

**PRAKTIKUM SISTEM OPERASI
(E-UTS)**



Oleh:

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1. Buatlah file image floppy baru dengan menggunakan program aplikasi bximage.exe. Kemudian lanjutkan hingga menghasilkan output seperti di bawah ini!

```
Booting from Floppy...
Starting BootCD.....

Microsoft(R) MS-DOS 7.1
(C)Copyright Microsoft Corp 1981-1999.

A:\>_
```

Pertama, masuk ke drive C: dan masuk ke folder OS dengan mengetikan cd os, setpath untuk mengatur environment. Masuk ke cd lab dan cd lab1

```
Administrator: Command Prompt

Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Se7en_Pro>cd..
C:\Users>cd..
C:\>cd os
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>dir
Volume in drive C is 7_Professional
Volume Serial Number is ADB5-7A80

Directory of C:\OS\LAB\LAB1

11/19/2020 08:53 AM <DIR>      .
11/19/2020 08:53 AM <DIR>      ..
09/21/2020 07:52 PM          10,239 bochsout.txt
12/15/2008 04:17 PM           1,628 bochsrc.bxrc
12/14/2008 12:02 PM          14,365 boot.asm
11/19/2020 08:53 AM           512 boot.bin
09/16/2015 07:51 AM           512 boots.bin
12/15/2008 12:47 AM            78 dosfp.bat
11/19/2020 08:58 AM       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)          1,510,131 bytes
2 Dir(s)    11,375,730,688 bytes free
```

Lalu delete file "floppya.img", ketikan bximage isi disk image dengan "fp", sizanya dengan 1.44 dan namanya adalah floppya.img

```
Administrator: Command Prompt

C:\OS\LAB\LAB1>del floppya.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>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

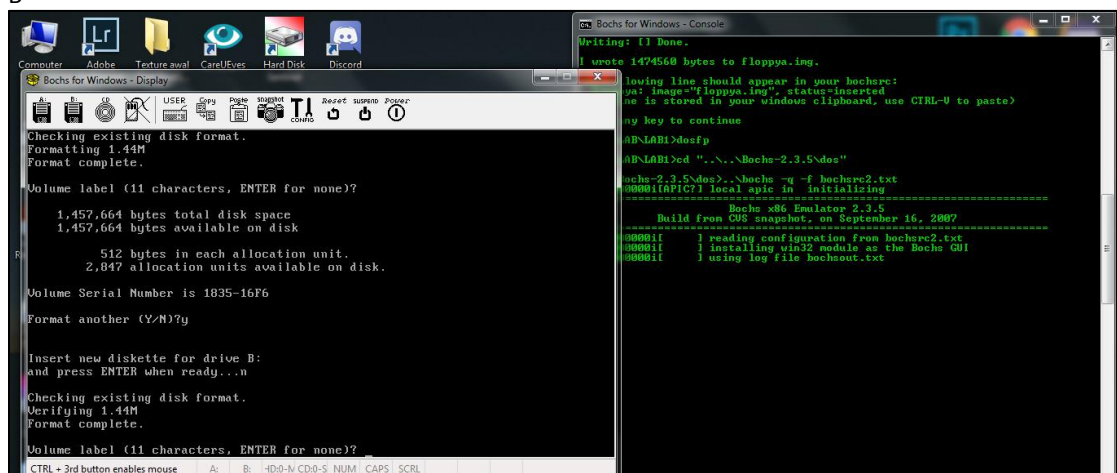
Writing: [ ] Done.

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-U to paste>

Press any key to continue
C:\OS\LAB\LAB1>
```

Setelah itu ketikan dosfp maka akan muncul layar "Bochs", ketikan Format B: untuk memformat drive B



Ketikan tdump boots.bin

```
Administrator: 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 ...e.....
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..U.
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...8M$>...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ~....f...!f;..W.
000080: 75 06 80 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u....U....s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1E ..>..F...f...F..U..
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 FC 89 56 FE B8 .F....v...F..U..
0000B0: 20 00 F7 E6 8B 5E 0B 03 C3 48 F7 F3 01 46 FC 11 .....^...H...F..
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....<.r>8-t.
0000D0: B1 0B BE D0 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....>....at=Nt...
0000E0: 3B FB 72 E7 EB DD FE 0E D8 7D 7B A7 BE 7F 7D AC ;r.....<...>..
0000F0: 98 03 F0 AC 98 40 74 0C 48 74 13 B4 0E BB 07 00 .....et.Ht.....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....>.....>..
000110: 5E 1F 66 8F 04 CD 19 BE 81 7D 8B 7D 1A 8D 45 FE ^f.....>..>..E.
000120: 8A 4E 0D F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..U.....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 10 91 r....p.RP.Sj.j...
000140: 8B 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 F6 42 .F..&....3.....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC B8 01 ...v.....
000160: 02 80 7E 02 0E 75 04 B4 42 8B F4 8A 56 24 CD 13 ..~..u..B...U$.
000170: 61 61 72 0A 40 75 01 42 03 5E 0B 49 75 77 C3 03 aar.Cu.B.^..luw..
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 6B 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 SVSM$DOS 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>
```

Setelah itu hapus kembali floppy.img dan masukan seperti awal tadi

```
Administrator: Command Prompt
C:\OS\LAB\LAB1>del floppy.img
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] floppy.img

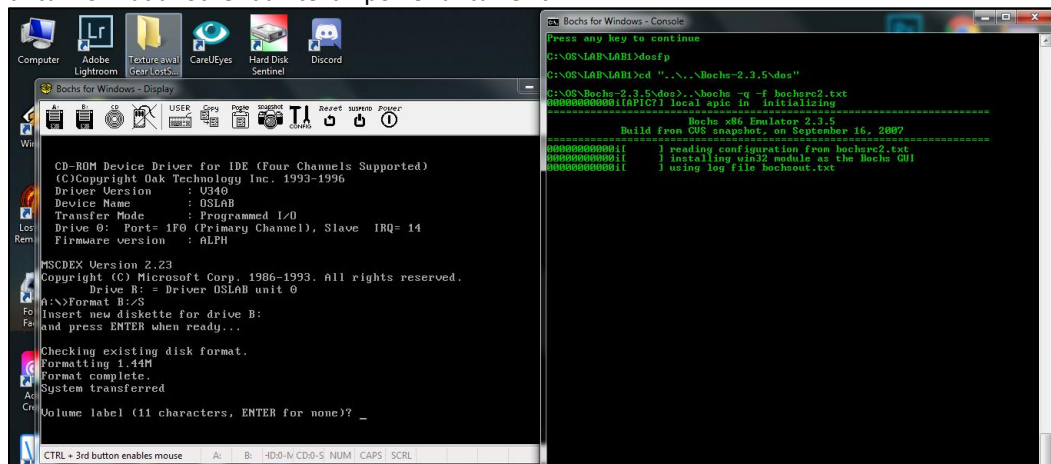
Writing: [ ] Done.

I wrote 1474560 bytes to floppy.img.

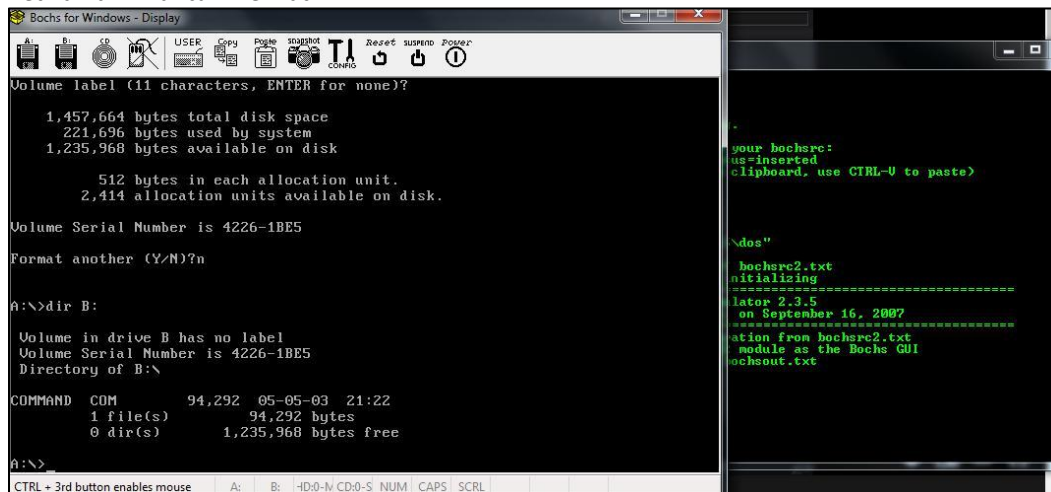
The following line should appear in your bochsrc:
  floppy: image="floppy.img", status=inserted
(The line is stored in your windows clipboard, use CTRL-U to paste)

Press any key to continue
C:\OS\LAB\LAB1>
```

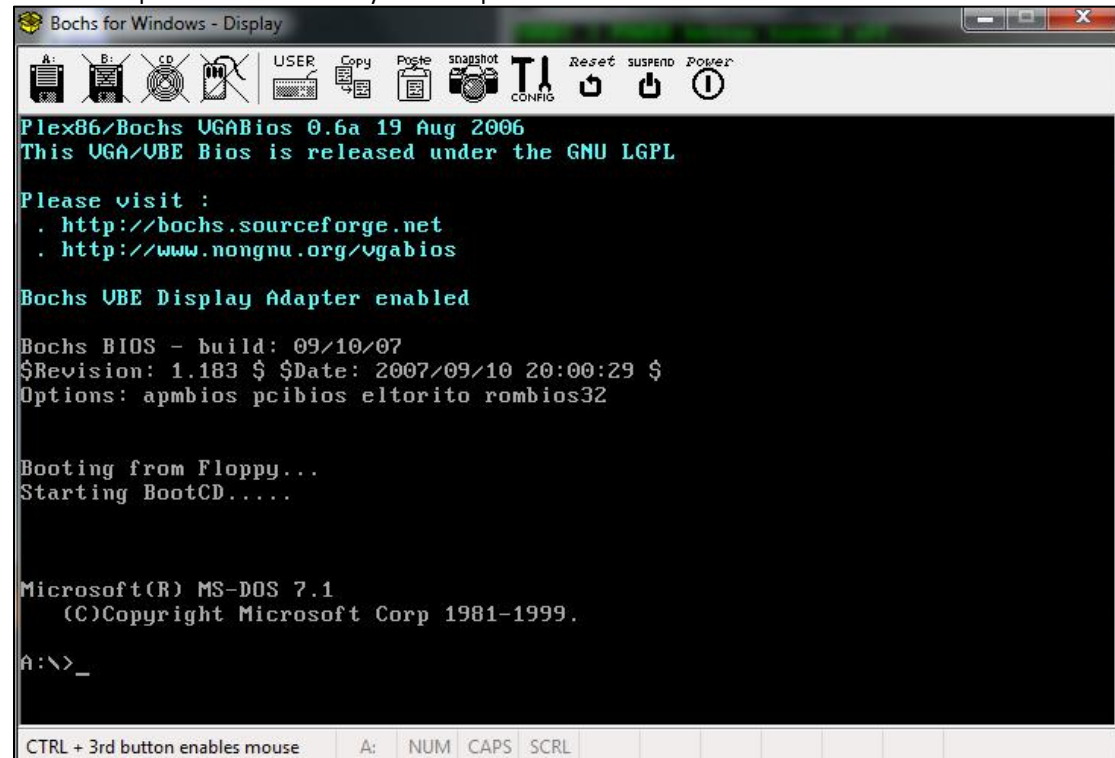
Setelah itu ketikan dosfp lagi dan ketikan Format B:/S di "Bochs". lalu tekan enter, dan ketikan "y" untuk format another dan tekan power untuk exit



Ketikan dir B: untuk melihat



Ketikan "s" pada CMD dan hasilnya akan seperti ini.



The screenshot shows a window titled "Bochs for Windows - Display". The window contains a text-based interface for a BIOS boot process. At the top, there is a toolbar with icons for A:, B:, CD, USER, Copy, Paste, snapshot, CONFIG, Reset, SUSPEND, and Power. The main text area displays the following information:

```
Plex86/Bochs UGABios 0.6a 19 Aug 2006
This UGA/VE 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

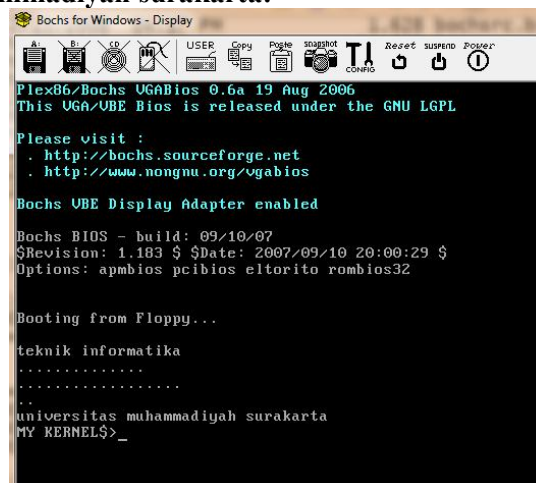
Booting from Floppy...
Starting BootCD.....

Microsoft(R) MS-DOS 7.1
(C)Copyright Microsoft Corp 1981-1999.

A:\>_
```

At the bottom of the window, there is a status bar that reads "CTRL + 3rd button enables mouse" and a row of buttons: A:, NUM, CAPS, SCRL, and several empty buttons.

2. Lakukan proses untuk mengubah file pada boot.asm dan kernel.asm sehingga muncul nama dan nimnya masing-masing dan paling bawah muncul tulisan universitas muhammadiyah surakarta!



The screenshot shows a window titled "Bochs for Windows - Display" with the same toolbar as the previous image. The main text area displays the following information:

```
Plex86/Bochs UGABios 0.6a 19 Aug 2006
This UGA/VE 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...

teknik informatika
.....
..
universitas muhammadiyah surakarta
MY KERNEL$>_
```


Pertama masuk ke drive C: dan masuk ke OS dan ketikan cd lab/lab2

```
Administrator: Command Prompt

Microsoft Windows [Version 6.1.7601]
Copyright (c) 2009 Microsoft Corporation. All rights reserved.

C:\Users\Se7en_Pro>cd C:/

C:\>cd os

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/lab2

C:\OS\LAB\LAB2>dir
Volume in drive C is 7_Professional
Volume Serial Number is ADB5-7A80

Directory of C:\OS\LAB\LAB2

09/28/2020  07:23 PM    <DIR>          .
09/28/2020  07:23 PM    <DIR>          ..
09/28/2020  07:34 PM             10,131 bochs.log
12/15/2008  04:18 PM             1,625 bochsrc.bxrc
09/28/2020  07:19 PM             15,933 boot.asm
09/28/2020  07:19 PM              512 boot.bin
12/15/2008  01:52 PM              78 dosfp.bat
09/28/2020  07:33 PM          1,474,560 floppy.a.img
09/28/2020  07:31 PM              7,971 kernel.asm
09/28/2020  07:31 PM              616 kernel.bin
12/15/2008  04:21 PM              228 Makefile
12/15/2008  12:20 PM              44 s.bat
               10 File(s)          1,511,698 bytes
               2 Dir(s)      11,283,075,072 bytes free
```

Ketikan bximage untuk menyiapkan floppy.a.img

```
Administrator: Command Prompt

C:\OS\LAB\LAB2>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] floppy.a.img

The disk image 'floppy.a.img' already exists.  Are you sure you want to replace i
t?
Please type yes or no. [no] yes

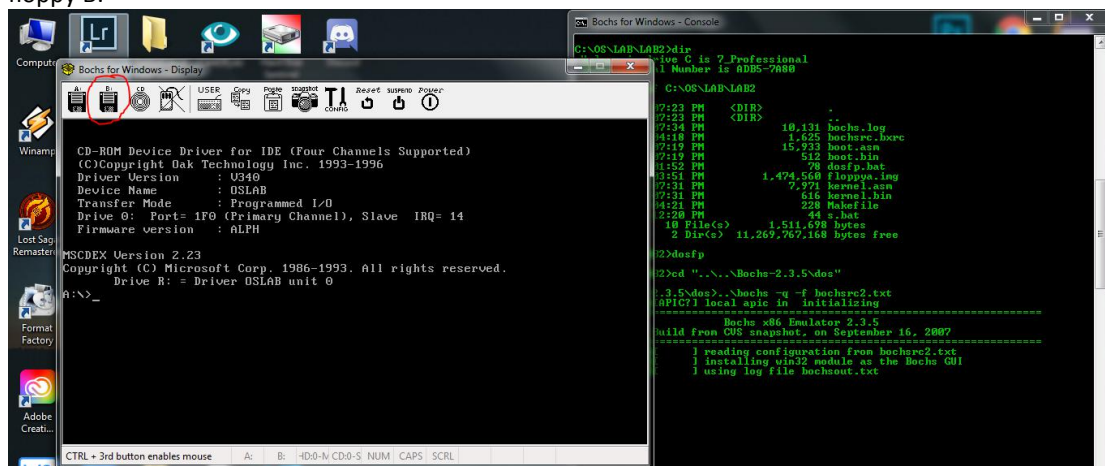
Writing: [ ] Done.

I wrote 1474560 bytes to floppy.a.img.

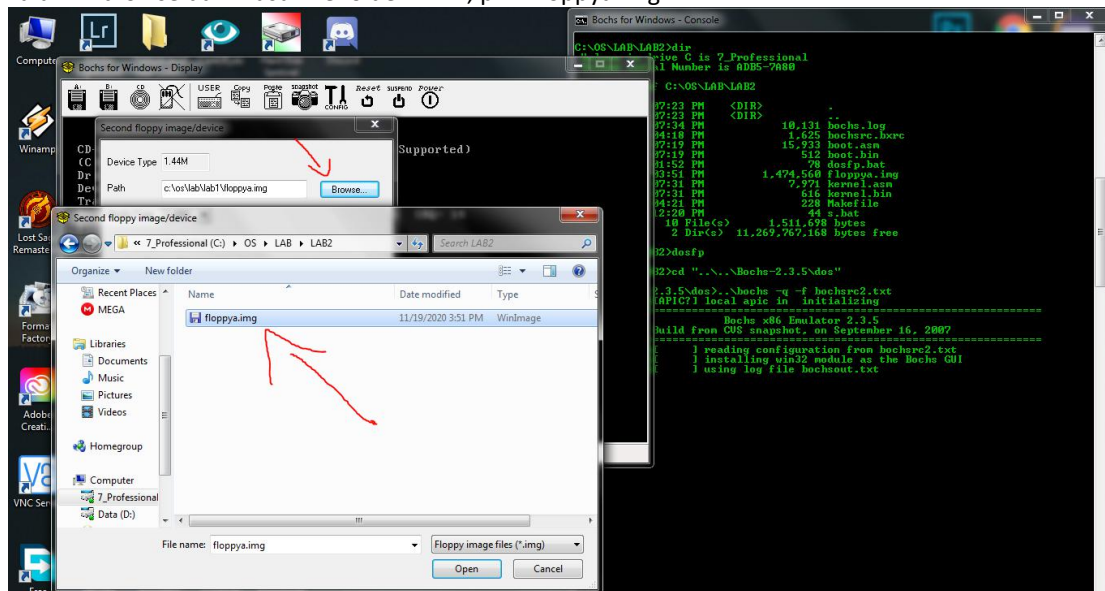
The following line should appear in your bochsrc:
  floppy.a: image="floppy.a.img", status=inserted
<The line is stored in your windows clipboard, use CTRL-U to paste>

Press any key to continue
```

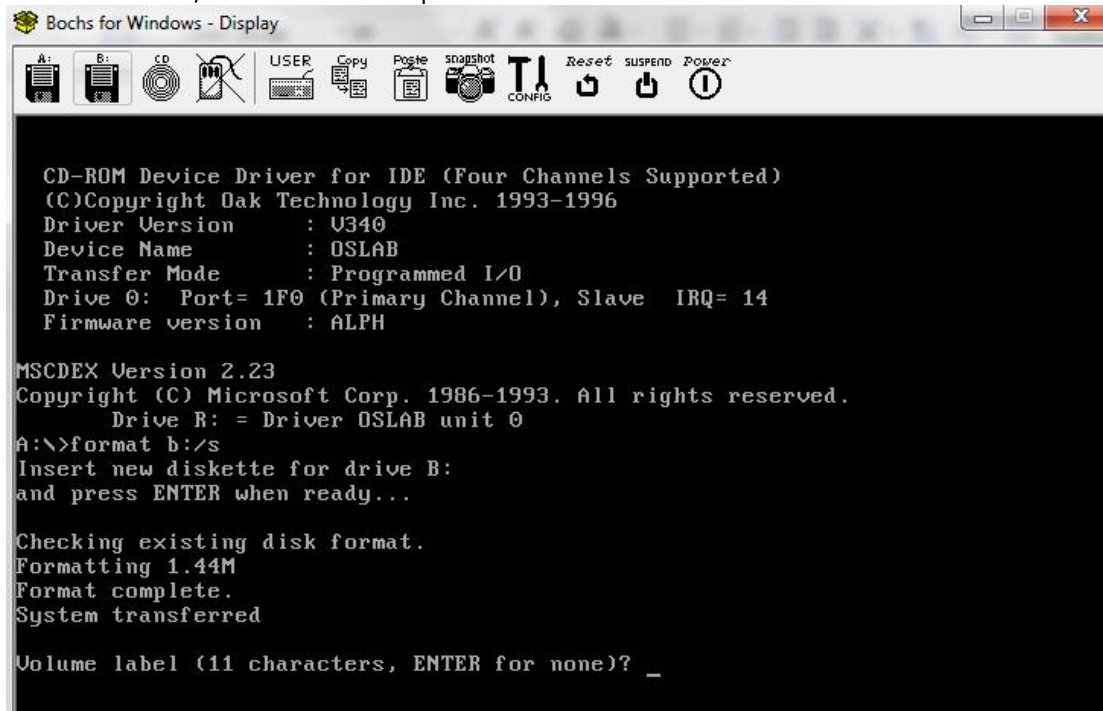
Lalu ketikan dir dan dosfp untuk masuk ke “Bochs” klik pada lingkaran merah untuk mengganti media floppy B:



Lalu klik browse dan masuk ke folder LAB2, pilih floppya.img



Ketikan format b:/s dan enter lalu klik power untuk keluar



The screenshot shows the Bochs for Windows - Display window. The top toolbar includes icons for A:, B:, CD, USER, Copy, Paste, snapshot, CONFIG, Reset, SUSPEND, and Power. The main text area displays the following information:

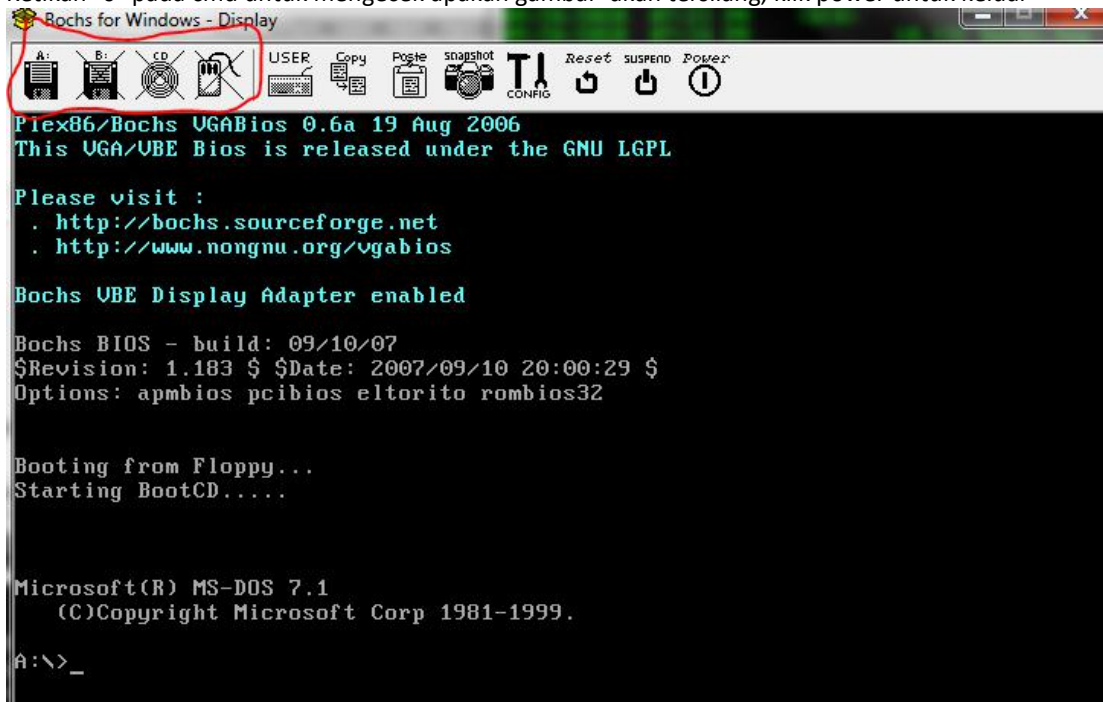
```
CD-ROM Device Driver for IDE (Four Channels Supported)
(C)Copyright Oak Technology Inc. 1993-1996
Driver Version      : U340
Device Name         : OSLAB
Transfer Mode       : Programmed I/O
Drive 0: Port= 1F0 (Primary Channel), Slave  IRQ= 14
Firmware version    : ALPH

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)? _
```

Ketikan "s" pada cmd untuk mengecek apakah gambar akan tersilang, klik power untuk keluar



The screenshot shows the Bochs for Windows - Display window. The top toolbar is the same as the previous image. The main text area displays the following information:

```
Plex86/Bochs VGABios 0.6a 19 Aug 2006
This VGA/VE Bios is released under the GNU LGPL

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

Bochs VBE Display Adapter enabled

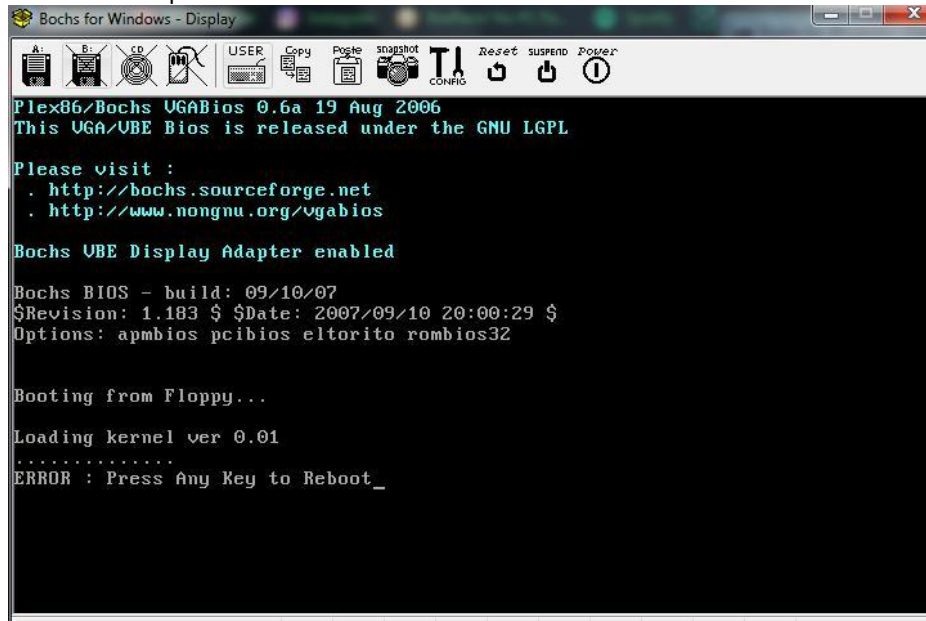
Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32

Booting from Floppy...
Starting BootCD.....

Microsoft(R) MS-DOS 7.1
(C)Copyright Microsoft Corp 1981-1999.

A:\>_
```

Ketikan make fp.disk dan "s".



The screenshot shows the Bochs for Windows - Display window. The title bar includes icons for A:, B:, CD, USER, Copy, Paste, Snapshot, CONFIG, Reset, Suspend, and Power. The main text area displays the following information:

```
Plex86/Bochs VGABios 0.6a 19 Aug 2006
This UGA/VE Bios is released under the GNU LGPL

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

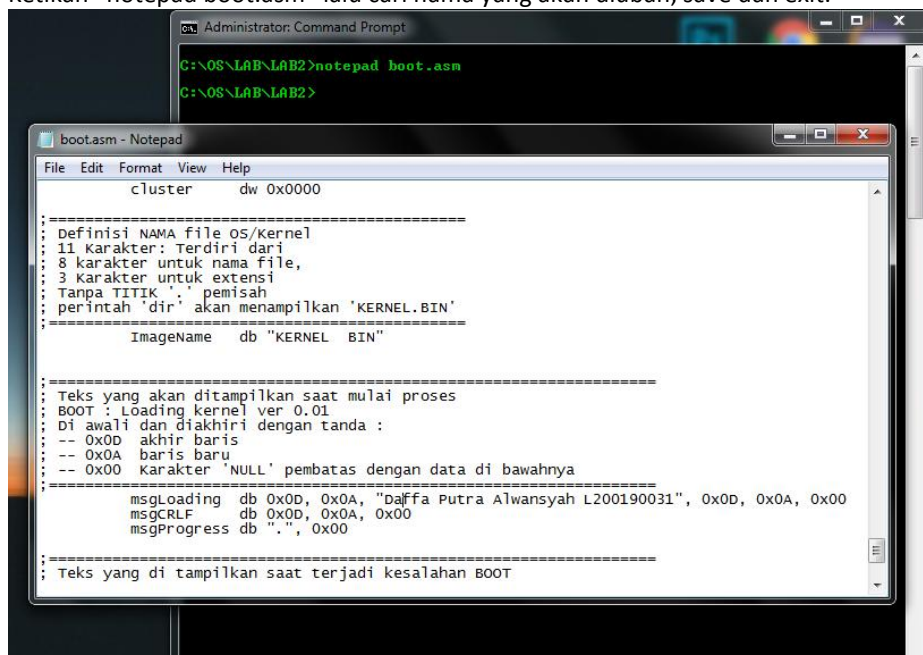
Bochs VBE Display Adapter enabled

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

Booting from Floppy...

Loading kernel ver 0.01
.....
ERROR : Press Any Key to Reboot_
```

Ketikan "notepad boot.asm" lalu cari nama yang akan diubah, save dan exit.



The screenshot shows a Windows XP desktop. In the background, an Administrator: Command Prompt window is open with the following commands:

```
C:\OS\LAB\LAB2>notepad boot.asm
C:\OS\LAB\LAB2>
```

In the foreground, a Notepad window titled "bootasm - Notepad" is open, showing the contents of the boot.asm file. The text in the Notepad window is as follows:

```
File Edit Format View Help
cluster dw 0x0000

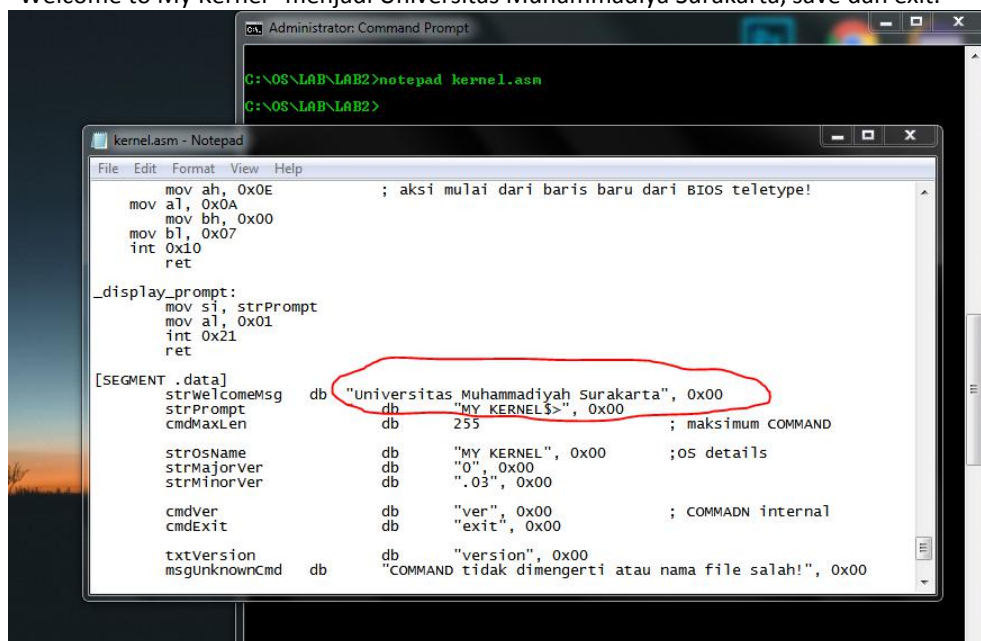
;=====
; Definisi NAMA file OS/kernel
; 11 Karakter: Terdiri dari
; 8 karakter untuk nama file,
; 3 karakter untuk ekstensi
; Tanpa TITIK '.' pemisah
; perintah 'dir' akan menampilkan 'KERNEL.BIN'
;=====
ImageName db "KERNEL BIN"

;=====
; Teks yang akan ditampilkan saat mulai proses
; BOOT : Loading kernel ver 0.01
; Diawali dan diakhiri dengan tanda :
; -- 0x0D akhir baris
; -- 0x0A baris baru
; -- 0x00 Karakter 'NULL' pembatas dengan data di bawahnya
;=====
msgLoading db 0x0D, 0x0A, "Daffa Putra Alwansyah L200190031", 0x0D, 0x0A, 0x00
msgCRLF db 0x0D, 0x0A, 0x00
msgProgress db ".", 0x00
;=====
; Teks yang di tampilkan saat terjadi kesalahan BOOT
```

Setelah itu ketikkan make kernel pada cmd dan Meninstal WinImage lalu buka "floppya.img" didalam Lab2. Setelah itu masukan Kernel.bin kedalam "floppya.img" lalu save & exit.



Langkah selanjutnya dengan memodifikasi kernel dengan membuka kernel.asm, dengan mengubah "Welcome to My Kernel" menjadi Universitas Muhammadiyah Surakarta, save dan exit.



Setelah itu ketikan “s” pada cmd dan hasilnya akan seperti berikut.

```

Bochs for Windows - Display
Plex86/Bochs VGABios 0.6a 19 Aug 2006
This VGA/VE 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...

Daffa Putra Alwansyah L200190031
.....
..
Universitas Muhammadiyah Surakarta
MY KERNEL$>_

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

```

3. Program kernel.bin akan terjadi pada alamat '0100:0000'. Lakukanlah break-point pada alamat tersebut(Lakukan dari t=2945013 sampai t=2945020).

Masuk ke cd lab/lab3 dan ketikan type s.bat

```

Administrator: Command Prompt
C:\OS>cd lab/lab3
C:\OS\LAB\LAB3>type s.bat
..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
C:\OS\LAB\LAB3>

```

Ketikan “s” untuk melihat alamat awal dan memulai debugging.

```

C:\OS\LAB\LAB3>s
C:\OS\LAB\LAB3>..\..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
00000000000i[APIC?] 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 bochs.log
Next at t=0
<0> [0xffffffff] f000:fff0 <unk. ctxt>: jmp far f000:e05b      ; ea5be000f0
<bochs:1>

```


Langsung ke alamat 0100:0000 dengan ketik vb 0x100:0x0000 untuk breakpoint, lalu ketik "c" dan "s" sampai ke t = 2945020.

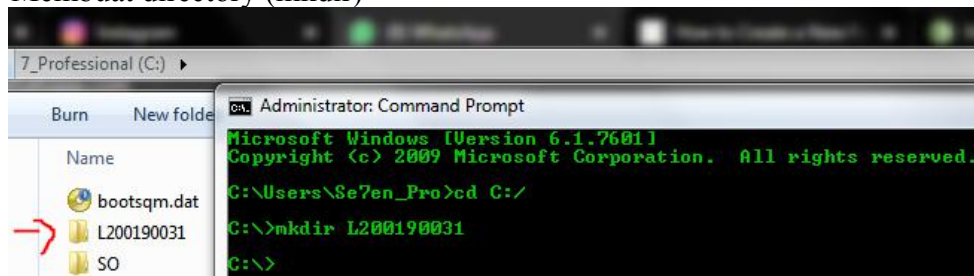
```

Next at t=0
<0> [0xffffffff] f000:fff0 <unk. ctxt>: jmp far f000:e05b ; ea5be00
<bochs:1> vb 0x100:0x0000
<bochs:2> s
Next at t=1
<0> [0x000fe05b] f000:e05b <unk. ctxt>: xor ax, ax ; 31c0
<bochs:3> c
<0> Breakpoint 2683464, in 0100:0000 <0x00001000>
Next at t=2945013
<0> [0x00001000] 0100:0000 <unk. ctxt>: mov ax, 0x0100 ; b80001
<bochs:4> s
Next at t=2945014
<0> [0x00001003] 0100:0003 <unk. ctxt>: mov ds, ax ; 8ed8
<bochs:5> s
Next at t=2945015
<0> [0x00001005] 0100:0005 <unk. ctxt>: mov es, ax ; 8ec0
<bochs:6> s
Next at t=2945016
<0> [0x00001007] 0100:0007 <unk. ctxt>: cli ; fa
<bochs:7> s
Next at t=2945017
<0> [0x00001008] 0100:0008 <unk. ctxt>: mov ss, ax ; 8ed0
<bochs:8> s
Next at t=2945018
<0> [0x0000100a] 0100:000a <unk. ctxt>: mov sp, 0xffff ; bcffff
<bochs:9> s
Next at t=2945019
<0> [0x0000100d] 0100:000d <unk. ctxt>: sti ; fb
<bochs:10> s
Next at t=2945020
<0> [0x0000100e] 0100:000e <unk. ctxt>: push dx ; 52

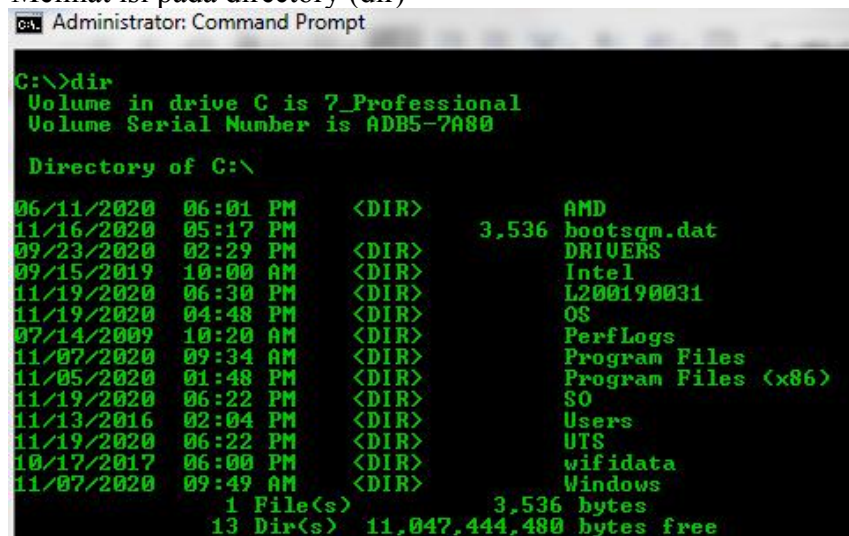
```

4. Dengan menggunakan cmd perintah apa yang digunakan untuk:

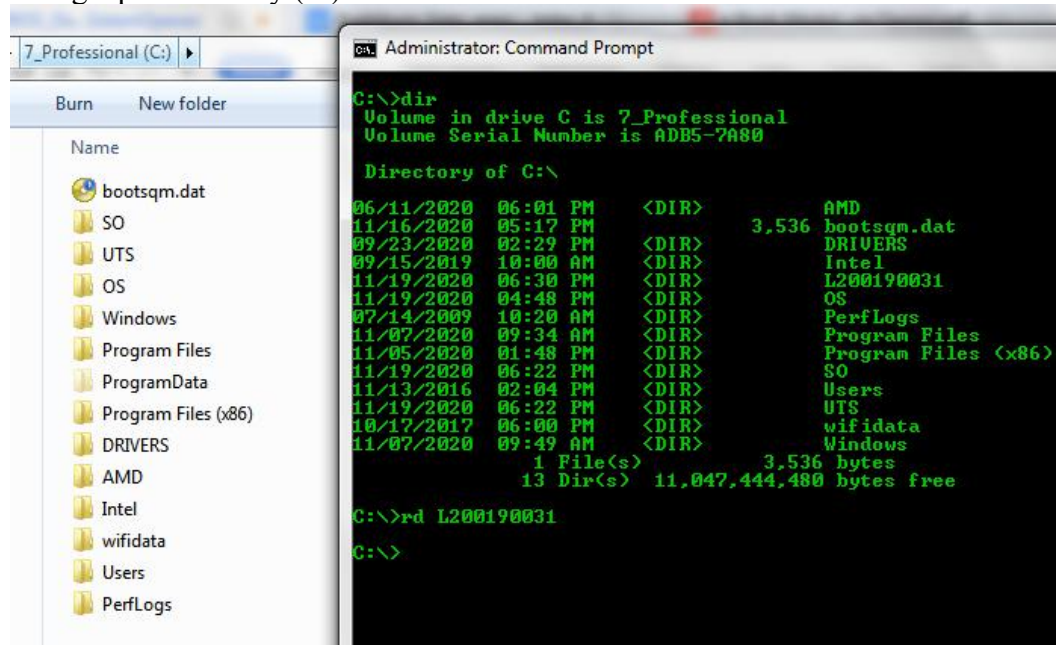
- a) Membuat directory (mkdir)



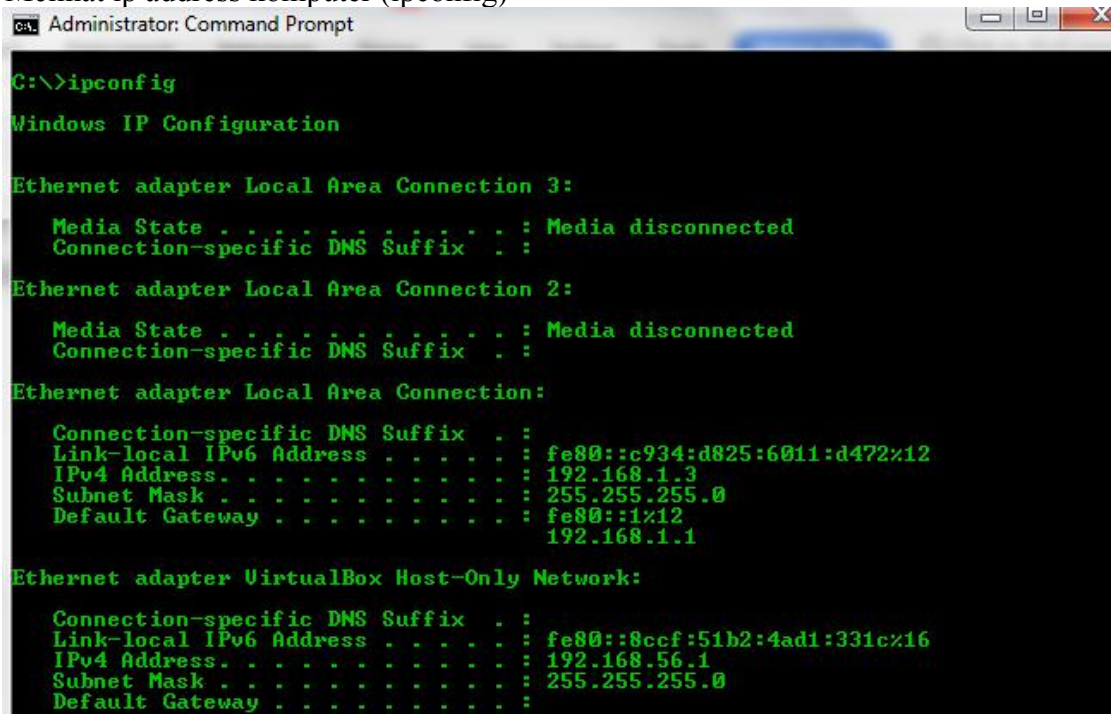
- b) Melihat isi pada directory (dir)



- c) Menghapus directory (rd)



- d) Melihat ip address komputer (ipconfig)



- e) Melihat calendar (date /t)



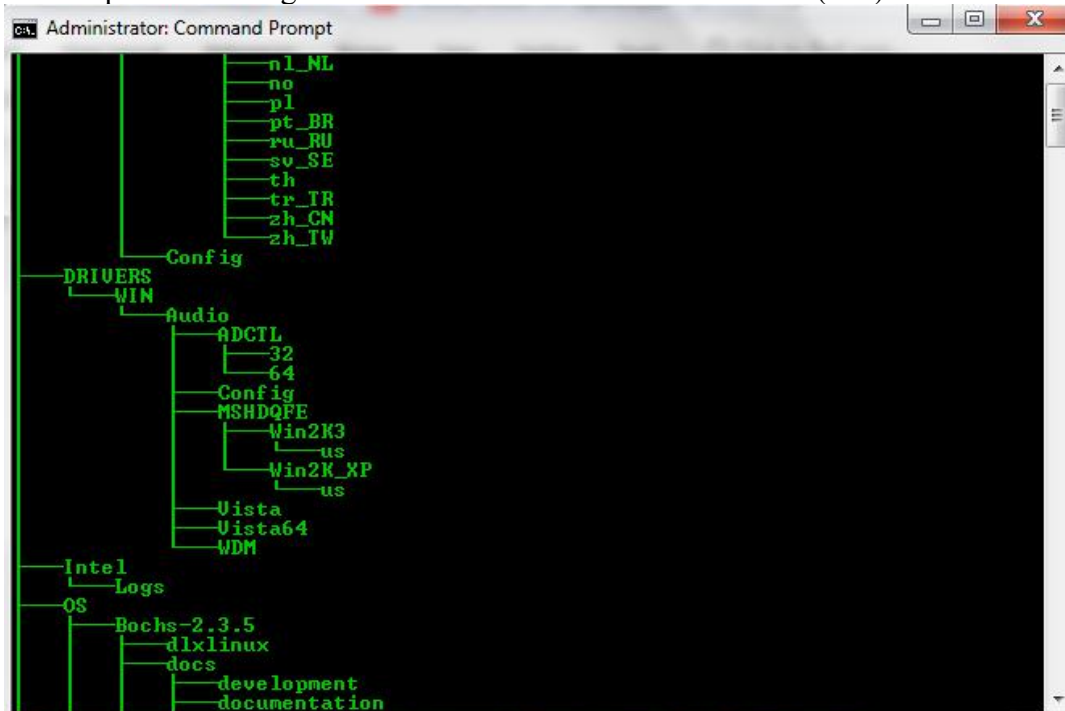
- f) Melihat versi windows yang digunakan (ver)



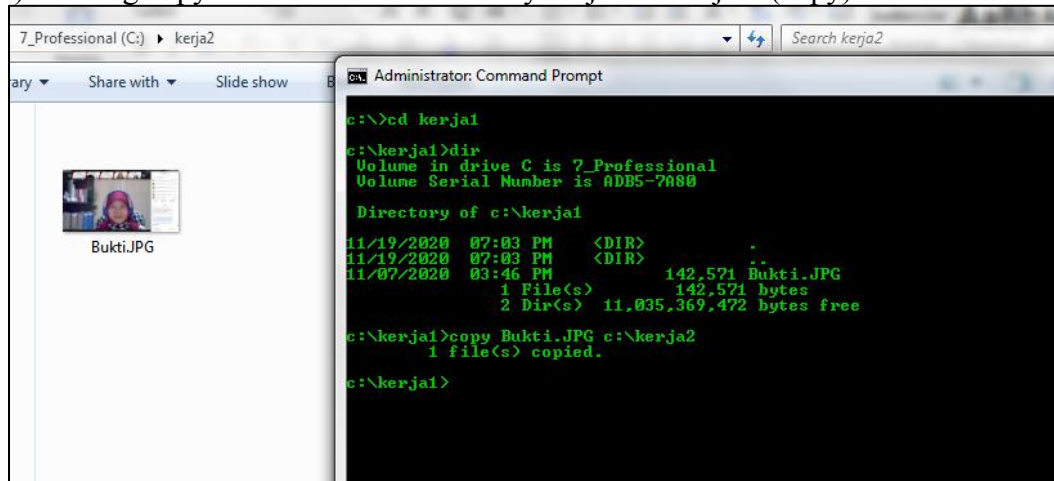
- g) Menyediakan informasi bantuan untuk perintah-perintah windows (help)

```
C:\>help
For more information on a specific command, type HELP command-name
ASSOC      Displays or modifies file extension associations.
ATTRIB     Displays or changes file attributes.
BREAK      Sets or clears extended CTRL+C checking.
BCDEDIT     Sets properties in boot database to control boot loading.
CACLS      Displays or modifies access control lists (ACLs) of files.
CALL       Calls one batch program from another.
CD          Displays the name of or changes the current directory.
CHCP       Displays or sets the active code page number.
CHDIR      Displays the name of or changes the current directory.
CHKDSK     Checks a disk and displays a status report.
CHKNTFS    Displays or modifies the checking of disk at boot time.
CLS        Clears the screen.
CMD        Starts a new instance of the Windows command interpreter.
COLOR      Sets the default console foreground and background colors.
COMP       Compares the contents of two files or sets of files.
COMPACT    Displays or alters the compression of files on NTFS partitions.
CONVERT    Converts FAT volumes to NTFS. You cannot convert the
           current drive.
COPY       Copies one or more files to another location.
DATE       Displays or sets the date.
DEL        Deletes one or more files.
DIR        Displays a list of files and subdirectories in a directory.
DISKCOMP   Compares the contents of two floppy disks.
DISKCOPY   Copies the contents of one floppy disk to another.
DISKPART   Displays or configures Disk Partition properties.
DOSKEY     Edits command lines, recalls Windows commands, and
           creates macros.
DRIVERQUERY Displays current device driver status and properties.
ECHO       Displays messages, or turns command echoing on or off.
ENDLOCAL   Ends localization of environment changes in a batch file.
```

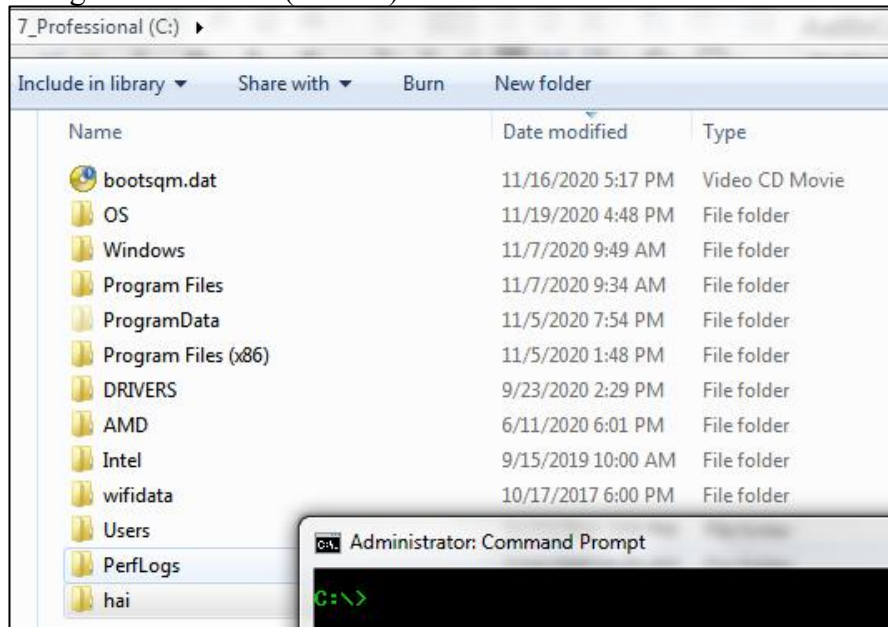
- h) Menampilkan secara grafis struktur direktori dari sebuah drive (tree)

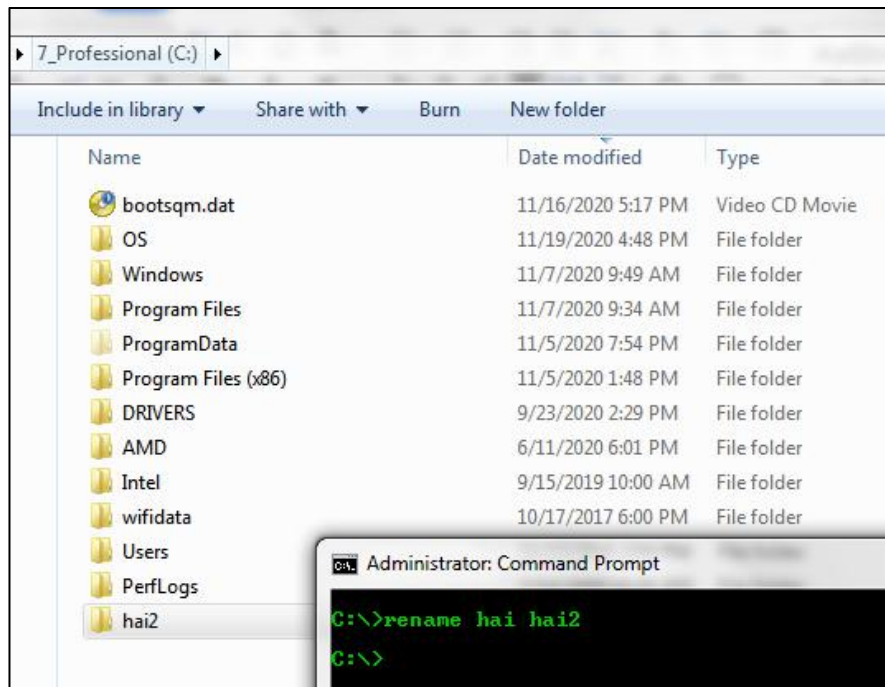


i) Meng copy sebuah file dari direktory kerja1 ke kerja 2 (copy)



j) Mengubah nama file (rename)





5. Dengan menggunakan terminal pada linux apakah perintah untuk:

- a) Menampilkan kalimat “ UNIVERSITAS MUHAMMADAIYAH SURAKARTA” (echo)

```

bodhi@bodhi-VirtualBox: ~
bodhi@bodhi-VirtualBox:~$ echo "UNIVERSITAS MUHAMMADIYAH SURAKARTA"
UNIVERSITAS MUHAMMADIYAH SURAKARTA
bodhi@bodhi-VirtualBox:~$ 

```

- b) Mengetahui siapa yang sedang login pada saat itu (who)

```

bodhi@bodhi-VirtualBox: ~
bodhi@bodhi-VirtualBox:~$ who
bodhi    tty7        2020-11-19 19:10 (:0)
bodhi@bodhi-VirtualBox:~$ 

```

- c) Mengetahui ip address pada jaringan (ip addr show)

```

bodhi@bodhi-VirtualBox: ~
bodhi@bodhi-VirtualBox:~$ ip addr show
1: lo: <LOOPBACK,UP,LOWER_UP> mtu 65536 qdisc noqueue state UNKNOWN group default qlen 1000
    link/loopback 00:00:00:00:00:00 brd 00:00:00:00:00:00
    inet 127.0.0.1/8 scope host lo
        valid_lft forever preferred_lft forever
    inet6 ::1/128 scope host
        valid_lft forever preferred_lft forever
2: enp0s3: <BROADCAST,MULTICAST,UP,LOWER_UP> mtu 1500 qdisc fq_codel state UP group default qlen 1000
    link/ether 08:00:27:1f:c0:99 brd ff:ff:ff:ff:ff:ff
    inet 192.168.1.11/24 brd 192.168.1.255 scope global dynamic noprefixroute enp0s3
        valid_lft 85573sec preferred_lft 85573sec
    inet6 fe80::4c02:7ae5:2dc:7cb0/64 scope link noprefixroute
        valid_lft forever preferred_lft forever
bodhi@bodhi-VirtualBox:~$ 

```

- d) Menampilkan nama komputer (hostname)

```
bodhi@bodhi-VirtualBox: ~  
bodhi@bodhi-VirtualBox:~$ hostname  
bodhi-VirtualBox  
bodhi@bodhi-VirtualBox:~$
```

- e) Menampilkan kalender agustus 2010 (cal agustus 2010)

```
bodhi@bodhi-VirtualBox: ~  
bodhi@bodhi-VirtualBox:~$ cal agustus 2010  
    Agustus 2010  
Mo Tu We Th Fr Sa Su  
 1  2  3  4  5  6  7  
 8  9 10 11 12 13 14  
15 16 17 18 19 20 21  
22 23 24 25 26 27 28  
29 30 31
```

- f) Menampilkan history perintah (history)

```
bodhi@bodhi-VirtualBox: ~  
bodhi@bodhi-VirtualBox:~$ history  
 1 dafyourbae  
 2 sudo apt update && sudo apt dist-upgrade  
 3 login  
 4 root  
 5 passwd  
 6 login  
 7 login dafyourbae  
 8 root  
 9 cat /etc/passwd  
10 clear  
11 who  
12 root bodhi  
13 login bodhi  
14 w  
15 clear  
16 who  
17 sudo su  
18 halt  
19 finger root  
20 reboot  
21 sudo su  
22 cat /etc/os-release  
23 pwd
```

- g) Menampilkan kalender tahun 2017 (cal 2017)

```
bodhi@bodhi-VirtualBox: ~  
bodhi@bodhi-VirtualBox:~$ cal 2017  
2017  
      Januari          Februari          Maret  
Mi Se Se Ra Ka Ju Sa Mi Se Se Ra Ka Ju Sa Mi Se Se Ra Ka Ju Sa  
 1  2  3  4  5  6  7      1  2  3  4      1  2  3  4  
 8  9 10 11 12 13 14    5  6  7  8  9 10 11    5  6  7  8  9 10 11  
15 16 17 18 19 20 21   12 13 14 15 16 17 18   12 13 14 15 16 17 18  
22 23 24 25 26 27 28   19 20 21 22 23 24 25   19 20 21 22 23 24 25  
29 30 31              26 27 28              26 27 28 29 30 31  
  
      April           Mei           Juni  
Mi Se Se Ra Ka Ju Sa Mi Se Se Ra Ka Ju Sa Mi Se Se Ra Ka Ju Sa  
      1      1  2  3  4  5  6      1  2  3  
 2  3  4  5  6  7  8    7  8  9 10 11 12 13    4  5  6  7  8  9 10  
 9 10 11 12 13 14 15   14 15 16 17 18 19 20   11 12 13 14 15 16 17  
16 17 18 19 20 21 22   21 22 23 24 25 26 27   18 19 20 21 22 23 24  
23 24 25 26 27 28 29   28 29 30 31           25 26 27 28 29 30  
30  
  
      Juli           Agustus          September  
Mi Se Se Ra Ka Ju Sa Mi Se Se Ra Ka Ju Sa Mi Se Se Ra Ka Ju Sa  
      1      1  2  3  4  5      1  2  
 2  3  4  5  6  7  8    6  7  8  9 10 11 12    3  4  5  6  7  8  9
```

- h) Menampilkan partisi hardisk (fdisk -l)

```
root@bodhi-VirtualBox: /home/bodhi  
bodhi@bodhi-VirtualBox:~$ sudo su  
root@bodhi-VirtualBox:/home/bodhi# fdisk -l  
Disk /dev/sda: 20 GiB, 21474836480 bytes, 41943040 sectors  
Units: sectors of 1 * 512 = 512 bytes  
Sector size (logical/physical): 512 bytes / 512 bytes  
I/O size (minimum/optimal): 512 bytes / 512 bytes  
Disklabel type: dos  
Disk identifier: 0x3e86b5a2  
  
Device      Boot Start      End  Sectors  Size Id Type  
/dev/sda1   *      2048 41940991 41938944  20G 83 Linux  
root@bodhi-VirtualBox:/home/bodhi#
```

- i) Menampilkan hasil penjumlahan 20 (echo \$((10+10)))

```
root@bodhi-VirtualBox: /home/bodhi  
root@bodhi-VirtualBox:/home/bodhi# echo $((10+10))  
20  
root@bodhi-VirtualBox:/home/bodhi#
```

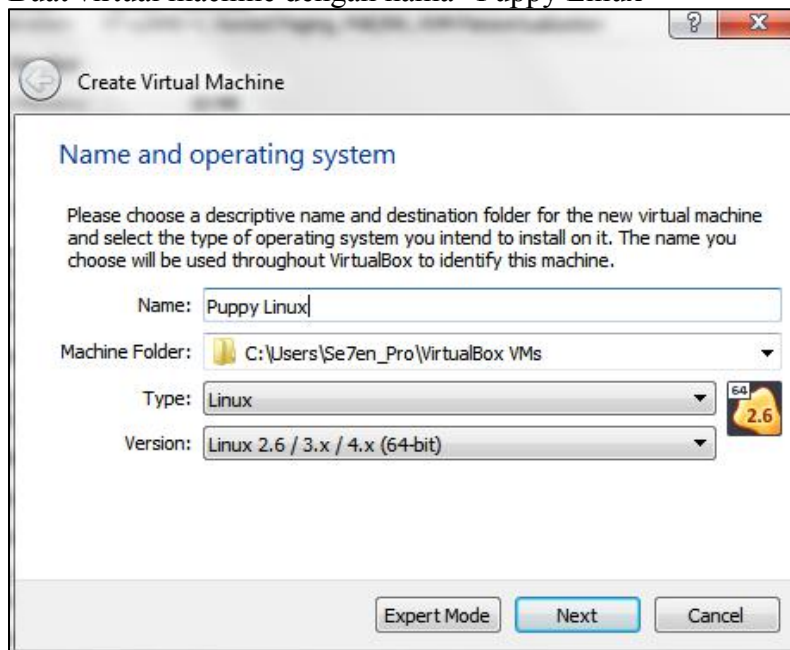
- j) Menampilkan isi direktory dengan lengkap (ls)

```
root@bodhi-VirtualBox: /home/bodhi  
root@bodhi-VirtualBox:/home/bodhi# ls  
Desktop Documents Downloads Music Pictures Public Templates Videos  
root@bodhi-VirtualBox:/home/bodhi#
```

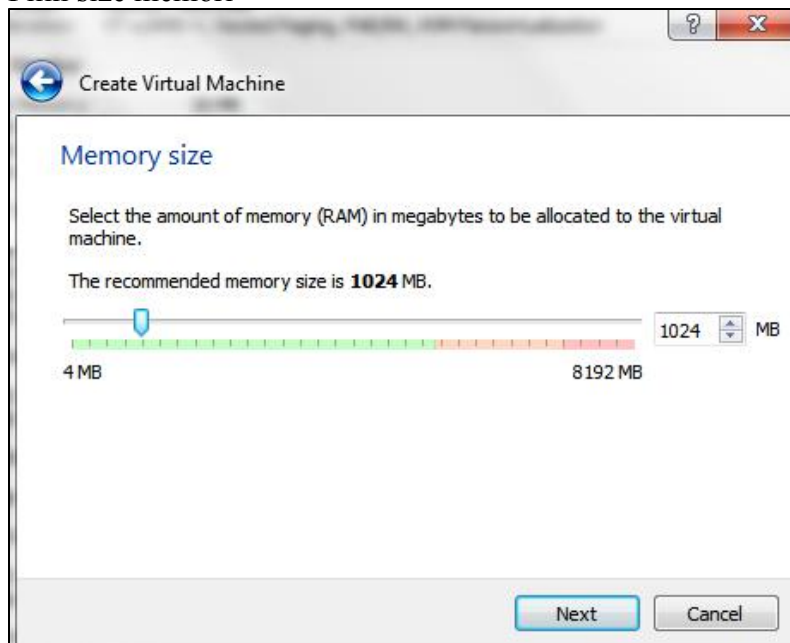
6. Lakukan instalasai distro linux dibawah ini! (NIM : L200190031 (Ganjil))

A. Puppy linux (nim ganjil)

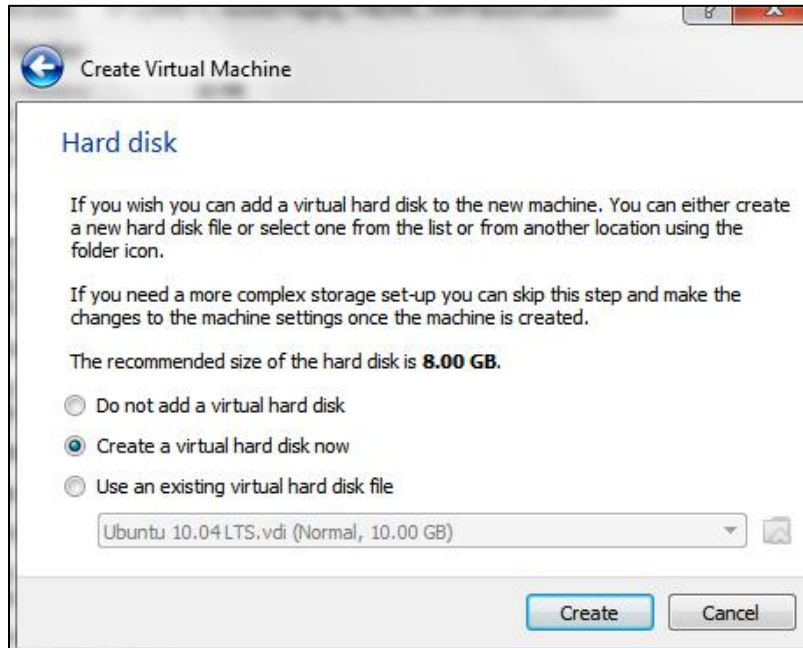
Buat virtual machine dengan nama “Puppy Linux”



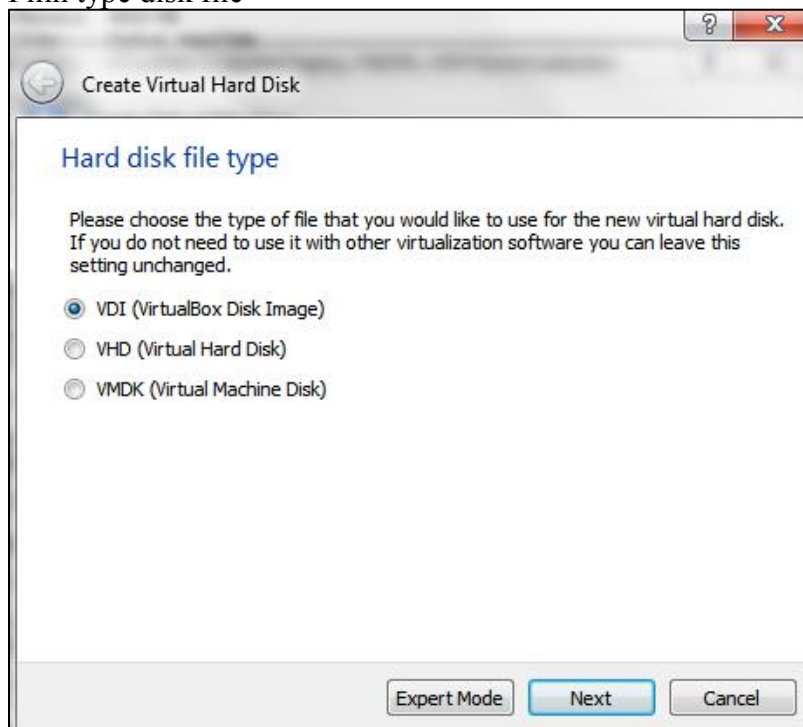
Pilih size memori



Buat haddisk virtual



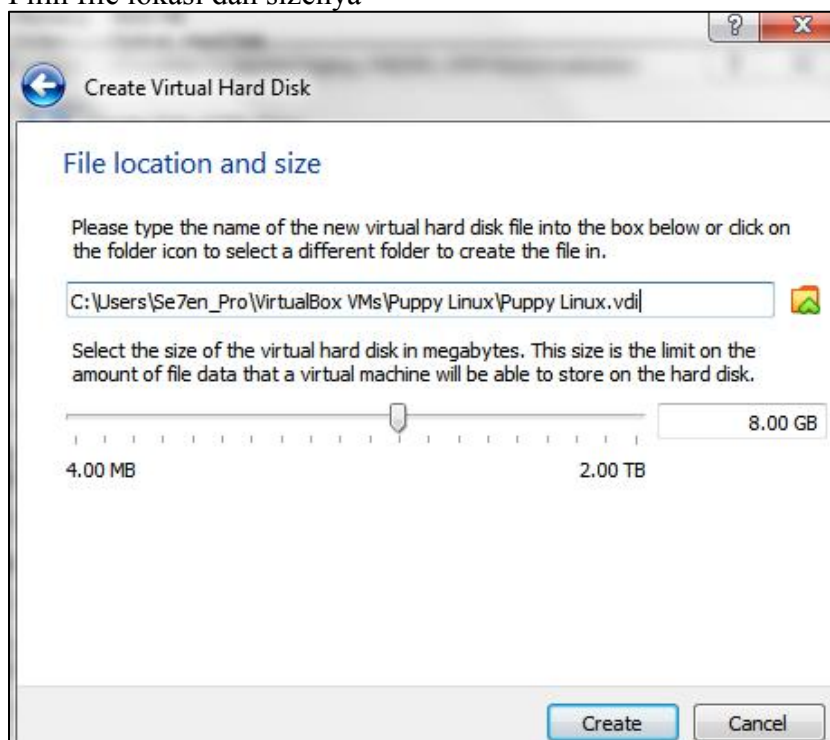
Pilih type disk file



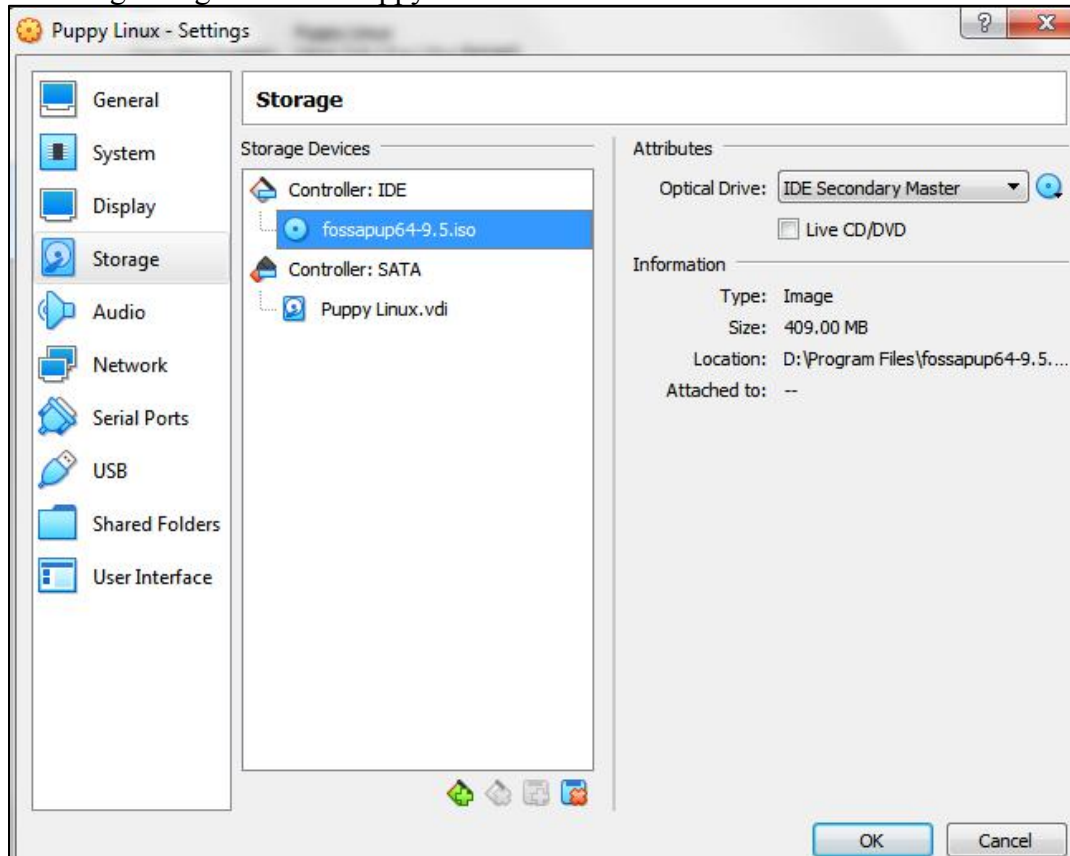
Pilih dynamically allocated



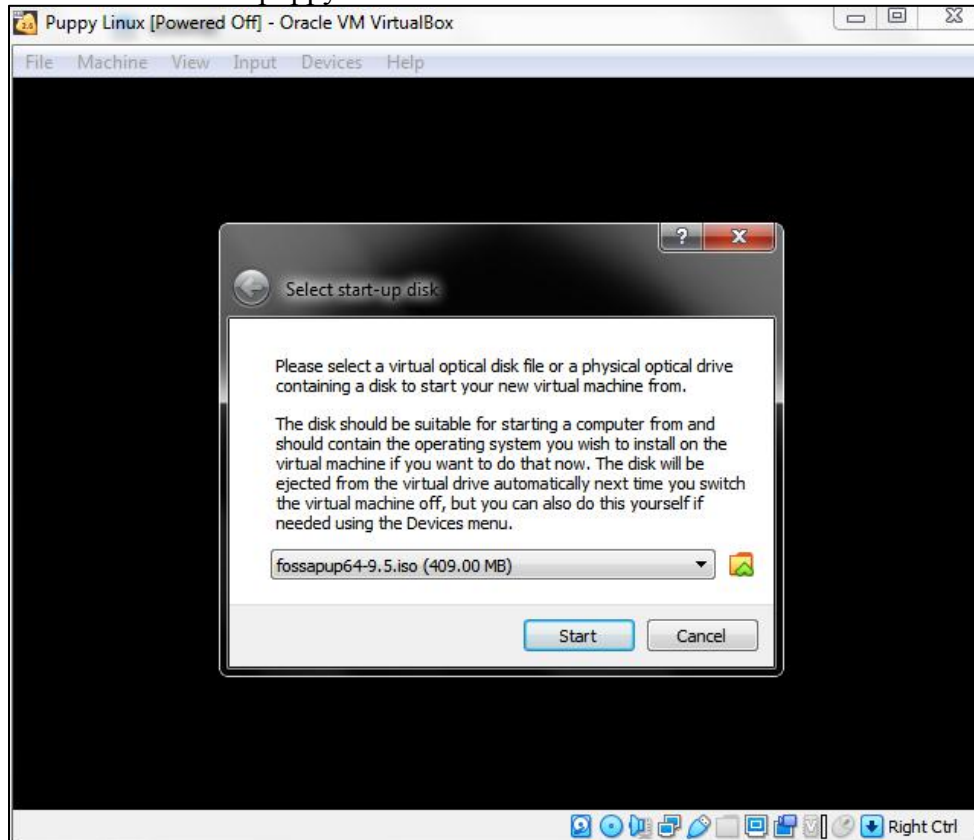
Pilih file lokasi dan sizenya



Isi storage dengan file iso Puppy linux



Pilih sesuai file iso puppy linux



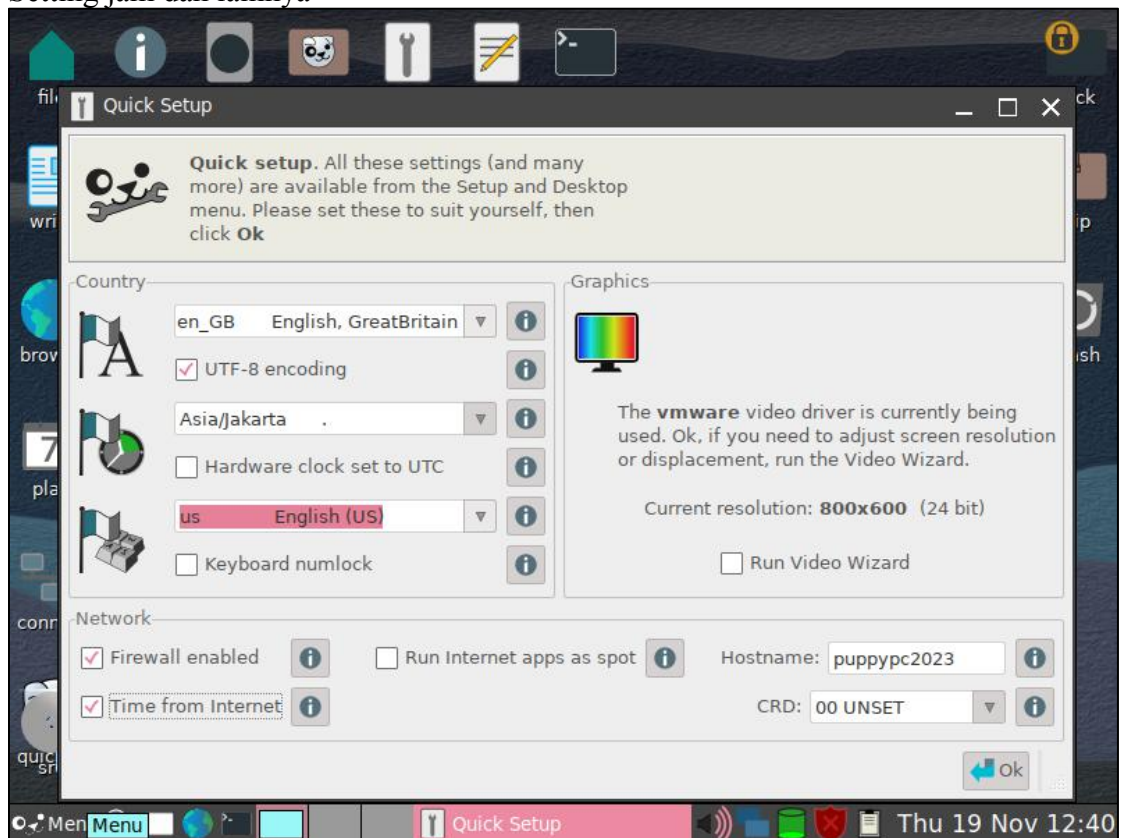
Pilih fossapup64 9.5



Tunggu hingga selesai

```
*** fossapup64 9.5 - Linux 5.4.53 [x86_64] ***
Loading the 'puppy_fossapup64_9.5.sfs' main file...
Loading the 'fdrv_fossapup64_9.5.sfs' fdrv file...
Loading the 'zdrv_fossapup64_9.5.sfs' zdrv file...
Loading the 'adrv_fossapup64_9.5.sfs' adrv file...
Performing a 'switch_root' to the layered filesystem...
Making the filesystem usable...
```

Setting jam dan lainnya



Puppy Linux siap dioperasikan

