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KELAS : C

Sistem Operasi

```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.10240]
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C:\Users\User>cd C:\OS 1.

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

Directory of C:\OS

14/09/2018 06.09 <DIR>      .
14/09/2018 06.09 <DIR>      ..
14/09/2018 06.08 <DIR>      Bochs-2.3.5
16/09/2015 21.51          512 boots.bin
12/09/2016 12.33          0 bimage
14/09/2018 06.09 <DIR>      Dev-Cpp
17/12/2008 14.08          1.096.291 i386.pdf
14/09/2018 06.09 <DIR>      LAB
17/12/2008 14.07          846.920 pcasm-book.pdf
17/12/2008 15.44          86 Setpath.bat
14/12/2008 04.12          716.512 winima81.exe
               6 File(s)      2.660.321 bytes
               5 Dir(s)      89.815.441.408 bytes free

C:\OS>type setpath.bat
Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Windows;c:\Windows\System32

C:\OS>
```

- Masuk ke direktori kerja C : \OS
- Melihat isi direktori di dalam folder OS
- Menjalankan setpath

```
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS

14/09/2018 06.09 <DIR>      .
14/09/2018 06.09 <DIR>      ..
14/09/2018 06.08 <DIR>      Bochs-2.3.5
16/09/2015 21.51          512 boots.bin
12/09/2016 12.33          0 bimage
14/09/2018 06.09 <DIR>      Dev-Cpp
17/12/2008 14.08          1.096.291 i386.pdf
14/09/2018 06.09 <DIR>      LAB
17/12/2008 14.07          846.920 pcasm-book.pdf
17/12/2008 15.44          86 Setpath.bat
14/12/2008 04.12          716.512 winima81.exe
               6 File(s)      2.660.321 bytes
               5 Dir(s)      89.815.441.408 bytes free

C:\OS>type setpath.bat
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
C:\OS\LAB\LAB1>Notepad boot.asm
C:\OS\LAB\LAB1>
```

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

; *****
; LAB-1 : boot-strap loader - real mode
; untuk memindahkan file OS dari floppy disk format DOS FAT12
; *****

; atur mode kerja 16 bit (real-mode)
[BITS 16]

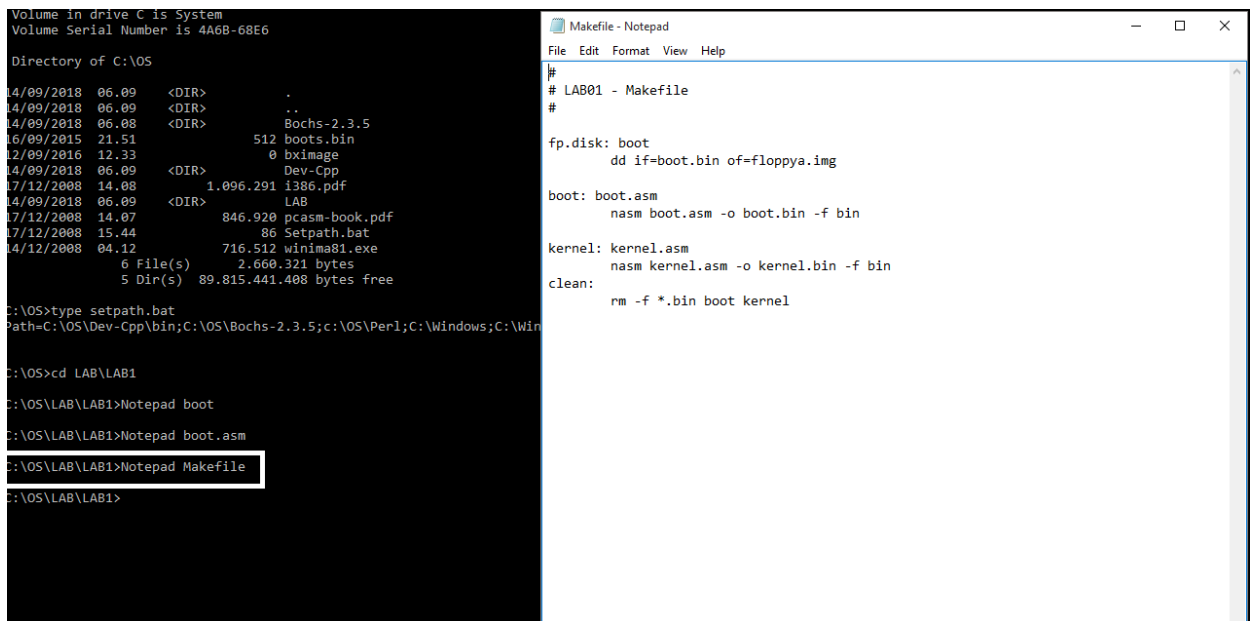
; Menentukan lokasi awal dari program
[ORG 0x0000]

; loncat ke label START
jmp     START

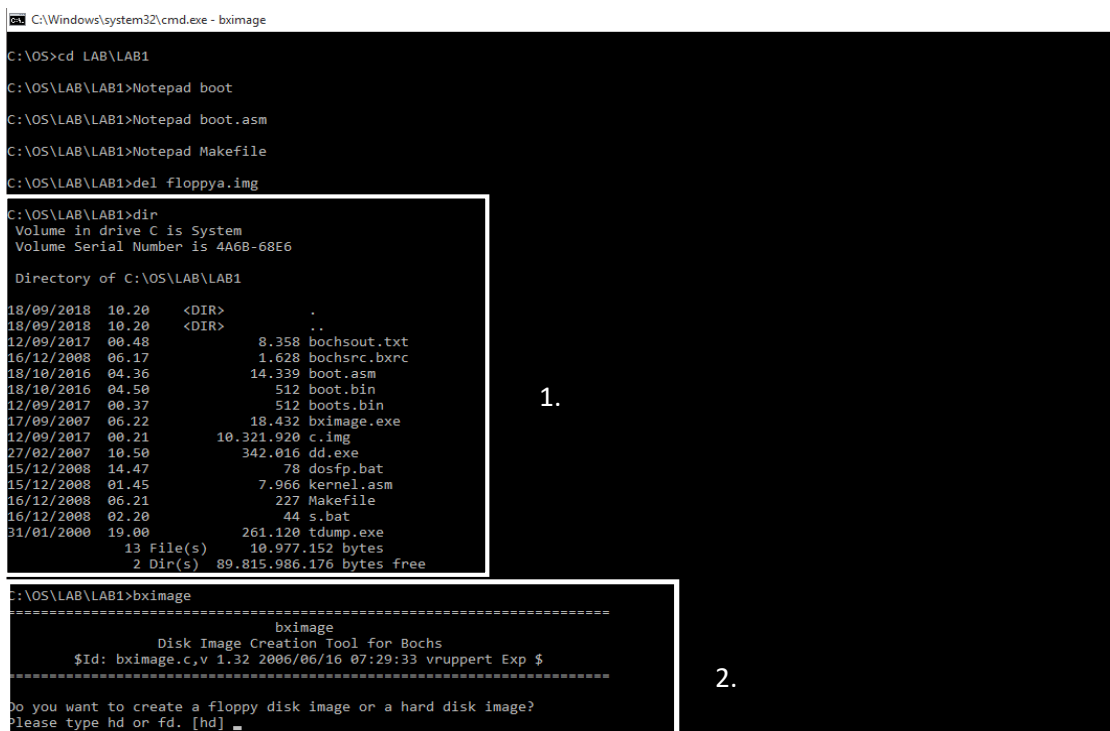
; Keterangan format floppy disk format FAT12

OEM_ID          db "QUASI-OS"
BytesPerSector   dw 0x0200
SectorsPerCluster dw 0x01
ReservedSectors  dw 0x0001
TotalFATs        dw 0x02
MaxRootEntries   dw 0x00E0
TotalSectorsSmall dw 0x0B40
MediaDescriptor  db 0xF0
SectorsPerFAT    dw 0x0009
SectorsPerTrack  dw 0x0012
NumHeads         dw 0x0002
HiddenSectors    dd 0x00000000
TotalSectorsLarge dd 0x00000000
DriveNumber      db 0x00
Flags            db 0x00
```

- Masuk ke direktori kerja pada C : \OS\LAB\LAB1
- Membuka file dengan mengetikkan notepad boot.asm



- Membuka file teks makefile dengan menggunakan makefile



- Menghapus suatu bootdisk yang bernama floppya.img dan cek pada direktori
- Membuat suatu bootdisk baru dengan menggunakan aplikasi bimage.exe, pilih lah fd.

```

12/09/2017  00.21      10.321.920 c.img
27/02/2007  10.50      342.016 dd.exe
15/12/2008  14.47       78 dosfp.bat
15/12/2008  01.45      7.966 kernel.asm
16/12/2008  06.21      227 Makefile
16/12/2008  02.20       44 s.bat
31/01/2000  19.00      261.120 tdump.exe
              13 File(s)    10.977.152 bytes
              2 Dir(s)    89.815.986.176 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] 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] 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>

```

1.

2.

- Kemudian pilihlah ukuran, untuk ukuran default tekan enter langsung
- Lalu beri nama 'floppy.img'. lalu Enter.

```

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>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

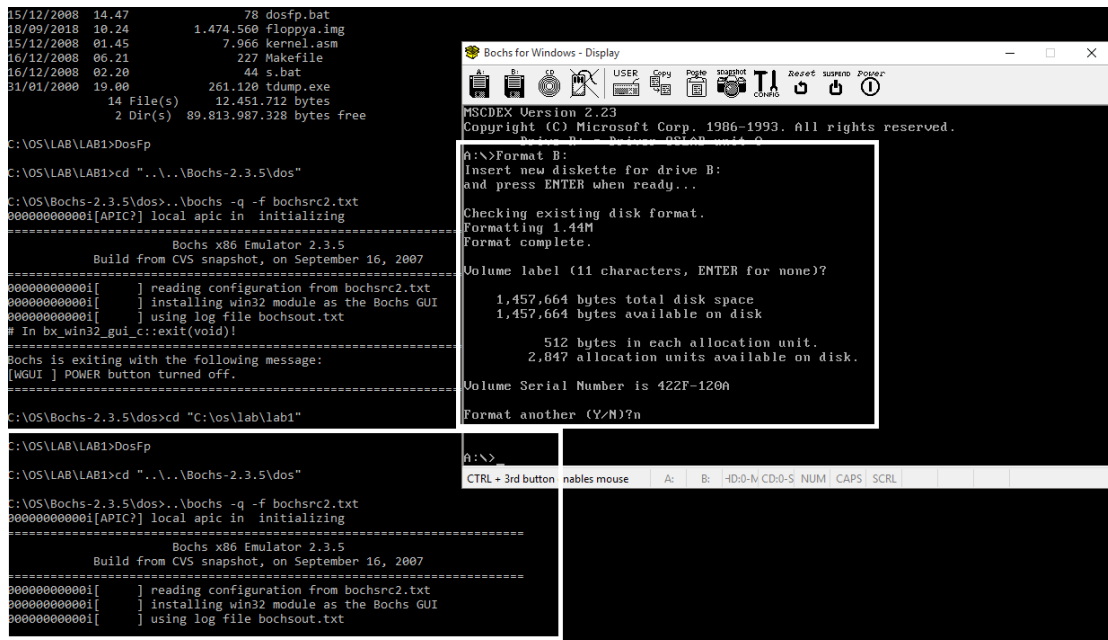
Directory of C:\OS\LAB\LAB1

12/09/2018  10.24      <DIR>      .
12/09/2018  10.24      <DIR>      ..
12/09/2017  00.48      8.358 bochsout.txt
16/12/2008  06.17      1.628 bochsrc.bxrc
18/10/2016  04.36      14.339 boot.asm
18/10/2016  04.50      512 boot.bin
12/09/2017  00.37      512 boots.bin
17/09/2007  06.22      18.432 bximage.exe
12/09/2017  00.21     10.321.920 c.img
27/02/2007  10.50     342.016 dd.exe
15/12/2008  14.47       78 dosfp.bat
18/09/2018  10.24     1.474.560 floppy.img
15/12/2008  01.45      7.966 kernel.asm
16/12/2008  06.21      227 Makefile
16/12/2008  02.20       44 s.bat
31/01/2000  19.00     261.120 tdump.exe
              14 File(s)    12.451.712 bytes
              2 Dir(s)    89.813.987.328 bytes free

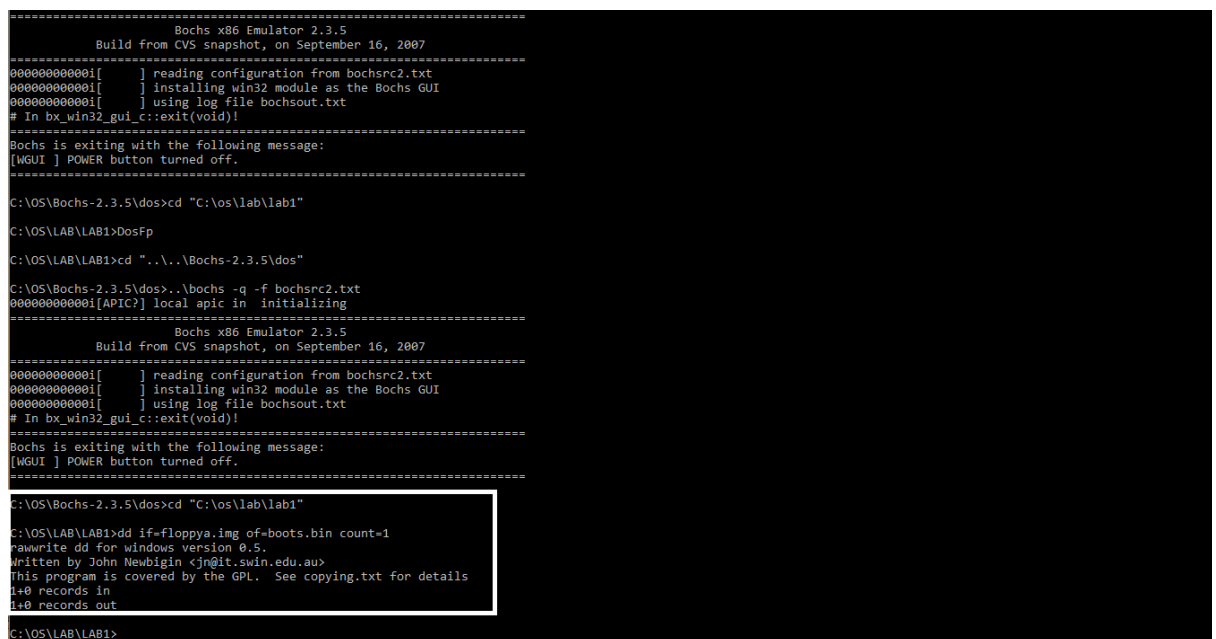
C:\OS\LAB\LAB1>

```

- Cek isi direktori, apakah floppy.img tadi telah dibuat.



- Kemudian format floppy.img agar menjadi bootdisk.



- Kemudian salin byte dari floppy.img ke boots.bin yang digunakan untuk bootloader

```

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>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 00 00 F0 09 00 12 00 02 00 00 00 00 00 ...@.....
000020: 00 00 00 00 00 00 29 0A 12 2F 42 4E 4F 20 4E 41 .....)/BNO 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 7D 20 B8 C1 99 ...|.E..8N$} ...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ~...:f..|f;..W.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u....V....s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..).F...f..F..V.
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 FC 89 56 FE B8 .F...v..'.F..V..
0000B0: 20 00 F7 E6 8B 5E 00 03 C3 48 F7 F3 01 46 FC 11 ....^..H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(>8-t..
0000D0: B1 08 BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ...).at=Nt....
0000E0: 3B F8 72 E7 EB D0 FE 0E D8 7D 78 A7 BE 7F 7D AC ;r.....){....
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E B8 07 00 ....@t.Ht.....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....).)....
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 88 7D 1A 8D 45 FE ^f.....}.)..E.
000120: 8A 4E 0D F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V.....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 10 91 r....p.RP.Sj..
000140: 8B 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 F6 42 .F.&...3.....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC B8 01 ...v.....
000160: 02 80 7E 02 0E 75 04 B4 42 8B F4 8A 56 24 CD 13 ...u..B...V$.
000170: 61 61 72 0A 40 75 01 42 03 5E 08 49 75 77 C3 03 aar.@u.B.^Iuw..
000180: 18 01 27 00 0A 49 6E 76 61 6C 69 64 20 73 79 73 ...d.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 3B FF 00 00 55 AA .A...^j;....U.

```

- Melihat isi memori dari boots.bin

```

operable program or batch file.

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

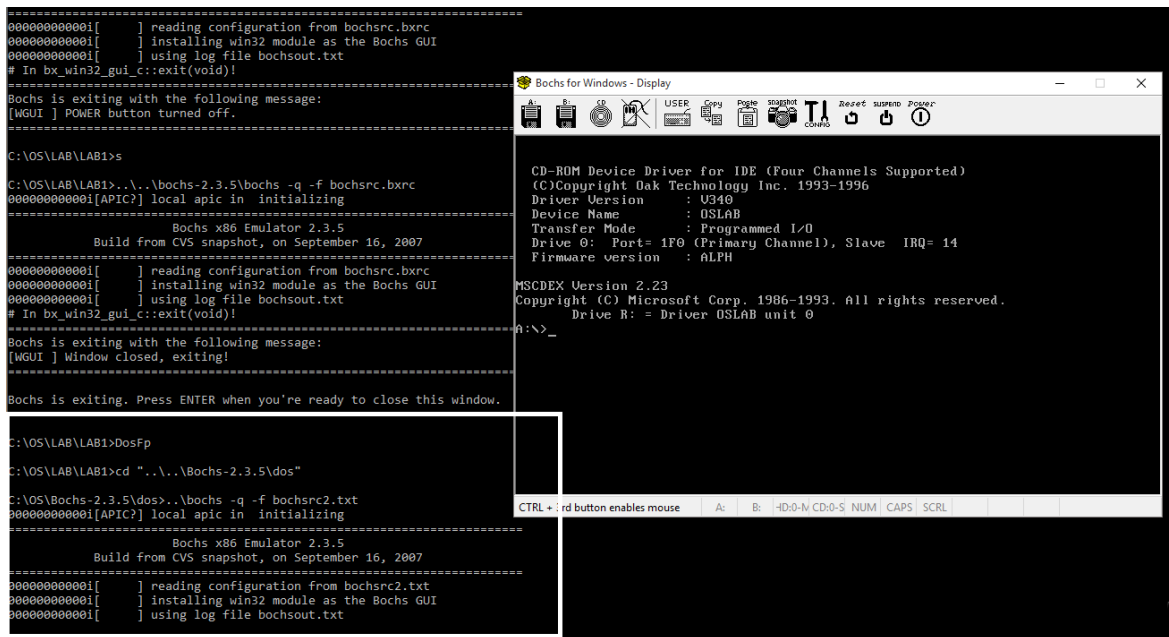
000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 .<.MSWIN4.1....
000010: 02 E0 00 00 00 F0 09 00 12 00 02 00 00 00 00 00 ...@.....
000020: 00 00 00 00 00 00 29 0A 12 2F 42 4E 4F 20 4E 41 .....)/BNO NA
000030: 4D 45 20 20 20 20 46 41 54 31 32 20 20 20 33 C9 ME FAT12 3.
000040: 8E D1 BC FC 7B 16 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 7D 20 B8 C1 99 ...|.E..8N$} ...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ~...:f..|f;..W.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u....V....s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..).F...f..F..V.
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 FC 89 56 FE B8 .F...v..'.F..V..
0000B0: 20 00 F7 E6 8B 5E 00 03 C3 48 F7 F3 01 46 FC 11 ....^..H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(>8-t..
0000D0: B1 08 BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ...).at=Nt....
0000E0: 3B F8 72 E7 EB D0 FE 0E D8 7D 78 A7 BE 7F 7D AC ;r.....){....
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E B8 07 00 ....@t.Ht.....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....).)....
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 88 7D 1A 8D 45 FE ^f.....}.)..E.
000120: 8A 4E 0D F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V.....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 10 91 r....p.RP.Sj..
000140: 8B 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 F6 42 .F.&...3.....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC B8 01 ...v.....
000160: 02 80 7E 02 0E 75 04 B4 42 8B F4 8A 56 24 CD 13 ...u..B...V$.
000170: 61 61 72 0A 40 75 01 42 03 5E 08 49 75 77 C3 03 aar.@u.B.^Iuw..
000180: 18 01 27 00 0A 49 6E 76 61 6C 69 64 20 73 79 73 ...d.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 3B FF 00 00 55 AA .A...^j;....U.

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

C:\OS\LAB\LAB1>

```

- Panggil Bosch.



- Format floppy.Img, dan menambahkan sistem file ke dalamnya, dengan bosch.



- Setelah tekan n, Lihat isi Direktori.