

LAPORAN PRAKTIKUM
MODUL 1 PENGENALAN SISTEM PENGEMBANGAN
OS DENGAN PC SIMULATOR ‘BOCHS’
SISTEM OPERASI



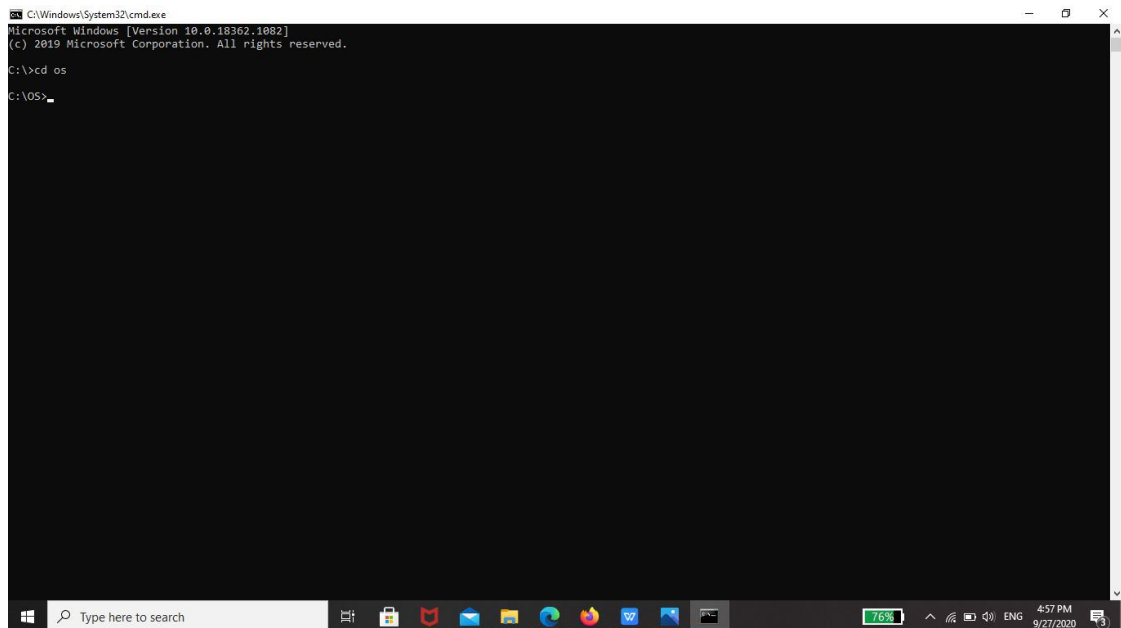
DIAN LESTARI

L200190260

KELAS G

INFORMATIKA
FAKULTAS KOMUNIKASI DAN INFORMATIKA
UNIVERSITAS MUHAMMADIYAH SURAKARTA
2020

1. Jalankan program command prompt atau cmd.
2. Masuk ke direktori kerja 'C:\OS', dengan perintah 'cd os'.

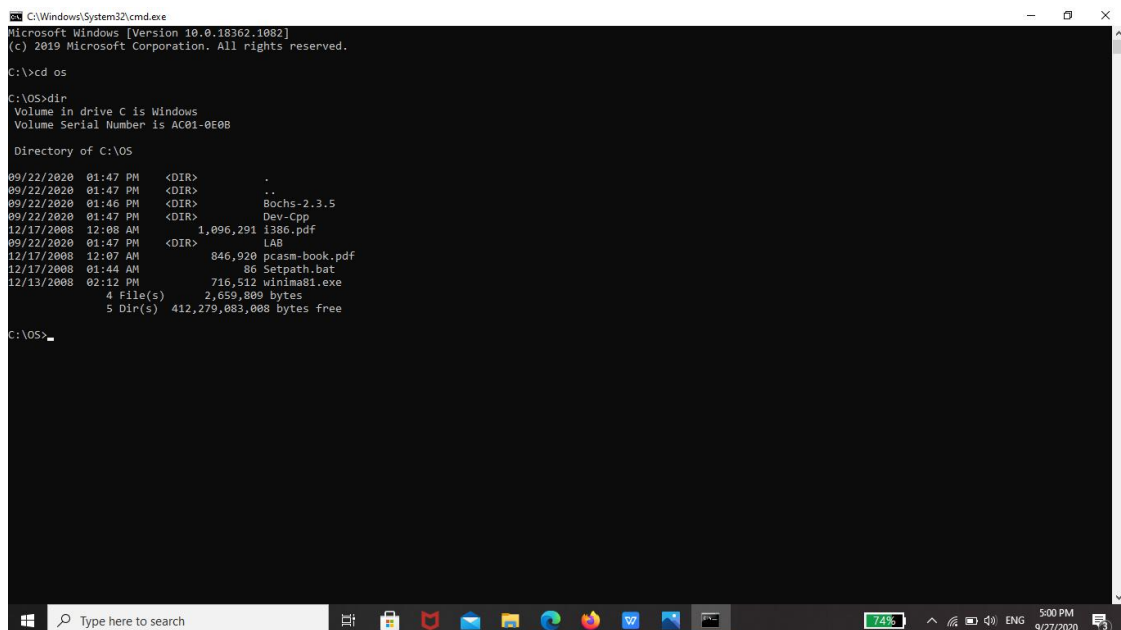


A screenshot of a Windows Command Prompt window. The title bar reads 'C:\Windows\System32\cmd.exe'. The window content shows the following text: 'Microsoft Windows [Version 10.0.18362.1082] (c) 2019 Microsoft Corporation. All rights reserved. C:\>cd os C:\OS>'. The taskbar at the bottom shows the search bar, task view icon, and several application icons. The system tray on the right shows a battery level of 76%, network status, and the date/time '4:57 PM 9/27/2020'.

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\>cd os
C:\OS>
```

3. Masukkan perintah dir, untuk melihat isi direktori di dalam folder tersebut.



A screenshot of a Windows Command Prompt window showing the output of the 'dir' command. The title bar is the same as the previous screenshot. The window content shows: 'C:\OS>dir Volume in drive C is Windows Volume Serial Number is AC01-0E0B Directory of C:\OS 09/22/2020 01:47 PM <DIR> . 09/22/2020 01:47 PM <DIR> .. 09/22/2020 01:46 PM <DIR> Bochs-2.3.5 09/22/2020 01:47 PM <DIR> Dev-Cpp 12/17/2008 12:08 AM 1,096,291 i386.pdf 09/22/2020 01:47 PM <DIR> LAB 09/22/2020 12:07 AM 846,920 pcasm-book.pdf 12/17/2008 01:44 AM 86 Setpath.bat 12/13/2008 02:12 PM 716,512 winima81.exe 4 File(s) 2,659,809 bytes 5 Dir(s) 412,279,083,008 bytes free C:\OS>'. The taskbar and system tray are identical to the previous screenshot.

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\>cd os
C:\OS>dir
Volume in drive C is Windows
Volume Serial Number is AC01-0E0B

Directory of C:\OS

09/22/2020 01:47 PM <DIR> .
09/22/2020 01:47 PM <DIR> ..
09/22/2020 01:46 PM <DIR> Bochs-2.3.5
09/22/2020 01:47 PM <DIR> Dev-Cpp
12/17/2008 12:08 AM 1,096,291 i386.pdf
09/22/2020 01:47 PM <DIR> LAB
09/22/2020 12:07 AM 846,920 pcasm-book.pdf
12/17/2008 01:44 AM 86 Setpath.bat
12/13/2008 02:12 PM 716,512 winima81.exe
4 File(s) 2,659,809 bytes
5 Dir(s) 412,279,083,008 bytes free

C:\OS>
```

4. Jalankan file setpath, untuk menjalankannya ketik 'setpath' tekan <ENTER>

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\>cd os

C:\OS>dir
Volume in drive C is Windows
Volume Serial Number is AC01-0E08

Directory of C:\OS

09/22/2020 01:47 PM <DIR>      .
09/22/2020 01:47 PM <DIR>      ..
09/22/2020 01:46 PM <DIR>      Bochs-2.3.5
09/22/2020 01:47 PM <DIR>      Dev-Cpp
12/17/2008 12:08 AM <DIR>      1,096,291 i386.pdf
09/22/2020 01:47 PM <DIR>      LAB
12/17/2008 12:07 AM      846,920 pcasm-book.pdf
12/17/2008 01:44 AM      86 Setpath.bat
12/13/2008 02:12 PM      716,512 winima81.exe
               4 File(s)      2,659,809 bytes
               5 Dir(s)      412,279,083,008 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. Masuk ke direktori kerja pada 'C:\OS\LAB\LAB1'.

```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\>cd os

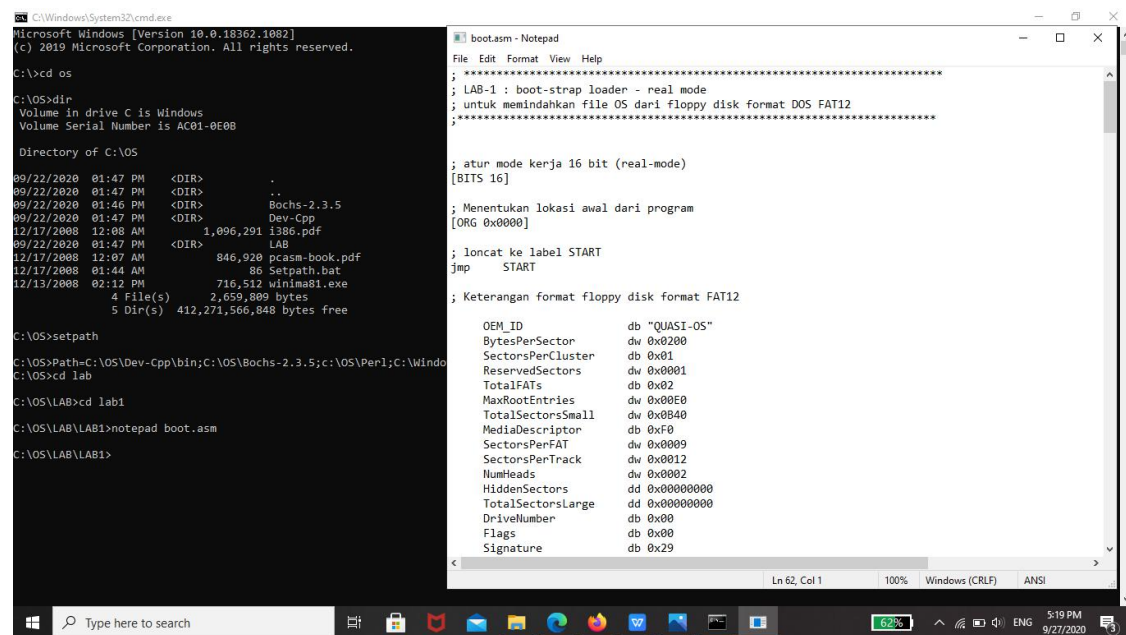
C:\OS>dir
Volume in drive C is Windows
Volume Serial Number is AC01-0E08

Directory of C:\OS

09/22/2020 01:47 PM <DIR>      .
09/22/2020 01:47 PM <DIR>      ..
09/22/2020 01:46 PM <DIR>      Bochs-2.3.5
09/22/2020 01:47 PM <DIR>      Dev-Cpp
12/17/2008 12:08 AM <DIR>      1,096,291 i386.pdf
09/22/2020 01:47 PM <DIR>      LAB
12/17/2008 12:07 AM      846,920 pcasm-book.pdf
12/17/2008 01:44 AM      86 Setpath.bat
12/13/2008 02:12 PM      716,512 winima81.exe
               4 File(s)      2,659,809 bytes
               5 Dir(s)      412,271,566,848 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
C:\OS\LAB>cd lab1
C:\OS\LAB\LAB1>
```

6. Ketikkan 'Notepad boot.asm' dan tekan <ENTER>.



```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\>cd os
C:\OS>dir
Volume in drive C is Windows
Volume Serial Number is AC01-0E08

Directory of C:\OS
09/22/2020 01:47 PM <DIR> .
09/22/2020 01:47 PM <DIR> ..
09/22/2020 01:46 PM <DIR> Bochs-2.3.5
09/22/2020 01:47 PM <DIR> Dev-Cpp
12/17/2008 12:08 AM <DIR> 1,096,291 i386.pdf
09/22/2020 01:47 PM <DIR> LAB
12/17/2008 12:07 AM 846,920 pcasm-book.pdf
12/17/2008 01:44 AM 86 Setpath.bat
12/13/2008 02:12 PM 716,512 winima81.exe
4 File(s) 2,659,809 bytes
5 Dir(s) 412,271,566,848 bytes free

C:\OS>setpath
C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Wind
C:\OS>cd lab
C:\OS\LAB>cd lab1
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]

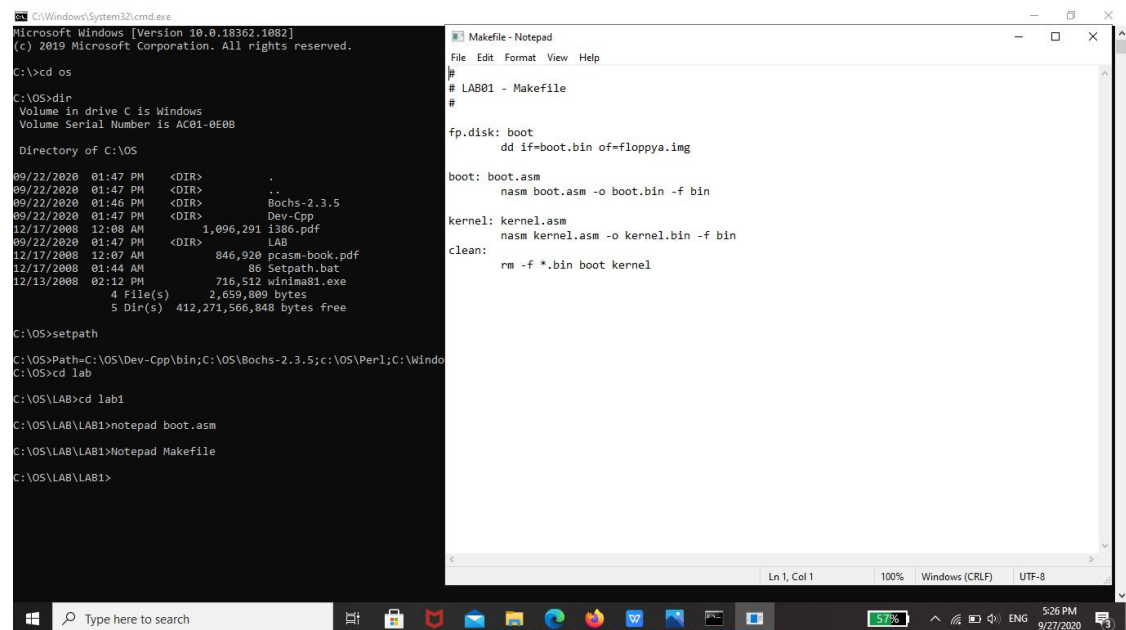
; Menentukan lokasi awal dari program
[ORG 0x0000]

; 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 0x00F0
TotalSectorsSmall dw 0x0040
MediaDescriptor db 0xF0
SectorsPerFAT dw 0x0009
SectorsPerTrack dw 0x0012
NumHeads dw 0x0002
HiddenSectors dd 0x00000000
TotalSectorsLarge dd 0x00000000
DriveNumber db 0x00
Flags db 0x00
Signature db 0x29
```

7. Ketik 'Notepad M' tekan tombol 'TAB' sehingga muncul 'Notepad Makefile' dan tekan <ENTER>.



```
C:\Windows\System32\cmd.exe
Microsoft Windows [Version 10.0.18362.1082]
(c) 2019 Microsoft Corporation. All rights reserved.

C:\>cd os
C:\OS>dir
Volume in drive C is Windows
Volume Serial Number is AC01-0E08

Directory of C:\OS
09/22/2020 01:47 PM <DIR> .
09/22/2020 01:47 PM <DIR> ..
09/22/2020 01:46 PM <DIR> Bochs-2.3.5
09/22/2020 01:47 PM <DIR> Dev-Cpp
12/17/2008 12:08 AM <DIR> 1,096,291 i386.pdf
09/22/2020 01:47 PM <DIR> LAB
12/17/2008 12:07 AM 846,920 pcasm-book.pdf
12/17/2008 01:44 AM 86 Setpath.bat
12/13/2008 02:12 PM 716,512 winima81.exe
4 File(s) 2,659,809 bytes
5 Dir(s) 412,271,566,848 bytes free

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

```
Makefile - Notepad
File Edit Format View Help
#
# LAB01 - Makefile
#

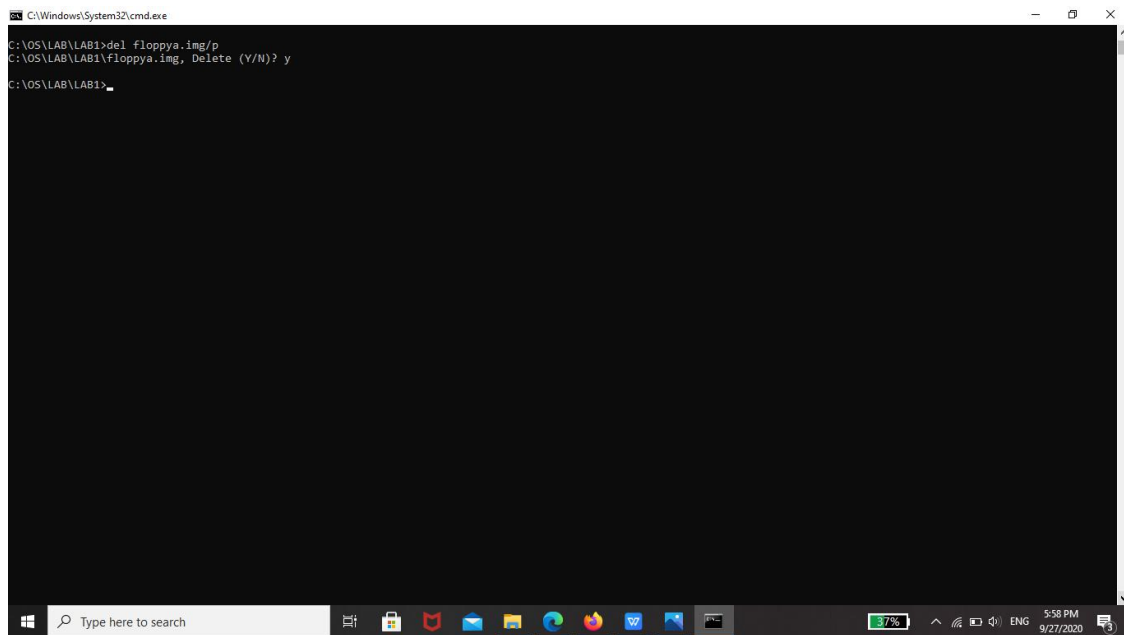
fp.disk: boot
dd if=boot.bin of=floppya.img

boot: boot.asm
nasm boot.asm -o boot.bin -f bin

kernel: kernel.asm
nasm kernel.asm -o kernel.bin -f bin

clean:
rm -f *.bin boot kernel
```

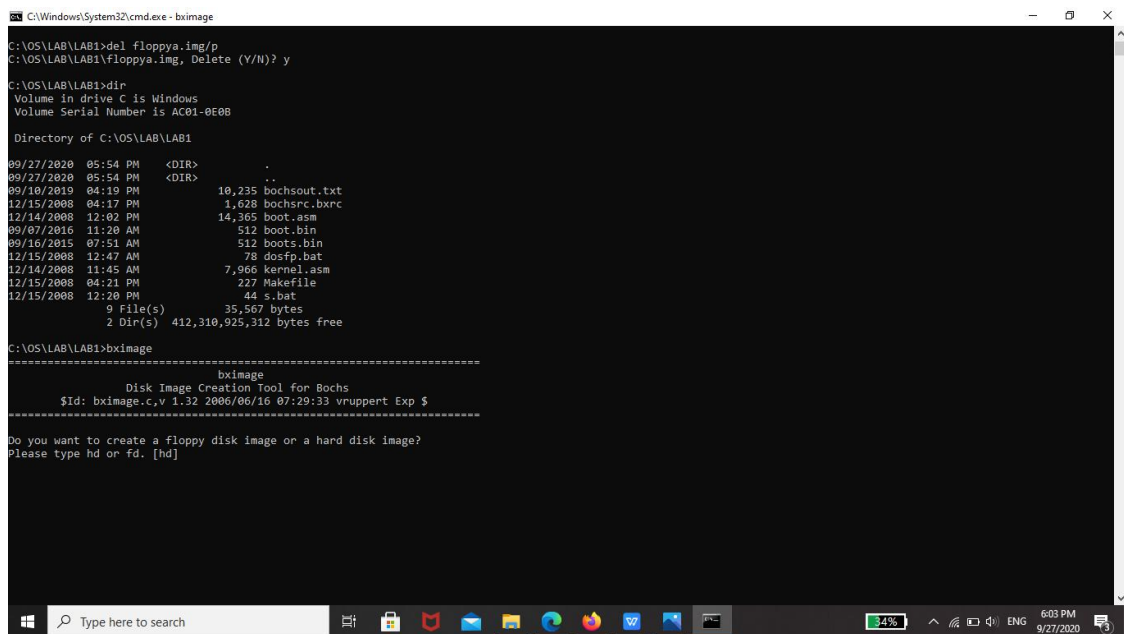
8. ketik 'del floppy.img /P' lanjutkan dengan tekan 'Y' dan <ENTER> .



```
C:\Windows\System32\cmd.exe
C:\OS\LAB\LAB1>del floppy.img/p
C:\OS\LAB\LAB1\floppy.img, Delete (Y/N)? y
C:\OS\LAB\LAB1>
```

The screenshot shows a Windows command prompt window titled 'C:\Windows\System32\cmd.exe'. The user has entered the command 'del floppy.img/p' and confirmed the deletion of 'C:\OS\LAB\LAB1\floppy.img' by typing 'y' when prompted 'Delete (Y/N)?'. The prompt now shows 'C:\OS\LAB\LAB1>'.

9. Perintah 'dir'. Selanjutnya panggil 'bxiimage'



```
C:\Windows\System32\cmd.exe - bxiimage
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 is Windows
Volume Serial Number is AC01-0E0B

Directory of C:\OS\LAB\LAB1

09/27/2020  05:54 PM  <DIR>      .
09/27/2020  05:54 PM  <DIR>      ..
09/10/2019  04:19 PM             10,235 bochsout.txt
12/15/2008  04:17 PM             1,628 bochsrc.bxrc
12/14/2008  12:02 PM             14,365 boot.asm
09/07/2016  11:20 AM              512 boot.bin
09/10/2015  07:51 AM              512 boots.bin
12/15/2008  12:47 AM              78 dosfp.bat
12/14/2008  11:45 AM             7,966 kernel.asm
12/15/2008  04:21 PM              227 Makefile
12/15/2008  12:20 PM               44 s.bat
                9 File(s)          35,567 bytes
                2 Dir(s)  412,310,925,312 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]
```

The screenshot shows a Windows command prompt window titled 'C:\Windows\System32\cmd.exe - bxiimage'. The user has entered 'dir' and 'bxiimage'. The 'dir' command shows the contents of 'C:\OS\LAB\LAB1', including files like 'bochsout.txt', 'bochsrc.bxrc', 'boot.asm', 'boot.bin', 'boots.bin', 'dosfp.bat', 'kernel.asm', 'Makefile', and 's.bat'. The 'bxiimage' command displays its version and usage information, and prompts the user to choose between creating a floppy disk image or a hard disk image.

10. Selanjutnya ketikan 'fd' dan tekan <ENTER> .

```
C:\Windows\System32\cmd.exe - bimage
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 is Windows
Volume Serial Number is AC01-0E0B

Directory of C:\OS\LAB\LAB1

09/27/2020  05:54 PM  <DIR>      .
09/27/2020  05:54 PM  <DIR>      ..
09/10/2019  04:19 PM             10,235 bochsout.txt
12/15/2008  04:17 PM             1,628 bochsrc.bxrc
12/14/2008  12:02 PM            14,365 boot.asm
09/07/2016  11:20 AM              512 boot.bin
09/10/2015  07:51 AM              512 boots.bin
12/15/2008  12:47 AM              78 dosfp.bat
12/14/2008  11:45 AM             7,966 kernel.asm
12/15/2008  04:21 PM              227 Makefile
12/15/2008  12:20 PM              44 s.bat
          9 File(s)            35,567 bytes
          2 Dir(s)         412,310,925,312 bytes free

C:\OS\LAB\LAB1>bimage
=====
                bimage
        Disk Image Creation Tool for Bochs
        $Id: bimage.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 tipe yang paling banyak digunakan saat ini yaitu tipe floppy dengan kapasitas '1.44MB', Selanjutnya tekan <ENTER> .

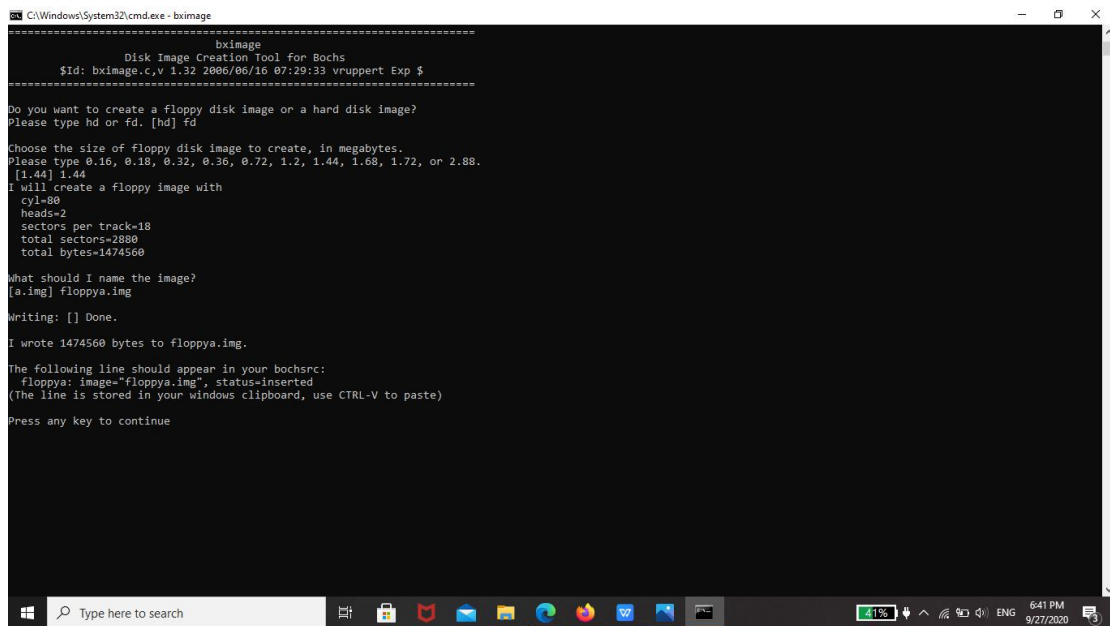
```
C:\Windows\System32\cmd.exe - bimage
=====
                bimage
        Disk Image Creation Tool for Bochs
        $Id: bimage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp $
=====

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. Beri nama file, ketikan 'floppya.img' selanjutnya <ENTER>.



```
C:\Windows\System32\cmd.exe - 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

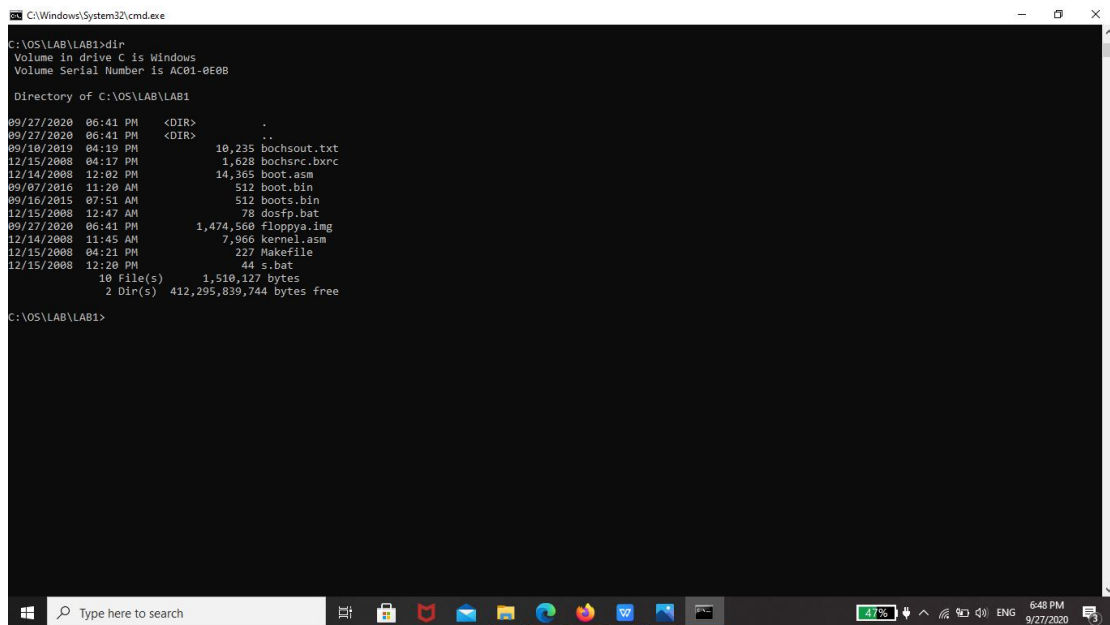
Writing: [] Done.

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
```

13. Pastikan keberadaan file image tersebut dengan perintah 'dir'



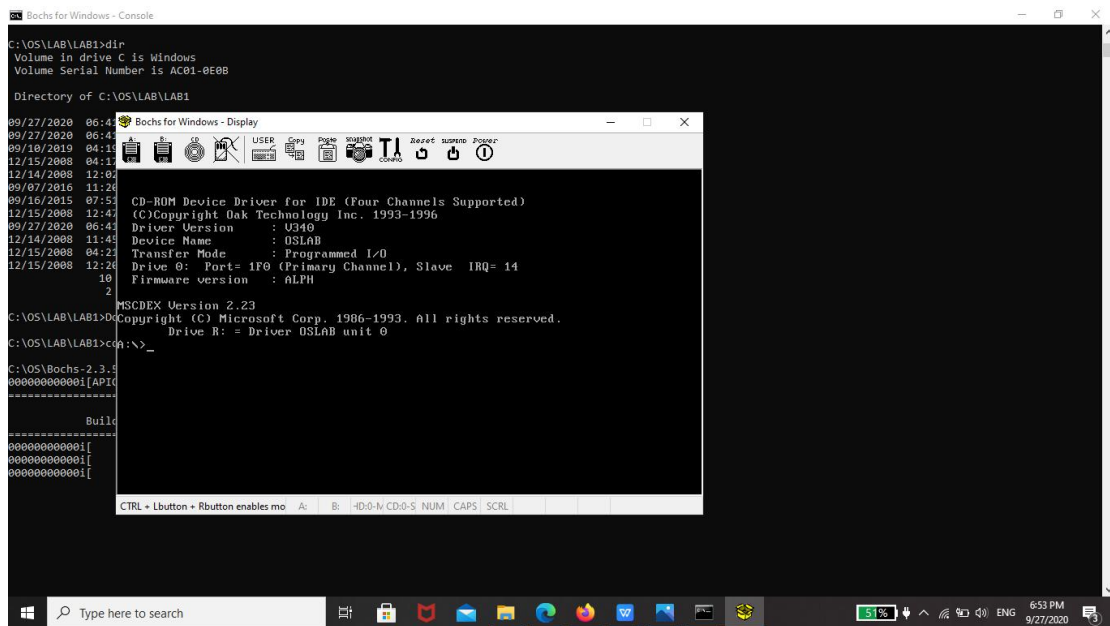
```
C:\OS\LAB\LAB1>dir
Volume in drive C is Windows
Volume Serial Number is AC01-0E0B

Directory of C:\OS\LAB\LAB1

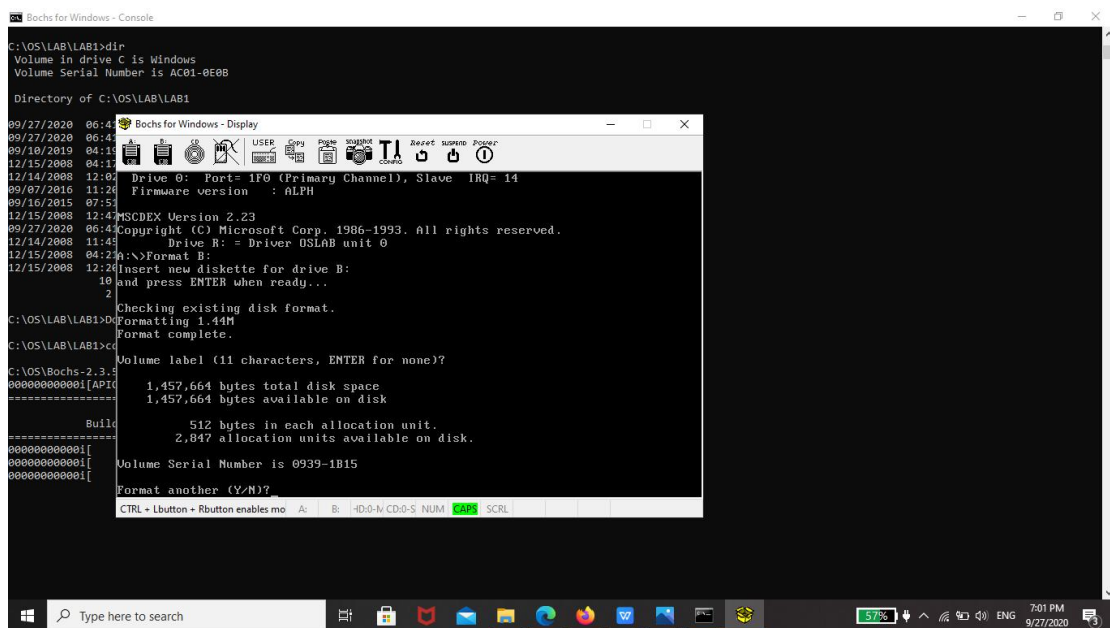
09/27/2020  06:41 PM    <DIR>          .
09/27/2020  06:41 PM    <DIR>          ..
09/10/2019  04:19 PM             10,235 bochsout.txt
12/15/2008  04:17 PM             1,628 bochsrc.bxrc
12/14/2008 12:02 PM             14,365 boot.asm
09/07/2016 11:20 AM              512 boot.bin
09/16/2015  07:51 AM              512 boots.bin
12/15/2008 12:47 AM               78 dosfp.bat
09/27/2020  06:41 PM      1,474,560 floppya.img
12/14/2008 11:45 AM             7,966 kernel.asm
12/15/2008  04:21 PM              227 Makefile
12/15/2008 12:20 PM               44 s.bat
               10 File(s)      1,510,127 bytes
                2 Dir(s)      412,295,839,744 bytes free

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

14. Jalankan PC-Simulator dari ‘Command Prompt’ dengan perintah ‘DosFp’



15. Selanjutnya dari prompt ‘A:>’ ketikkan ‘Format B:’ <ENTER> [2x]



16. Tutup kembali PC-Simulator dengan klik pada tombol power, di bagian menu atas-kanan. Selanjutnya copy 512 byte data bootsektor ke dalam sebuah file terpisah, caranya dari ‘Command Prompt’ ketik ‘dd if=floppya.img of=boots.bin count=1’

```
C:\Windows\System32\cmd.exe
C:\OS\LAB\LAB1>cd "C:\OS\LAB\LAB1"
C:\OS\LAB\LAB1>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>
```

17. Ketik ‘tddump boots. bin’ lalu <ENTER>

```
C:\Windows\System32\cmd.exe
C:\OS\LAB\LAB1>tddump boots.bin
Turbo Dump Version 5.0.16.12 Copyright (c) 1988, 2000 Inprise Corporation
Display of File BOOTS.BIN

000000: EB 3C 00 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 .C.NSWIN4.1....
000010: 02 E0 00 40 00 F0 00 00 12 00 02 00 00 00 00 00 ..@.....
000020: 00 00 00 00 00 00 29 15 18 39 09 4E 4F 20 4E 41 .....).9.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 8C FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 ....{...x..V..
000050: 55 BF 22 05 89 7E 00 89 4E 02 01 0B FC F3 A4 06 U"...N.....
000060: 1F 80 00 7C C6 45 FE 0F 38 4E 24 7D 20 88 C1 99 ...|.E..80$|...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 38 07 8A 57 FC .....|.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 00 89 46 FC 89 56 FE B8 .F...V...F..V..
0000B0: 20 00 F7 E6 8B 5E 00 03 C3 48 F3 01 46 FC 11 ....^...H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 68 N.a....(r)s8-L..
0000D0: 01 08 BE D8 7D F3 A6 61 74 3D 4E 74 00 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 8B 07 00 ....@.t.Ht.....
000100: CD 10 EB EF 8E 82 7D E8 56 BE 80 7D E8 E1 CD 16 .....}.....
000110: 5E 1F 66 8F 0A CD 19 BE 81 7D 88 7D 1A 8D 05 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: 88 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 8B 01 ..V.....
000160: 02 80 7E 02 05 75 04 04 42 88 F4 0A 56 24 CD 13 ...u..B...V...
000170: 61 61 72 0A 40 75 01 42 03 SE 08 49 75 77 C3 03 aar@u.B.^Iuw..
000180: 18 01 27 00 0A 49 6E 76 61 C6 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 60 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 key...IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYMSDOS SYS..
0001F0: 00 41 8B 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...^fj;...U..
C:\OS\LAB\LAB1>
```

18. Lihat isi file 's.bat' dengan perintah 'type s.bat' lalu <ENTER>

```
C:\Windows\System32\cmd.exe
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: E9 3C 00 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 .c.NSMINH.1....
000010: 02 F0 00 40 08 F0 00 00 12 00 02 00 00 00 00 00 ...@.....
000020: 00 00 00 00 00 29 15 18 39 09 4E 4F 20 4E 41 .....).9.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 8C FC 7B 16 07 8D 78 00 C5 76 00 1E 56 16 ....{...x.v.v.v.
000050: 55 BF 22 05 89 7E 00 89 4E 02 81 08 FC F3 A4 06 U"...N.....
000060: 1F 8D 00 7C C6 45 FE 0F 38 4E 24 7D 20 88 C1 09 ...|E..8M$)...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ...:f...|f;..W.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u.....V...s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..).F...f..F..V.
0000A0: 03 46 0E 13 D1 88 76 11 60 89 46 FC 89 56 FE B8 .F...v...F..V..
0000B0: 20 00 F7 16 08 5E 00 03 C3 48 F7 F3 01 46 FC 11 ....^...H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(r>8-t..
0000D0: 81 0B BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....).at=Nt...
0000E0: 3B FB 72 E7 EB DD FE 0E D8 7D 7B A7 BE 7F 7D AC ;.r.....){...}.
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E B8 07 00 ....@.Ht.....
000100: CD 10 EB EF 0E 82 7D E8 56 BE 80 7D EB E1 CD 16 .....|E..8M$)...
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 88 7D 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 0A E8 C0 CC 02 0A CC 8B 01 ...v.....
000160: 02 80 7E 02 0E 75 04 84 42 88 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 ...'.Invalid sys
000190: 74 65 60 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 key...IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYMSDOS SYS..
0001F0: 00 41 8B 00 07 00 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 bochsrc.bxrc

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

19. Selanjutnya masukan perintah 's' lalu <ENTER>, akan ditampilkan windows 'Bochs for windows – display' yang sedang melakukan proses 'booting' namun tidak berhasil karena tidak menemukan diskboot.

```
Bochs for Windows - Console
000050: 55 BF 22 05 89 7E 00 89 4E 02 81 08 FC F3 A4 06 U"...N.....
000060: 1F 8D 00 7C C6 45 FE 0F 38 4E 24 7D 20 88 C1 09 ...|E..8M$)...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ...:f...|f;..W.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u.....V...s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..).F...f..F..V.
0000A0: 03 46 0E 13 D1 88 76 11 60 89 46 FC 89 56 FE B8 .F...v...F..V..
0000B0: 20 00 F7 16 08 5E 00 03 C3 48 F7 F3 01 46 FC 11 ....^...H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(r>8-t..
0000D0: 81 0B BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....).at=Nt...
0000E0: 3B FB 72 E7 EB DD FE 0E D8 7D 7B A7 BE 7F 7D AC ;.r.....){...}.
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E B8 07 00 ....@.Ht.....
000100: CD 10 EB EF 0E 82 7D E8 56 BE 80 7D EB E1 CD 16 .....|E..8M$)...
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 88 7D 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 0A E8 C0 CC 02 0A CC 8B 01 ...v.....
000160: 02 80 7E 02 0E 75 04 84 42 88 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 ...'.Invalid sys
000190: 74 65 60 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 key...IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYMSDOS SYS..
0001F0: 00 41 8B 00 07 00 66 6A 00 E9 38 FF 00 00 55 AA .A...fj...;...U.

c:\OS\LAB\LAB1>type
...\\bochs-2.3.5\bochs -q -f bochsrc.bxrc

c:\OS\LAB\LAB1>s

c:\OS\LAB\LAB1>...
000000000000[APIC?]
=====
Build f... CTRL + Lbutton + Rbutton enables mo... At NUM CAPS SCRL
000000000000[ ] reading configuration from bochsrc.bxrc
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] using log file bochsout.txt

Bochs for Windows - Display
Flex86/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/ugabios

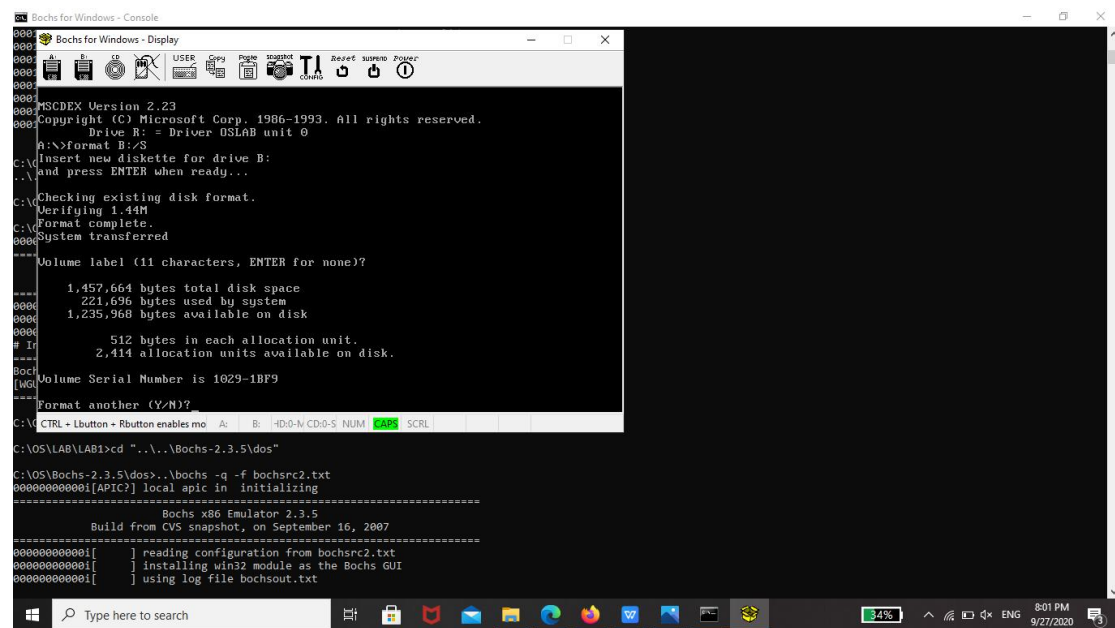
Bochs UBE Display Adapter enabled
Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...

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

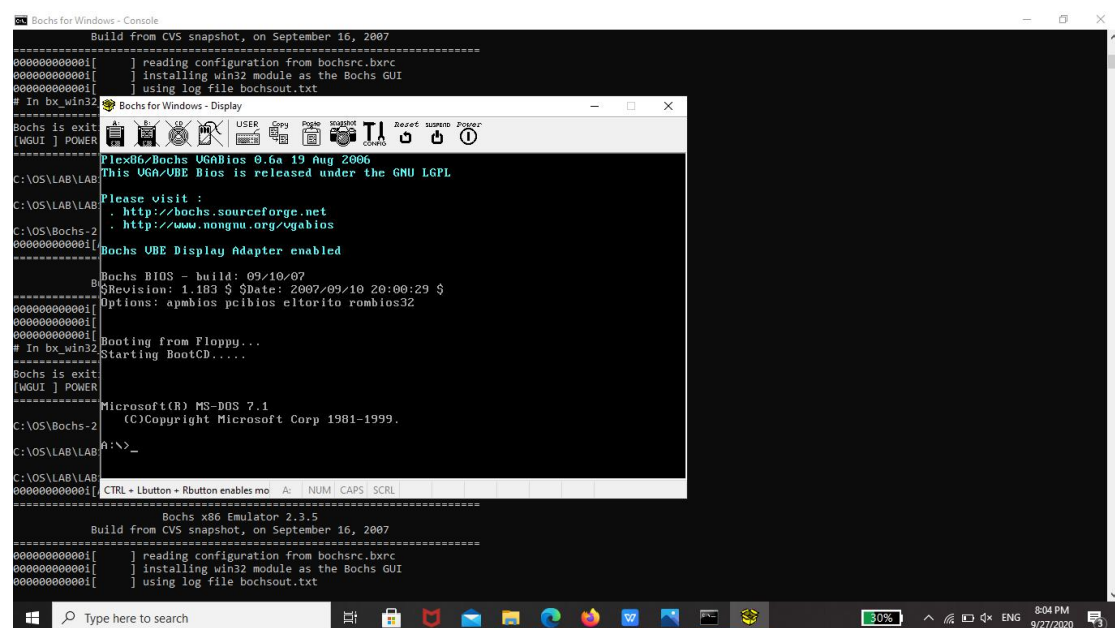
c:\OS\LAB\LAB1>
```

20. Panggil 'DosFp' . Masukkan perintah 'A:>format B:/S' lalu <ENTER>



```
Bochs for Windows - Console
Bochs for Windows - Display
MSCDEX Version 2.23
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.
Drive B: = Driver DSK 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 1029-1BF9
Format another (Y/N)?
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
```

21. Matikan PC-Simulator (klik tombol Power Off), ketik 'S'



```
Bochs for Windows - Console
Bochs for Windows - Display
Build from CVS snapshot, on September 16, 2007
000000000000[ ] reading configuration from bochsrc.bxrc
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] using log file bochsout.txt
# In bx_win32
Bochs is exit
[WGUI] POWER
C:\OS\LAB\LAB
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...
Starting BootCD....
Bochs is exit
[WGUI] POWER
Microsoft(R) MS-DOS 7.1
(C)Copyright Microsoft Corp 1981-1999.
C:\OS\Bochs-2
A:>_
C:\OS\LAB\LAB
000000000000[ ] reading configuration from bochsrc.bxrc
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] using log file bochsout.txt
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000000[ ] reading configuration from bochsrc.bxrc
000000000000[ ] installing win32 module as the Bochs GUI
000000000000[ ] using log file bochsout.txt
```