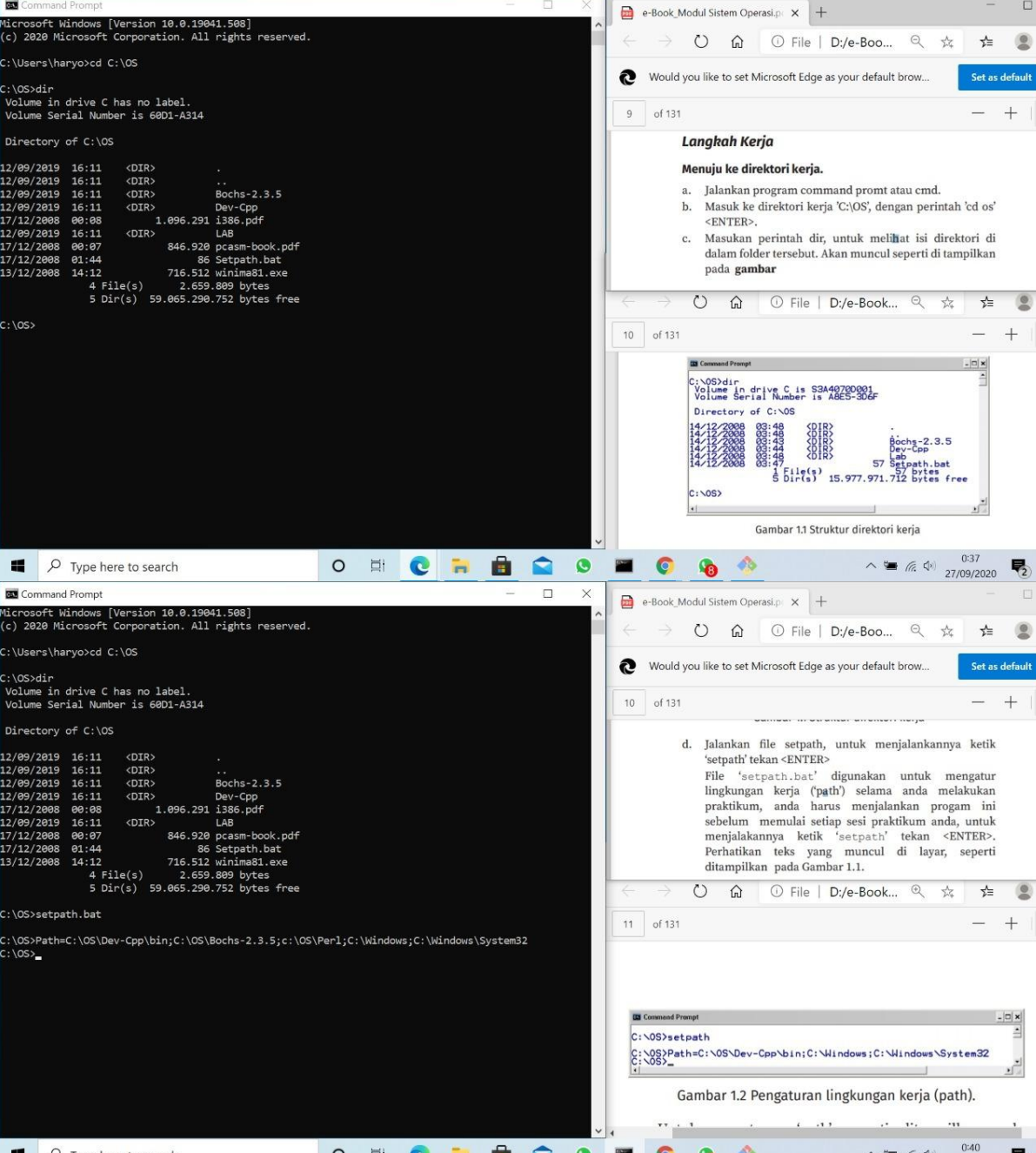
**Laporan Praktikum**  
**Modul I**  
**Pengenalan Sistem Pengembangan OS**  
**Dengan Praktikum Sistem Operasi**



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**2020**

## Kegiatan modul 1



The screenshot displays a Windows 10 desktop environment. On the left, a Command Prompt window is open, showing the following output:

```
Microsoft Windows [Version 10.0.19041.508]
(c) 2020 Microsoft Corporation. All rights reserved.

C:\Users\haryo>cd C:\OS

C:\OS>dir
Volume in drive C has no label.
Volume Serial Number is 60D1-A314

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)      59.065.290.752 bytes free

C:\OS>
```

On the right, a web browser window is open, displaying a document titled "Langkah Kerja". The document contains the following instructions:

**Langkah Kerja**

**Menuju ke direktori kerja.**

- Jalankan program command prompt atau cmd.
- Masuk ke direktori kerja 'C:\OS', dengan perintah 'cd os' <ENTER>.
- Masukan perintah dir, untuk melihat isi direktori di dalam folder tersebut. Akan muncul seperti di tampilan pada gambar

The browser window also shows a preview of the Command Prompt output from the previous screenshot, with the caption "Gambar 1.1 Struktur direktori kerja".

Below the browser window, the Command Prompt window is shown again, but with the output of the 'setpath.bat' command:

```
C:\OS>setpath.bat

C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;C:\Windows;C:\Windows\System32
C:\OS>
```

The browser window also shows a preview of the Command Prompt output from the previous screenshot, with the caption "Gambar 1.2 Pengaturan lingkungan kerja (path)".

The screenshot displays a Windows 10 desktop environment with several open applications:

- Command Prompt:** Shows the execution of commands to navigate to the C:\OS directory, list files, and set the path for the development tools. The directory listing shows files like boot.asm and kernel.asm.
- boot.asm - Notepad:** Contains assembly code for a boot loader. It includes comments in Indonesian, such as "LAB-1 : boot-strap loader - real mode" and "untuk memindahkan file OS dari floppy disk format DOS FAT12". The code includes a jump instruction to the START label.
- Makefile - Notepad:** Defines the build process for the bootable floppy. It includes targets for creating the boot disk, compiling the boot.asm and kernel.asm files using NASM, and cleaning the build artifacts.
- e-Book Modul Sistem Operasi:** A web browser window displaying a document titled "e-Book Modul Sistem Operasi". The document contains instructions in Indonesian for creating a bootable floppy disk, including steps like "Jalankan command prompt", "Masuk ke direktori kerja pada 'C:\OS\LAB\LAB1'", and "Cobalah untuk membuka file tersebut dengan perintah 'boot.asm' dan tekan <ENTER>".

The taskbar at the bottom shows the Windows Start button, a search bar, and several pinned applications including File Explorer, Edge, and various utility tools. The system clock indicates the date is 27/09/2020 and the time is 1:05.

```
Command Prompt
C:\OS>dir
Volume in drive C has no label.
Volume Serial Number is 68D1-A314

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)      59.065.290.752 bytes free

C:\OS>setpath.bat
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
C:\OS\LAB>cd 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 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
```

```
Command Prompt
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
C:\OS\LAB>cd lab1
C:\OS\LAB\LAB1>notepad boot.asm
C:\OS\LAB\LAB1>notepad Makefile

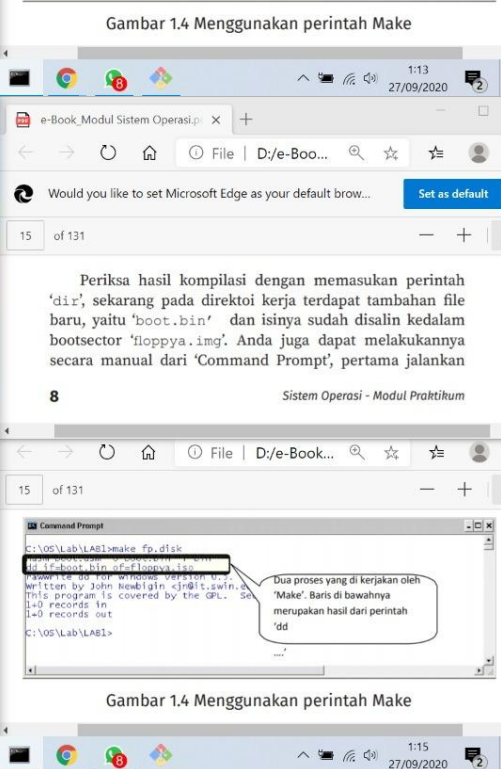
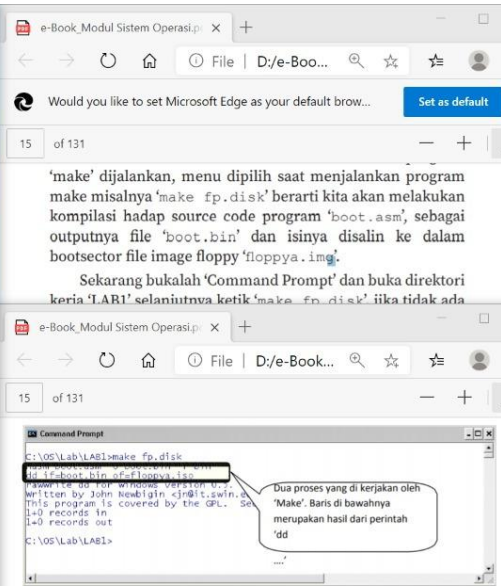
C:\OS\LAB\LAB1>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
rawwrite dd for windows version 0.5.
Written by John Newbigin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out

C:\OS\LAB\LAB1>dir
Volume in drive C has no label.
Volume Serial Number is 68D1-A314

Directory of C:\OS\LAB\LAB1

26/09/2020 21:26 <DIR>      .
26/09/2020 21:26 <DIR>      ..
26/09/2020 21:31      10.216 bochsout.txt
15/12/2008 16:17      1.628 bochsarc.bxrc
14/12/2008 12:02      14.365 boot.asm
27/09/2020 01:13       512 boot.bin
16/09/2015 07:51       78 dosfp.bat
15/12/2008 00:47      1.474.560 floppya.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)     1.510.108 bytes
                2 Dir(s)     58.543.483.008 bytes free

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





```
Command Prompt

26/09/2020 21:26 <DIR> .
26/09/2020 21:26 <DIR> ..
26/09/2020 21:31 10.216 bochsout.txt
15/12/2008 16:17 1.628 bochsrc.bxrc
14/12/2008 12:02 14.365 boot.asm
27/09/2020 01:13 512 boot.bin
16/09/2015 07:51 512 boots.bin
15/12/2008 00:47 78 dosfp.bat
27/09/2020 01:13 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) 1.510.108 bytes
2 Dir(s) 58.543.403.008 bytes free

C:\OS\LAB\LAB1>del floppy.img /P
C:\OS\LAB\LAB1>floppy.img, Delete (Y/N)? y

C:\OS\LAB\LAB1>dir
Volume in drive C has no label.
Volume Serial Number is 60D1-A314

Directory of C:\OS\LAB\LAB1

27/09/2020 01:21 <DIR> .
27/09/2020 01:21 <DIR> ..
26/09/2020 21:31 10.216 bochsout.txt
15/12/2008 16:17 1.628 bochsrc.bxrc
14/12/2008 12:02 14.365 boot.asm
27/09/2020 01:13 512 boot.bin
16/09/2015 07:51 512 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) 35.548 bytes
2 Dir(s) 58.546.208.768 bytes free

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

```
Command Prompt - bximage

15/12/2008 00:47 78 dosfp.bat
27/09/2020 01:13 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) 1.510.108 bytes
2 Dir(s) 58.543.403.008 bytes free

C:\OS\LAB\LAB1>del floppy.img /P
C:\OS\LAB\LAB1>floppy.img, Delete (Y/N)? y

C:\OS\LAB\LAB1>dir
Volume in drive C has no label.
Volume Serial Number is 60D1-A314

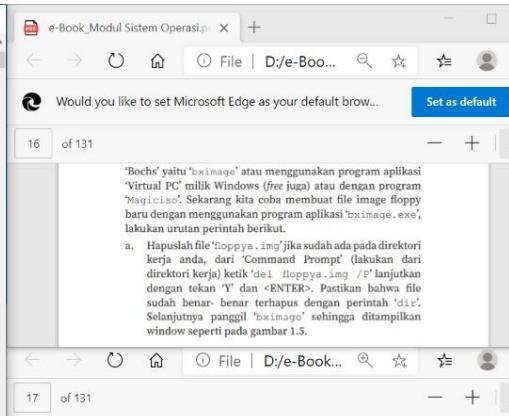
Directory of C:\OS\LAB\LAB1

27/09/2020 01:21 <DIR> .
27/09/2020 01:21 <DIR> ..
26/09/2020 21:31 10.216 bochsout.txt
15/12/2008 16:17 1.628 bochsrc.bxrc
14/12/2008 12:02 14.365 boot.asm
27/09/2020 01:13 512 boot.bin
16/09/2015 07:51 512 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) 35.548 bytes
2 Dir(s) 58.546.208.768 bytes free

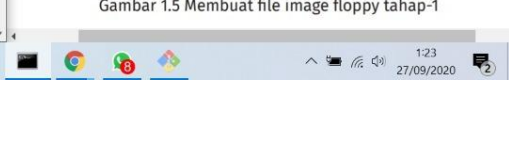
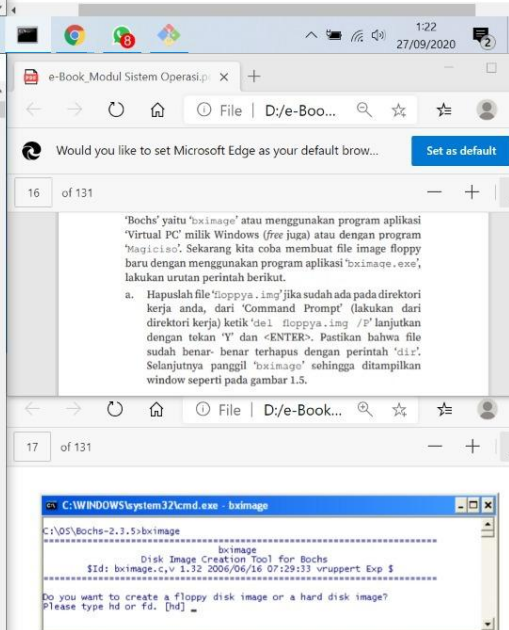
C:\OS\LAB\LAB1>bximage

=====
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]
```



Gambar 1.5 Membuat file image floppy tahap-1



Gambar 1.5 Membuat file image floppy tahap-1

```
Command Prompt - bxiimage
15/12/2008 12:20      44 s.bat
10 File(s)      1.510.108 bytes
2 Dir(s)      58.543.403.008 bytes free

C:\OS\LAB\LAB1>del floppy.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 60D1-A314

Directory of C:\OS\LAB\LAB1

27/09/2020 01:21 <DIR>
27/09/2020 01:21 <DIR>
26/09/2020 21:31      10.216 bochsout.txt
15/12/2008 16:17      1.628 bochsrc.bxrc
14/12/2008 12:02     14.365 boot.asm
27/09/2020 01:13      512 boot.bin
16/09/2015 07:51      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)      35.548 bytes
2 Dir(s)      58.546.288.768 bytes free

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
```

```
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
9 File(s)      35.548 bytes
2 Dir(s)      58.546.288.768 bytes free

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] 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\LAB1>
```

e-Book\_Modul Sistem Operasi.ppt

Would you like to set Microsoft Edge as your default brow... [Set as default](#)

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b. Ada dua pilihan file image yaitu [hd] untuk membuat harddisk image atau [fd] untuk membuat floppy image. Kita akan membuat floppy image (karena ukuran filenya lebih kecil), selanjutnya ketikkan 'fd' dan tekan <ENTER> sehingga muncul tahapan berikutnya seperti pada gambar 1.6..

```
C:\WINDOWS\system32\cmd.exe - 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]
```

```
C:\WINDOWS\system32\cmd.exe - 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]
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] a
```

```
[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
```





```
Command Prompt
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:
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
000000000000[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000000[ ] reading configuration from bochsrc2.txt
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] 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"
```

```
Command Prompt

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
000000000000[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000000[ ] reading configuration from bochsrc2.txt
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] using log file bochsout.txt
# In bx_win32_gui_c::exit(void)!
=====
Bochs is exiting with the following message:
[WGUi ] POWER button turned off.
=====

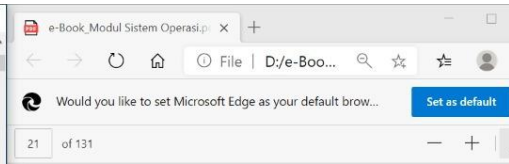
C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab1"

C:\OS\LAB\LAB1>dd if=floppya.img of=boots.bin count=1
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

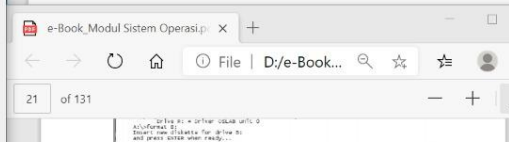
C:\OS\LAB\LAB1>debug boots.bin
'debug' is not recognized as an internal or external command,
operable program or batch file.

C:\OS\LAB\LAB1>quit
'quit' is not recognized as an internal or external command,
operable program or batch file.

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



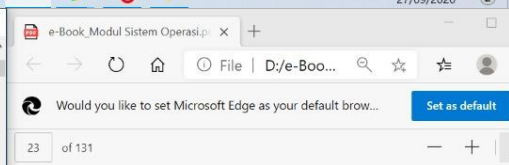
b. pada konfigurasi PC-Simulator file 'floppya.img' terpasang pada 'drive B:'. Selanjutnya dari prompt 'A:>' ketikkan 'format B:' <ENTER> [2x], seperti ditampilkan pada gambar 1.11.



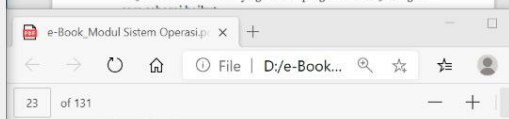
c. Tutup kembali PC Simulator dengan klik pada tombol power, di bagian menu atas-kanan. Sekarang 'floppya.img' sudah terformat dan dapat digunakan untuk menyimpan data, namun belum dapat digunakan untuk 'booting', karena pada 'bootsector' belum diisi program 'bootloader'. Untuk lebih detail mengenai pembahasan ini ada dalam Modul kedua.

### Melihat data dalam boot sector

Untuk membuat sistem operasi (OS - Operating system)



berikut ini. Copy 512 byte data bootsector ke dalam sebuah file terpisah, caranya dari 'Command Prompt' ketik 'dd if=floppya.img of=boots.bin count=1' maksud dari perintah ini adalah menyalin byte data dari file 'floppya.img' ke dalam file 'boots.bin' sebanyak satu sektor mulai dari sektor 0. Hasilnya akan tersimpan dalam file bernama 'boots.bin' dengan ukuran data sebanyak 512 byte, ini merupakan data dalam bootsector pada file image 'floppya.img'. Untuk melihat isinya gunakan program 'debug' dengan



cara sebagai berikut.  
Jalankan 'Command Prompt' dan ketik 'debug boots.bin' dan <ENTER>, tampilan windows seperti pada gambar 1.12.. (Perlu diketahui untuk mengakhiri debug ketikkan 'quit' kemudian enter)



Gambar 1.12 Tampilan windows saat memulai program 'debug'



```
Select 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

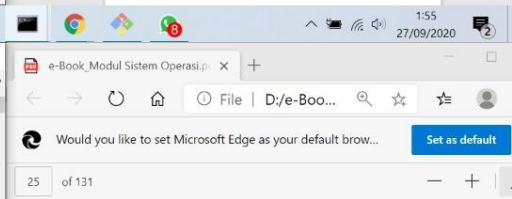
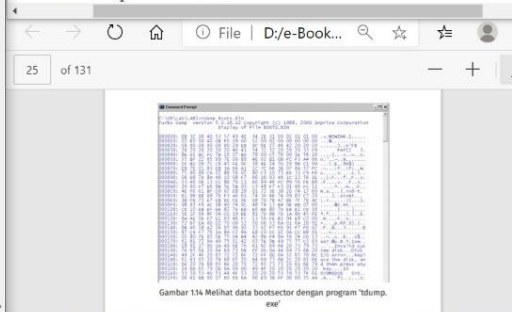
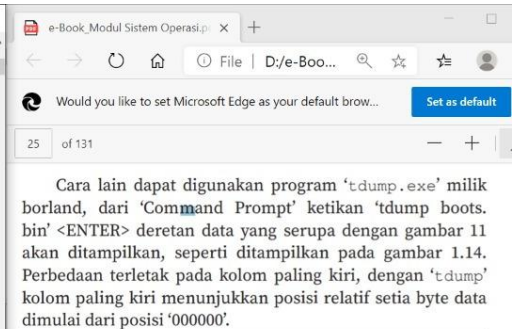
000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 .<.MSWIN4.1....
000010: 02 E8 00 40 08 F0 09 00 12 00 02 00 00 00 00 00 ........)yBNO NA
000020: 00 00 00 00 00 29 14 09 79 42 4E 4F 20 4E 41 .....).FAT12 3.
000030: 4D 45 20 20 20 20 46 41 54 31 32 20 20 33 C9 ME
000040: 8E D1 BC FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 {...x.v.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..SNS) ...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 38 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 88 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...(>8-t..
0000D0: B1 0B BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ...).at=Nt...
0000E0: 3B F8 72 E7 EB D0 FE 0E D8 7D 7B 07 BE 7F 7D AC ;r...}{...}...
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E B8 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 7D 1A 80 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...VS..
000170: 61 61 72 0A 40 75 01 42 03 5E 08 49 75 77 C3 03 aar.@.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 68 FF 0D 0A 44 69 73 68 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 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 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 B8 00 07 60 66 6A 00 E9 38 FF 00 00 55 AA .A...^fj;...U.

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

```
Command Prompt
Display of File BOOTS.BIN

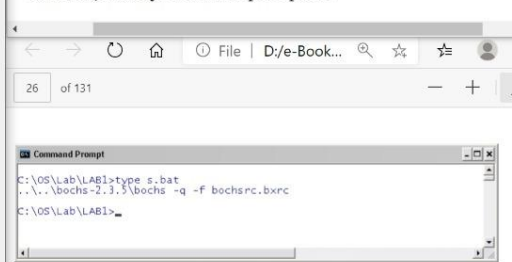
000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 .<.MSWIN4.1....
000010: 02 E8 00 40 08 F0 09 00 12 00 02 00 00 00 00 00 ........)yBNO NA
000020: 00 00 00 00 00 29 14 09 79 42 4E 4F 20 4E 41 .....).FAT12 3.
000030: 4D 45 20 20 20 20 46 41 54 31 32 20 20 33 C9 ME
000040: 8E D1 BC FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 {...x.v.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..SNS) ...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 38 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 88 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...(>8-t..
0000D0: B1 0B BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ...).at=Nt...
0000E0: 3B F8 72 E7 EB D0 FE 0E D8 7D 7B 07 BE 7F 7D AC ;r...}{...}...
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E B8 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 7D 1A 80 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...VS..
000170: 61 61 72 0A 40 75 01 42 03 5E 08 49 75 77 C3 03 aar.@.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 68 FF 0D 0A 44 69 73 68 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 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 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 B8 00 07 60 66 6A 00 E9 38 FF 00 00 55 AA .A...^fj;...U.

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



**'Boot' PC-Simulator dengan file image 'floppya. img'**

Salah satu file dalam direktori kerja adalah file 's.bat', berisi dua baris perintah untuk memanggil PC-Simulator 'Bochs'. Lihat isi file 's.bat' dengan perintah 'type s.bat' <ENTER>, hasilnya terlihat seperti pada .



Gambar 1.15 Isi file 's.bat'

Bochs for Windows - Display

```
000090: 06 D8 7D
0000A0: 03 46 0E
0000B0: 20 00 F7
0000C0: 4E FE 61
0000D0: B1 00 BE
0000E0: 3B FB 72
0000F0: 98 03 F0
000100: CD 10 EB
000110: 5E 1F 66
000120: 8A 4E 0D
000130: 72 D7 EA
000140: 8B 46 18
000150: 87 CA F7
000160: 02 80 7E
000170: 61 61 72
000180: 18 01 27
000190: 74 65 6D
0001A0: 49 2F 4F
0001B0: 61 63 65
0001C0: 64 20 74
0001D0: 20 68 65
0001E0: 53 59 53
0001F0: 00 41 B8
```

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/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...

Invalid system disk  
Replace the disk, and then press any key

C:\OS\LAB\LAB1>ty  
...\bochs-2.3.5  
C:\OS\LAB\LAB1>s  
CTRL + Lbutton + Rbutton enables mo A: NUM CAPS SCRL

C:\OS\LAB\LAB1>..\bochs-2.3.5\bochs -q -f bochsrx.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 bochsrx.bxrc  
000000000000[ ] installing win32 module as the Bochs GUI  
000000000000[ ] using log file bochsout.txt

Bochs for Windows - Console

MSCDEX Version 2.23  
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.  
Drive B: = Driver USLAB 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 1B59-09F9

Format another (Y/N)?y  
CTRL + Lbutton + Rbutton enables mo A: B: -4D0-4V CD-S NUM CAPS SCRL

000000000000[APIC?] local apic in initializing  
=====

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

000000000000[ ] reading configuration from bochsrx2.txt  
000000000000[ ] installing win32 module as the Bochs GUI  
000000000000[ ] using log file bochsout.txt

Bochs for Windows - Display

Device [BIOS ]  
Message: No bootable device.

Continue  
Continue and don't ask again  
Abort (dump core)

OK  
Cancel

e-Book Modul Sistem Operasi

Would you like to set Microsoft Edge as your default brow... Set as default

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'Floppya.img' belum terisi 'system file' atau 'kernel' sehingga proses boot gagal. Sekarang kita akan format 'floppya.img' dan menambahkan 'system file' ke dalamnya. Panggil 'dosFp' <ENTER>.

Pada windows 'Bochs' masukan perintah 'A:>format B:/S' <ENTER>, selesaikan proses format dan berikan nama label disk jika perlu. Jika sudah selesai, untuk memastikan bahwa floppy pada drive 'B:' terisi dengan 'system file', periksa dengan perintah berikut 'A:>dir B:' <ENTER>, jika tidak

berikut:

A:\>dir B:

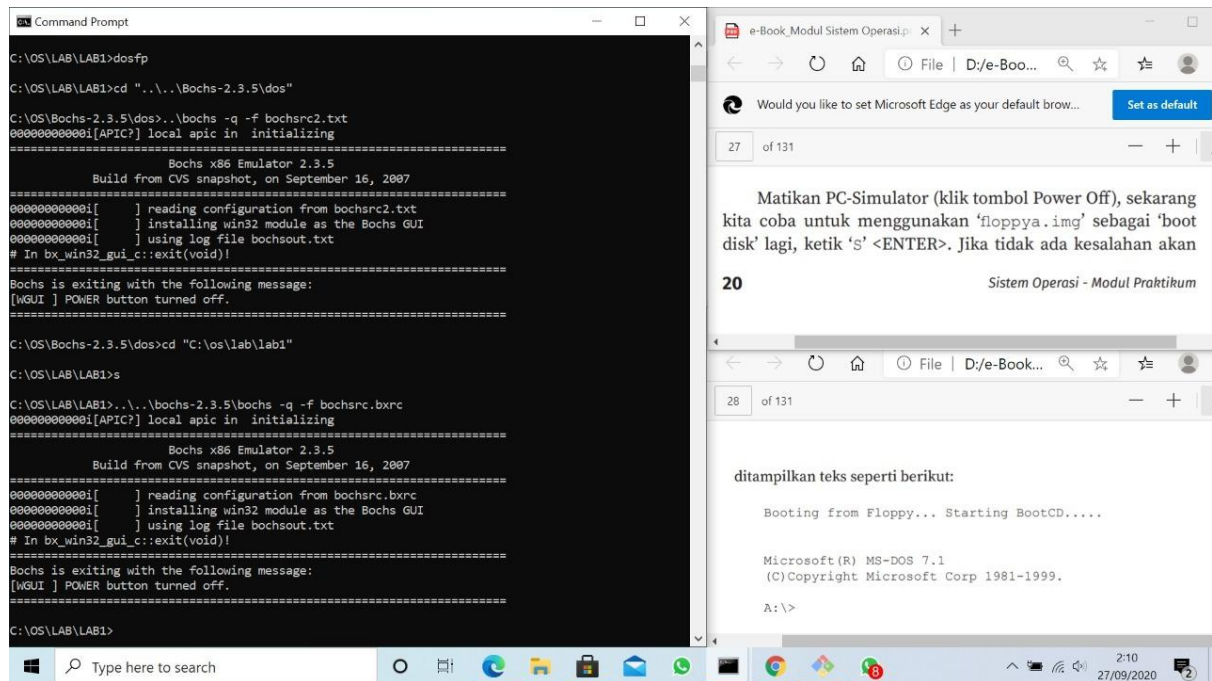
Volume in drive B is DOS  
Volume Serial Number is 3256-1404  
Directory of B:\

COMMAND COM 94,292 05-05-03 21:22  
1 file(s) 94,292 bytes  
0 dir(s) 1,235,968 bytes free

A:\>







Selesai.