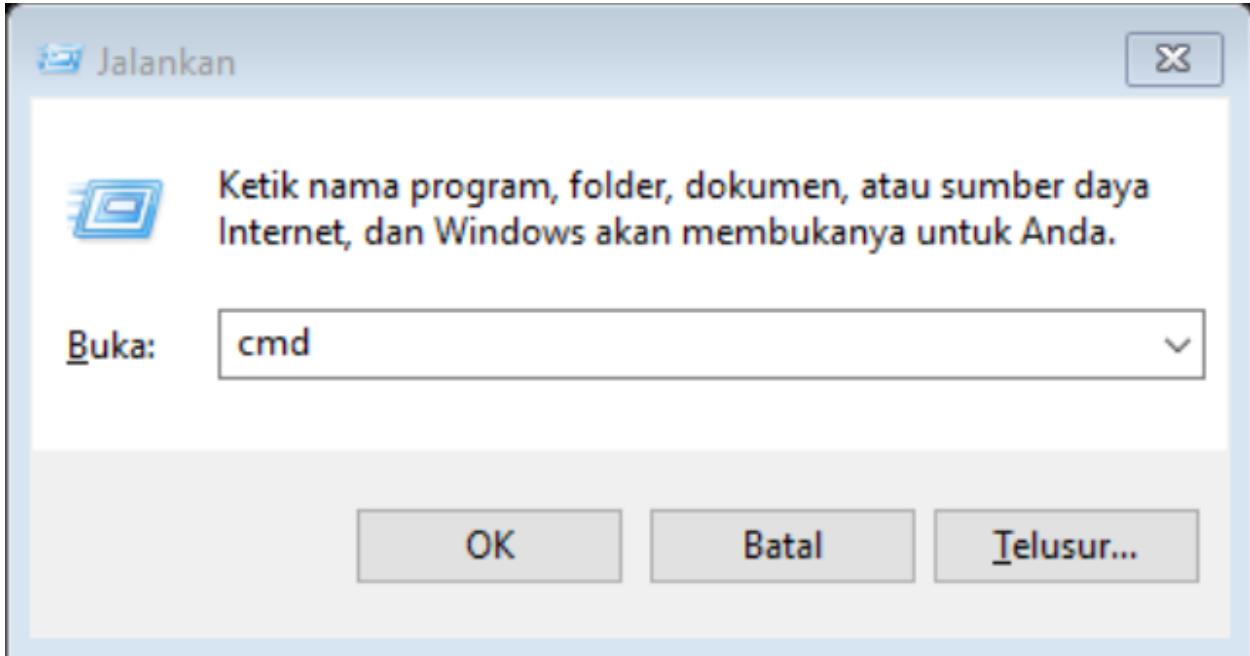


LAPORAN PRAKTIKUM SISTEM OPERASI

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Kelas E

MODUL 1

1. MENUJU KE DIREKTORI KERJA



Menjalankan program Command Prompt dengan menekan tombol Start + R lalu mengetikkan "cmd" lalu klik ok.

```
C:\WINDOWS\system32\cmd.exe
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Hp>cd os
The system cannot find the path specified.

C:\Users\Hp>cd c:\

c:\>cd os\

c:\OS>dir
 Volume in drive C has no label.
 Volume Serial Number is 3E4D-4894

 Directory of c:\OS

20/09/2017 15.23 <DIR> .
20/09/2017 15.23 <DIR> ..
20/09/2017 15.23 <DIR> Bochs-2.3.5
12/09/2016 05.33 0 bximage
20/09/2017 15.23 <DIR> Dev-Cpp
17/12/2008 07.08 1.096.291 i386.pdf
20/09/2017 15.24 <DIR> LAB
17/12/2008 07.07 846.920 pcasm-book.pdf
17/12/2008 08.44 86 Setpath.bat
13/12/2008 21.12 716.512 winima81.exe
      5 File(s)   2.659.809 bytes
      5 Dir(s)  61.289.459.712 bytes free

c:\OS>
```

Masuk ke direktori kerja 'C:\OS' dengan mengetikkan 'cd c:\' lalu 'cd os'. Lalu ketikkan dir untuk melihat isi direktori didalam folder 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>type setpath.bat
Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;C:\Windows;C:\Windows\System32
```

setpath.bat digunakan untuk mengatur lingkungan kerja ('path').

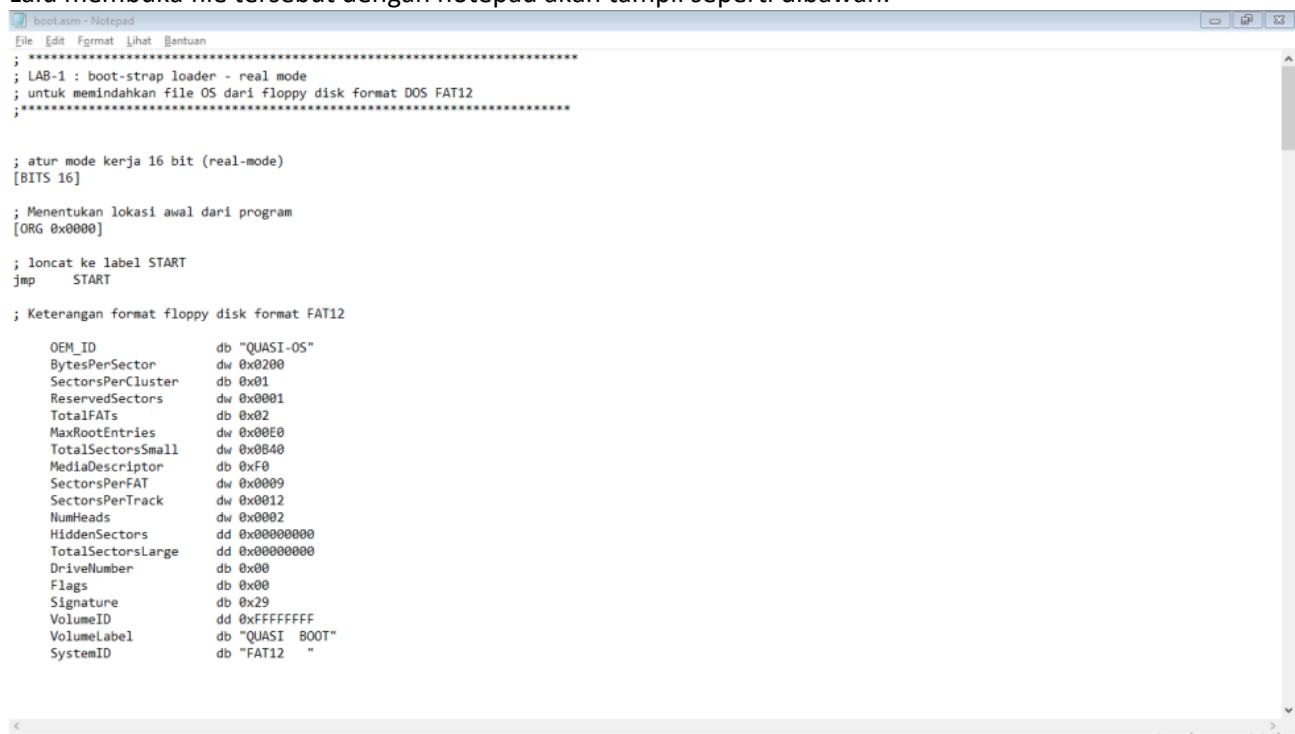
type setpath.bat untuk melihat script yang terdapat di dalam file 'setpath.bat'.

2. MELIHAT ISI DIREKTORI KERJA

```
c:\OS>cd c:\os\lab\lab1  
c:\OS\LAB\LAB1>notepad boot.asm  
c:\OS\LAB\LAB1>
```

Masuk ke direktori kerja C:\OS:\LAB\LAB1.

Lalu membuka file tersebut dengan notepad akan tampil seperti dibawah:



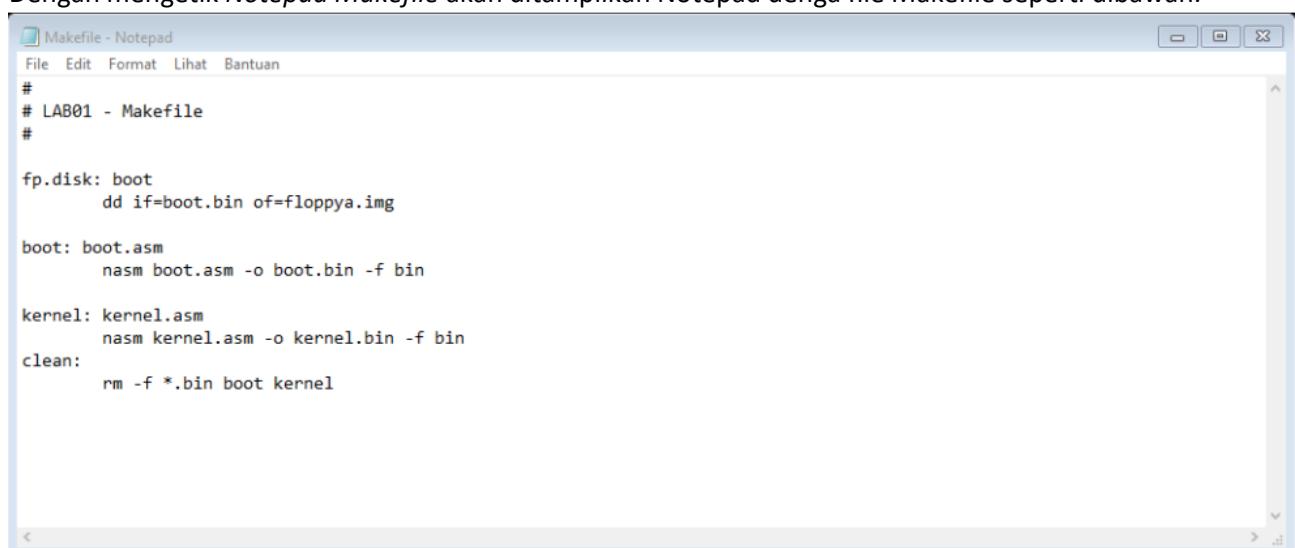
```
boot.asm - Notepad  
File Edit Format Lihat Bantuan  
*****  
; LAB-1 : boot-strap loader - real mode  
; untuk memindahkan file OS dari floppy disk format DOS FAT12  
*****  
  
; atur mode kerja 16 bit (real-mode)  
[BITS 16]  
  
; Menentukan lokasi awal dari program  
[ORG 0x0000]  
  
; loncat ke label START  
jmp START  
  
; Keterangan format floppy disk format FAT12  
  
OEM_ID db "QUASI-OS"  
BytesPerSector dw 0x0200  
SectorsPerCluster db 0x01  
ReservedSectors dw 0x0001  
TotalFATs db 0x02  
MaxRootEntries dw 0x00E0  
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  
VolumeID dd 0xFFFFFFFF  
VolumeLabel db "QUASI BOOT"  
SystemID db "FAT12 "
```

Diatas adalah tampilan notepadnya.

3. SEKILAS TENTANG MAKEFILE

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

Dengan mengetik *Notepad Makefile* akan ditampilkan Notepad denga file Makefile seperti dibawah:



```
Makefile - Notepad  
File Edit Format Lihat Bantuan  
#  
# 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
```

4. MENGENAL 'BOOT DISK'

```
C:\WINDOWS\system32\cmd.exe
c:\OS\LAB\LAB1>del floppya.img /P
c:\OS\LAB\LAB1\floppya.img, Delete (Y/N)? y

c:\OS\LAB\LAB1>dir
Volume in drive C has no label.
Volume Serial Number is 3E4D-4894

Directory of c:\OS\LAB\LAB1

18/09/2018  14.29    <DIR>          .
18/09/2018  14.29    <DIR>          ..
11/09/2017   17.48            8.358 bochsout.txt
15/12/2008   23.17           1.628 bochsrc.bxrc
17/10/2016   21.36          14.339 boot.asm
18/09/2018   10.54            512 boot.bin
11/09/2017   17.37            512 boots.bin
16/09/2007   23.22          18.432 bximage.exe
11/09/2017   17.21          10.321.920 c.img
27/02/2007   03.50           342.016 dd.exe
15/12/2008   07.47             78 dosfp.bat
14/12/2008   18.45            7.966 kernel.asm
15/12/2008   23.21            227 Makefile
15/12/2008   19.20              44 s.bat
31/01/2000   12.00          261.120 tdump.exe
                           13 File(s)   10.977.152 bytes
                           2 Dir(s)   64.383.791.104 bytes free
```

Menghapus file *floppya.img* dari folder LAB1.

Lalu memastikan file *floppya.img* sudah dihapus dari folder LAB1.

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

Membuat *floppya.img* lagi dengan pilihan file [fd] untuk membuat floppya image.

Ada beberapa tipe kapasitas yang ditawarkan untuk file floppy, yang saya gunakan saat ini yaitu tipe dengan kapasitas 1.44MB, lalu klik ENTER, jika sudah maka akan muncul untuk memberi nama file tersebut dengan *floppya.img*.

```

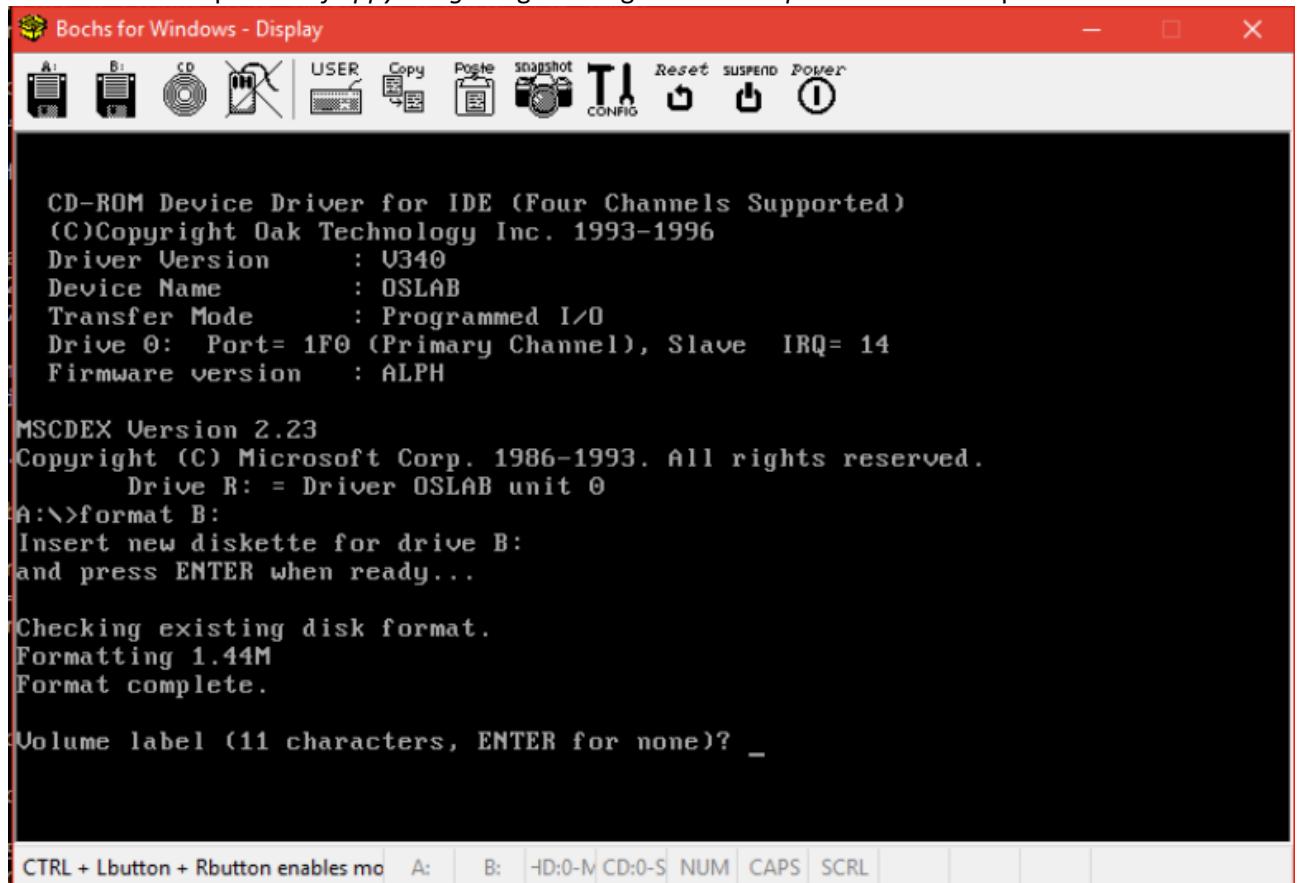
ca Select C:\WINDOWS\system32\cmd.exe

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
00000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000001[      ] reading configuration from bochsrc2.txt
00000000001[      ] installing win32 module as the Bochs GUI
00000000001[      ] 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>

```

Memberi format pada file *floppya.img* dengan mengetikkan *DosFp* maka muncul seperti dibawah:



Dengan mengetikkan *format B:* lalu klik enter maka *floppya.img* sudah terformat FAT12.
Klik tombol Power dahulu sebelum klik tombol X di pojok Bochs.

5. MELIHAT DATA DALAM BOOT SECTOR

```

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

```

Copy 512 byte data bootsektor ke dalam sebuah file terpisah. Yaitu dari file *floppya.img* ke *boots.bin*

```
c:\OS\LAB\LAB1>DD CS:100 02FF
rawrite 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
Unknown command CS:100
Unknown command 02FF
dd [bs=SIZE] [count=BLOCKS] [if=FILE] [of=FILE] [seek=BLOCKS] [skip=BLOCKS] [--size] [--list] [--progress]
SIZE and BLOCKS may have one of the following suffix:
  k = 1024
  M = 1048576
  G = 1073741824
default block size (bs) is 512 bytes
skip specifies the starting offset of the input file (if)
seek specifies the starting offset of the output file (of)

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

Menampilkan isi memori cs:100 dalam bentuk hex.

6. BOOT PC-SIMULATOR DENGAN

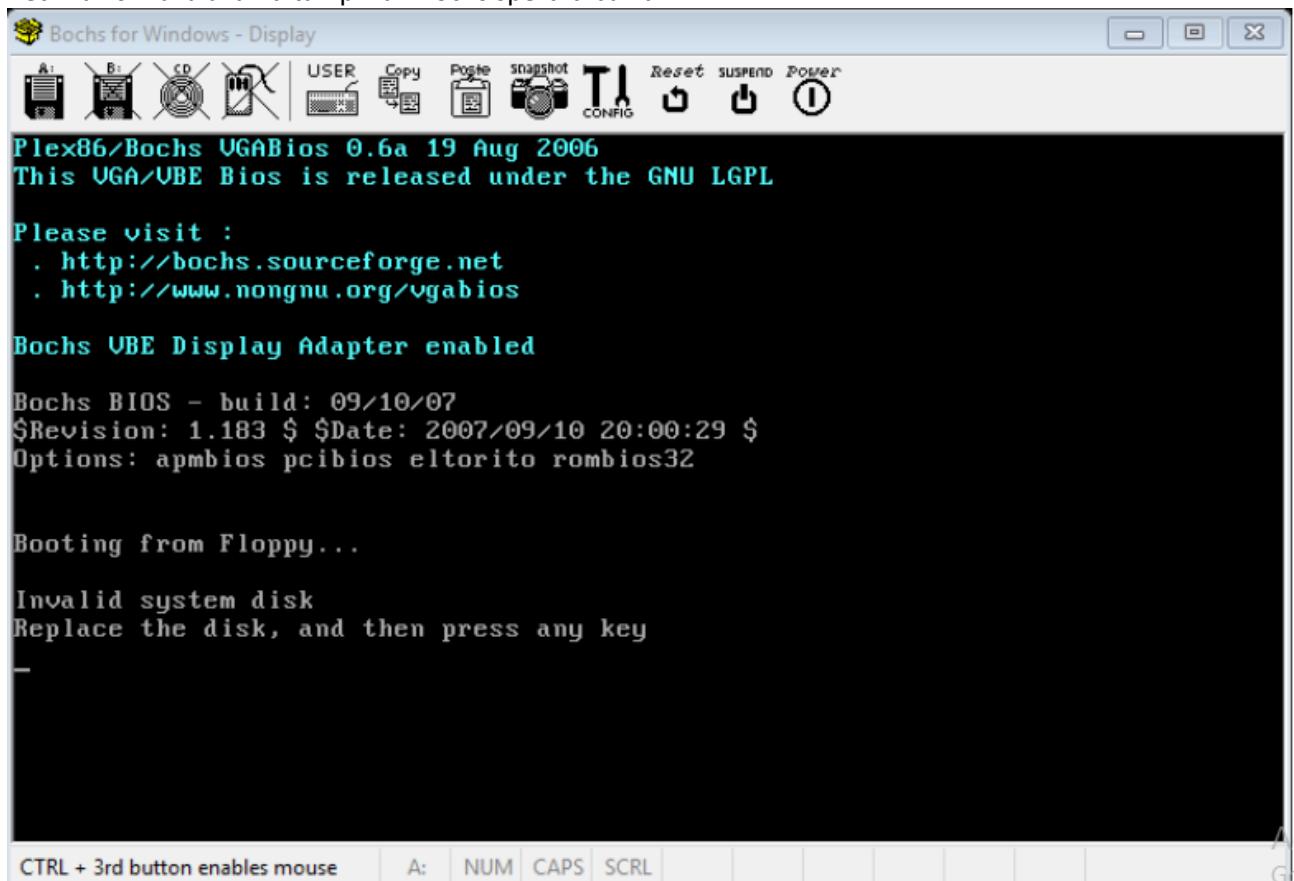
```
c:\OS\LAB\LAB1>type s.bat
...\\bochs-2.3.5\\bochs -q -f bochsrc.bxrc

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

Memanggil pc simulator ‘Bochs’, lalu lihat isi file ‘s.bat’.

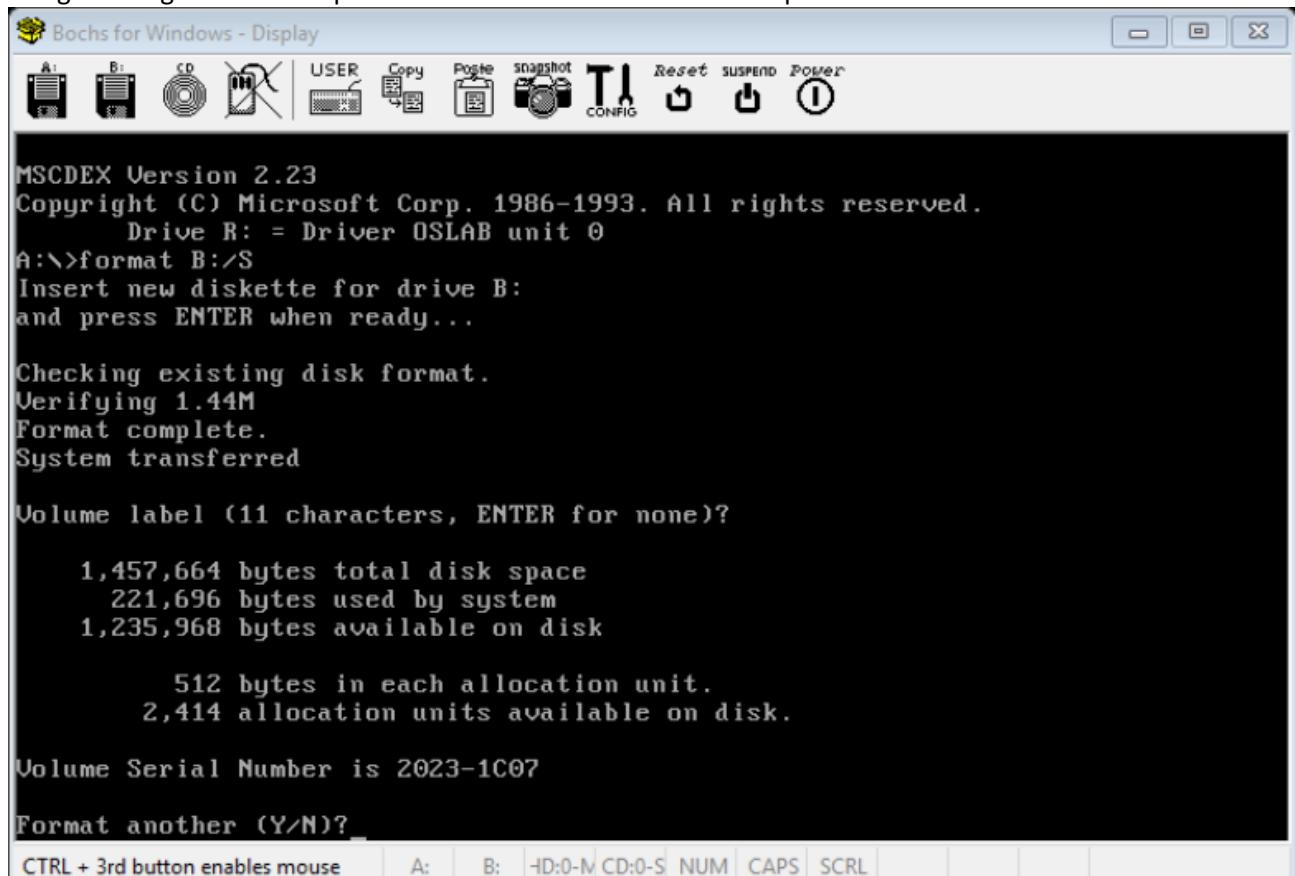
```
c:\OS\LAB\LAB1>s
c:\OS\LAB\LAB1>...\\bochs-2.3.5\\bochs -q -f bochsrc.bxrc
00000000000i[APIC?] local apic in  initializing
=====
          Bochs x86 Emulator 2.3.5
          Build from CVS snapshot, on September 16, 2007
=====
00000000000i[      ] reading configuration from bochsrc.bxrc
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] using log file bochsout.txt
```

Ketikkan *s* maka akan ditampilkan Bochs seperti dibawah:



```
c:\05\LAB\LAB1>dosfp  
c:\05\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"  
c:\05\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt  
0000000000i[APIC?] local apic in initializing  
-----  
          Bochs x86 Emulator 2.3.5  
          Build from CVS snapshot, on September 16, 2007  
-----  
0000000000i[      ] reading configuration from bochsrc2.txt  
0000000000i[      ] installing win32 module as the Bochs GUI  
0000000000i[      ] using log file bochsout.txt
```

Dengan mengetikkan ‘DosFp’ di cmd maka akan muncul Bochs seperti dibawah:



Masukkan perintah ‘format B:/S’ untuk memberi format *floppya.img* dan menambahkan ‘system file’ didalamnya. Lalu klik tombol power umtuk keluar dari Bochs, seperti fi wawa

Bochs for Windows - Display

A: B: CD | USER Copy Paste snapshot T CONFIG Reset Suspend Power

```
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 2023-1C07  
  
Format another (Y/N)?n  
  
A:>dir B:  
  
Volume in drive B has no label  
Volume Serial Number is 2023-1C07  
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:>_

CTRL + 3rd button enables mouse A: B: HD:0-M CD:0-S NUM CAPS SCRL

Ketikkan dir B:\ untuk memastikan direktori.

Bochs for Windows - Display

A: B: CD | USER Copy Paste snapshot T CONFIG Reset Suspend Power

```
Plex86/Bochs UGABios 0.6a 19 Aug 2006  
This UGA/VBE Bios is released under the GNU GPL  
  
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:>_
```

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

Ketikkan 's' pada cmd, jika tidak terjadi kesalahan maka tampilan seperti diatas. Klik power untuk matikan.

TUGAS:

1. American Standard Code for Information Interchange (**ASCII**) merupakan suatu standar

internasional dalam kode huruf dan simbol.

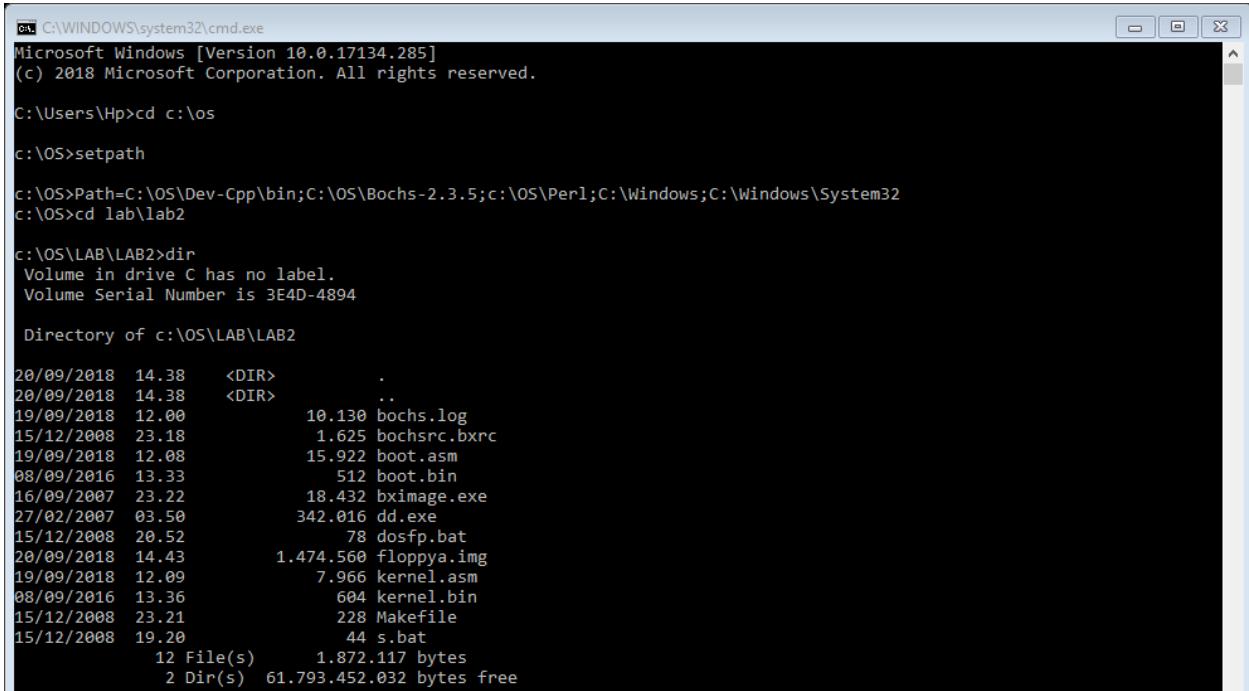
ASCII TABLE

Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char	Decimal	Hex	Char
0	0	[NULL]	32	20	[SPACE]	64	40	@	96	60	'
1	1	[START OF HEADING]	33	21	!	65	41	A	97	61	a
2	2	[START OF TEXT]	34	22	"	66	42	B	98	62	b
3	3	[END OF TEXT]	35	23	#	67	43	C	99	63	c
4	4	[END OF TRANSMISSION]	36	24	\$	68	44	D	100	64	d
5	5	[ENQUIRY]	37	25	%	69	45	E	101	65	e
6	6	[ACKNOWLEDGE]	38	26	&	70	46	F	102	66	f
7	7	[BELL]	39	27	'	71	47	G	103	67	g
8	8	[BACKSPACE]	40	28	(72	48	H	104	68	h
9	9	[HORIZONTAL TAB]	41	29)	73	49	I	105	69	i
10	A	[LINE FEED]	42	2A	*	74	4A	J	106	6A	j
11	B	[VERTICAL TAB]	43	2B	+	75	4B	K	107	6B	k
12	C	[FORM FEED]	44	2C	,	76	4C	L	108	6C	l
13	D	[CARRIAGE RETURN]	45	2D	-	77	4D	M	109	6D	m
14	E	[SHIFT OUT]	46	2E	,	78	4E	N	110	6E	n
15	F	[SHIFT IN]	47	2F	/	79	4F	O	111	6F	o
16	10	[DATA LINK ESCAPE]	48	30	0	80	50	P	112	70	p
17	11	[DEVICE CONTROL 1]	49	31	1	81	51	Q	113	71	q
18	12	[DEVICE CONTROL 2]	50	32	2	82	52	R	114	72	r
19	13	[DEVICE CONTROL 3]	51	33	3	83	53	S	115	73	s
20	14	[DEVICE CONTROL 4]	52	34	4	84	54	T	116	74	t
21	15	[NEGATIVE ACKNOWLEDGE]	53	35	5	85	55	U	117	75	u
22	16	[SYNCHRONOUS IDLE]	54	36	6	86	56	V	118	76	v
23	17	[ENG OF TRANS. BLOCK]	55	37	7	87	57	W	119	77	w
24	18	[CANCEL]	56	38	8	88	58	X	120	78	x
25	19	[END OF MEDIUM]	57	39	9	89	59	Y	121	79	y
26	1A	[SUBSTITUTE]	58	3A	:	90	5A	Z	122	7A	z
27	1B	[ESCAPE]	59	3B	;	91	5B	[123	7B	{
28	1C	[FILE SEPARATOR]	60	3C	<	92	5C	\	124	7C	
29	1D	[GROUP SEPARATOR]	61	3D	=	93	5D]	125	7D	}
30	1E	[RECORD SEPARATOR]	62	3E	>	94	5E	^	126	7E	~
31	1F	[UNIT SEPARATOR]	63	3F	?	95	5F	_	127	7F	[DEL]

LAPORAN PRAKTIKUM SISTEM OPERASI

RAYYAN HANUGRAH
MODUL 2

Pengaturan setpath dan dir wajib diawali untuk semua praktikum.



```
C:\WINDOWS\system32\cmd.exe
Microsoft Windows [Version 10.0.17134.285]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\Hp>cd c:\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 has no label.
 Volume Serial Number is 3E4D-4894

 Directory of c:\OS\LAB\LAB2

20/09/2018  14.38    <DIR>      .
20/09/2018  14.38    <DIR>      ..
19/09/2018  12.00    10.130 bochs.log
15/12/2008  23.18    1.625 bochsrc.bxrc
19/09/2018  12.08    15.922 boot.asm
08/09/2016  13.33    512 boot.bin
16/09/2007  23.22    18.432 bximage.exe
27/02/2007  03.50    342.016 dd.exe
15/12/2008  20.52    78 dosfp.bat
20/09/2018  14.43    1.474.560 floppya.img
19/09/2018  12.09    7.966 kernel.asm
08/09/2016  13.36    604 kernel.bin
15/12/2008  23.21    228 Makefile
15/12/2008  19.20    44 s.bat
               12 File(s)   1.872.117 bytes
               2 Dir(s)   61.793.452.032 bytes free
```

Lalu menjalankan ‘bximage’ untuk membuat file floppya.img dengan ketentuan ‘fd’, ‘1.44’ dan memberikan nama file tersebut dengan nama floppya.img.

Lalu anda bisa memastikan jika telah benar terbuatnya fila floppya.img dengan menjalankan perintah ‘dir’ .

```
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]
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-V to paste)

Press any key to continue
c:\OS\LAB\LAB2>
```

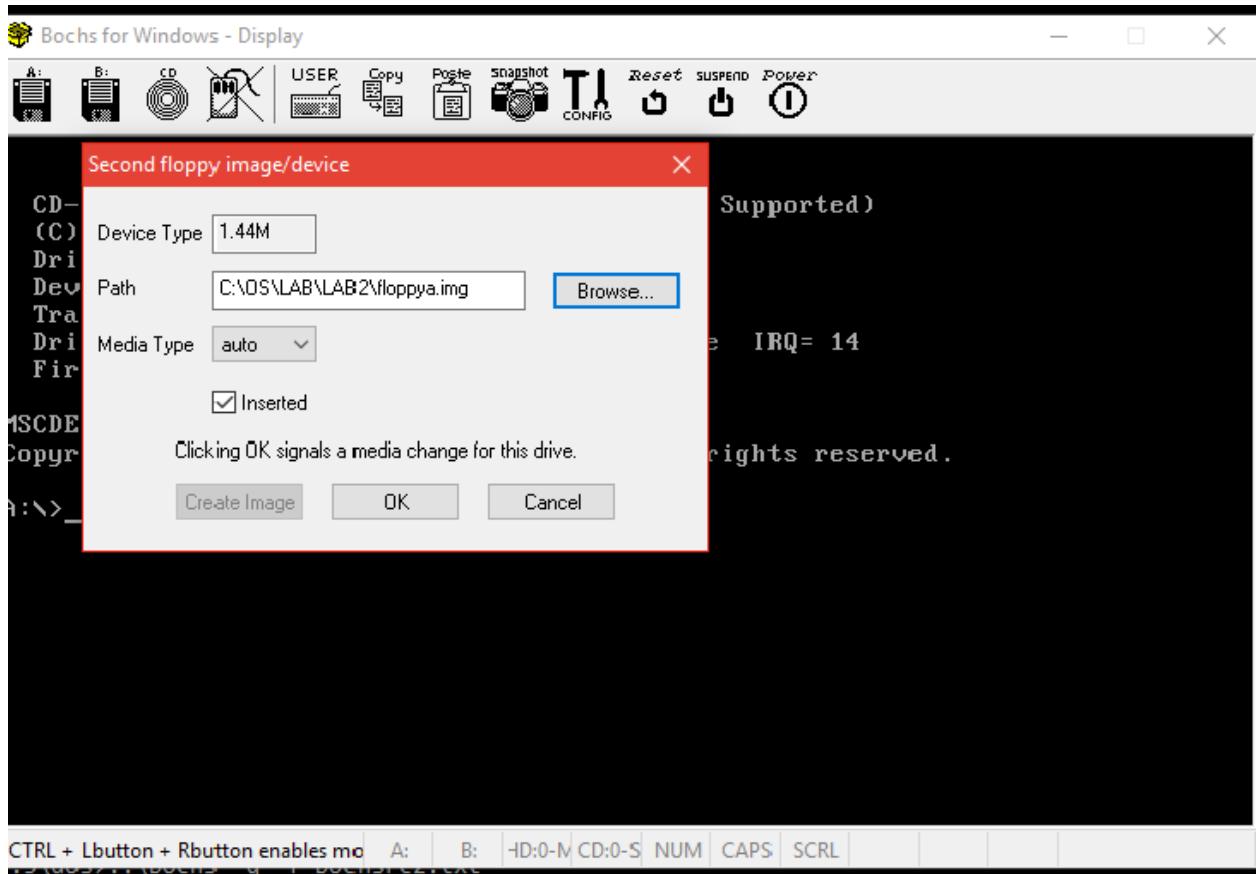
Jalankan perintah ‘dosfp’ maka akan muncul seperti gambar dibawah:

```
c:\OS\LAB\LAB2>dosfp
c:\OS\LAB\LAB2>cd "..\..\Bochs-2.3.5\dos"
c:\OS\Bochs-2.3.5\dos>..\\bochs -q -f bochsrc2.txt
0000000000i[APIC?] local apic in initializing
=====
          Bochs x86 Emulator 2.3.5
          Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc2.txt
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochsrc2.log
# 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\lab2"
```

Lalu klik gambar floppya B yang terletak di pojok kanan atas.

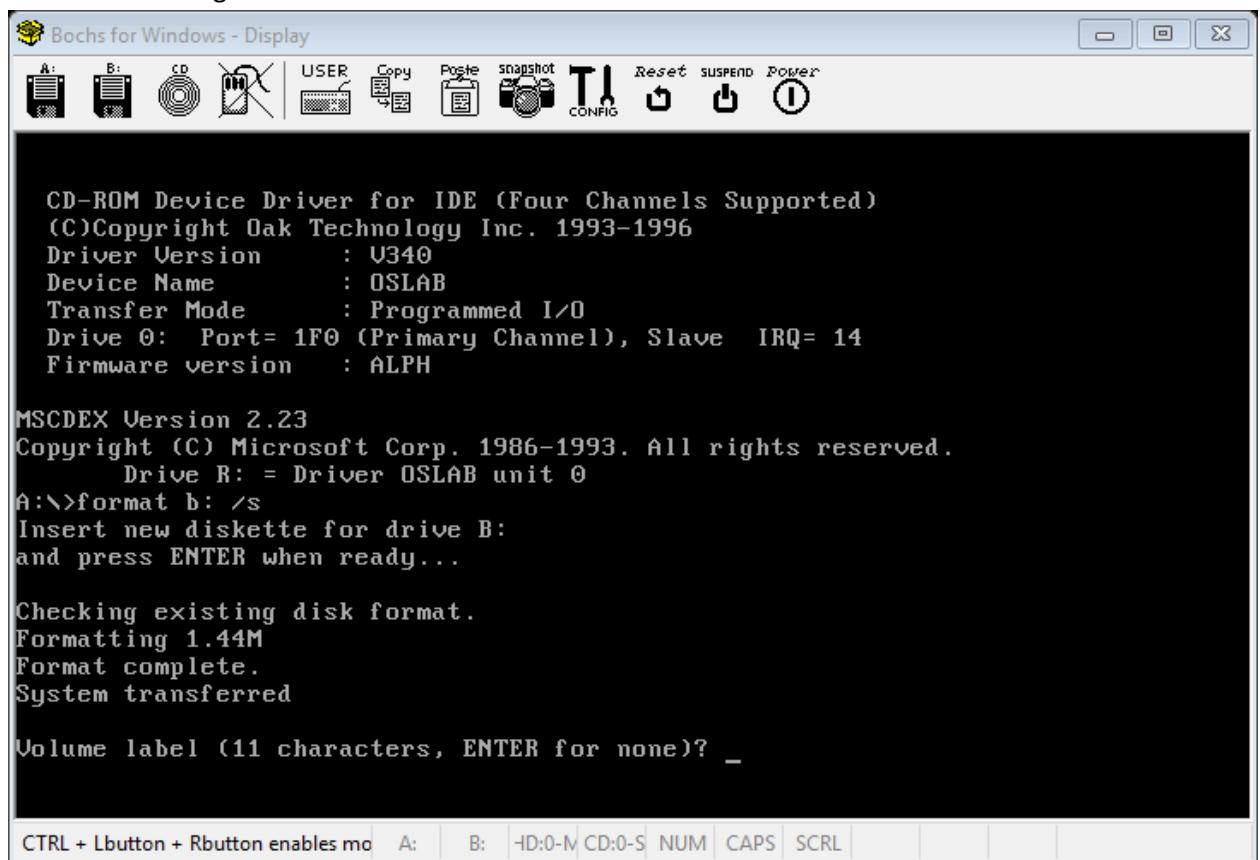
Lalu plih tempat file ‘floppya.img’ direktorinya sesuai gambar dengan klik Browse, jika sudah ketemu maka klik OK.



Ketikkan disamping A:>format B: /s

Jika tidak ada kesalahan maka akan muncul seperti gambar dibawah.

Lalu matikan dengan memilih ikon Power.



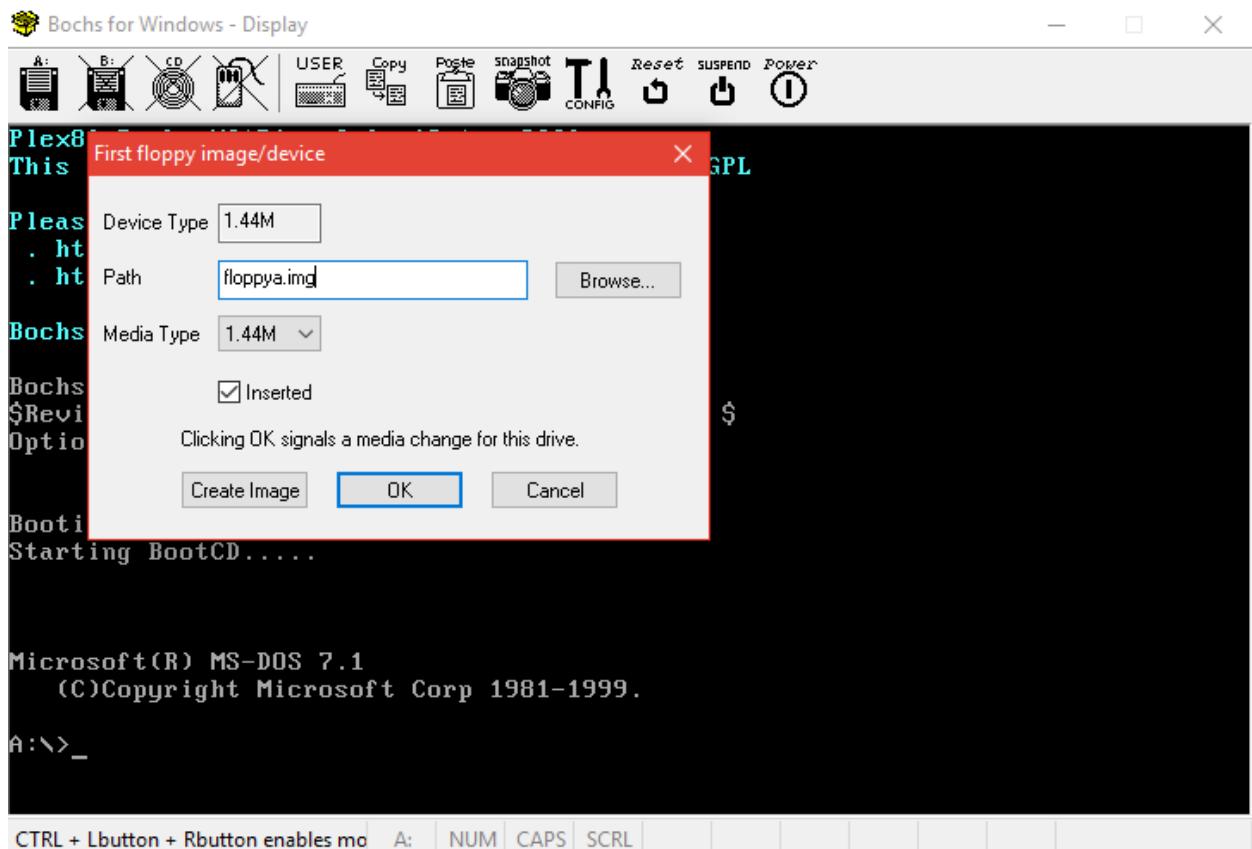
```
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>...\\bochs-2.3.5\bochs -q -f bochsrc.bxrc
0000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!

Bochs is exiting with the following message:
[WGUI ] POWER button turned off.

=====
C:\OS\LAB\LAB2>
```

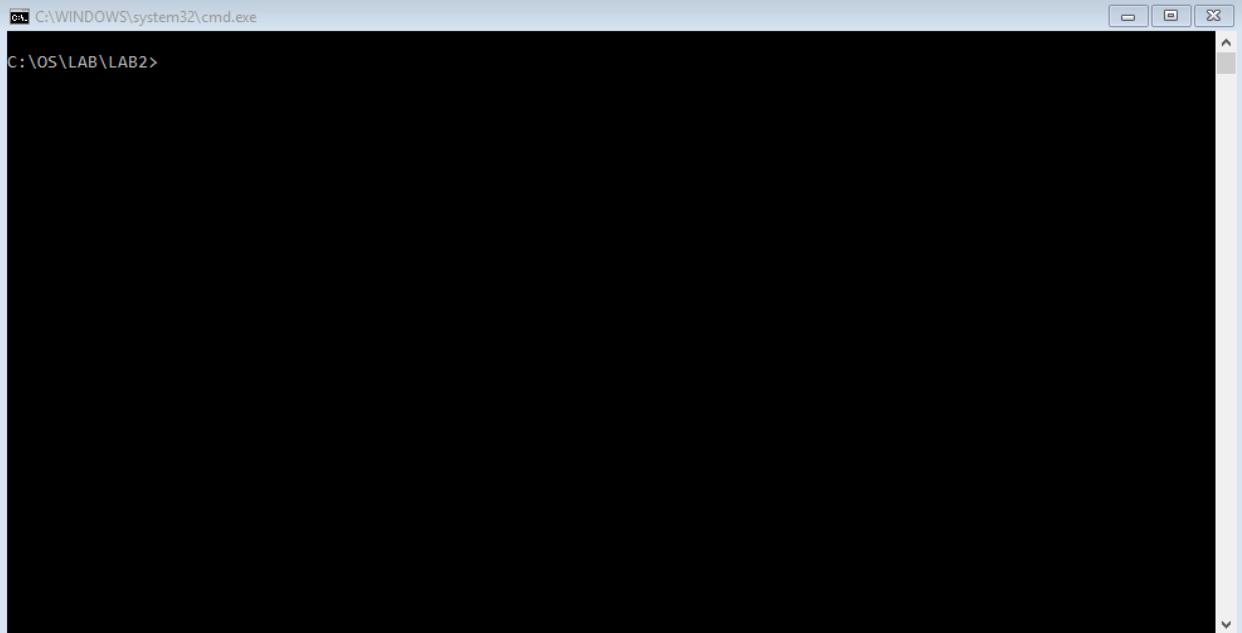
Dengan mengetikkan ‘s’ maka akan muncul seperti dibawah.

Nahh sekarang PC-Simulator akan melakukan proses boot dengan disk boot yang berasal dari file floppya.img yang diletakkan pada drive A, dengan memilih ikon floppy A. Lalu klik OK. Lalu matikan dengan klik ikon Power.



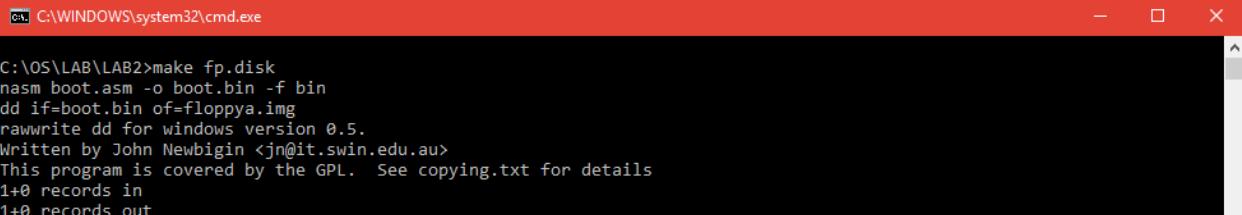
```
C:\OS\LAB\LAB2>cls
```

Dengan mengetikkan cls pada cmd maka cmd akan bersih seperti gambar dibawah:

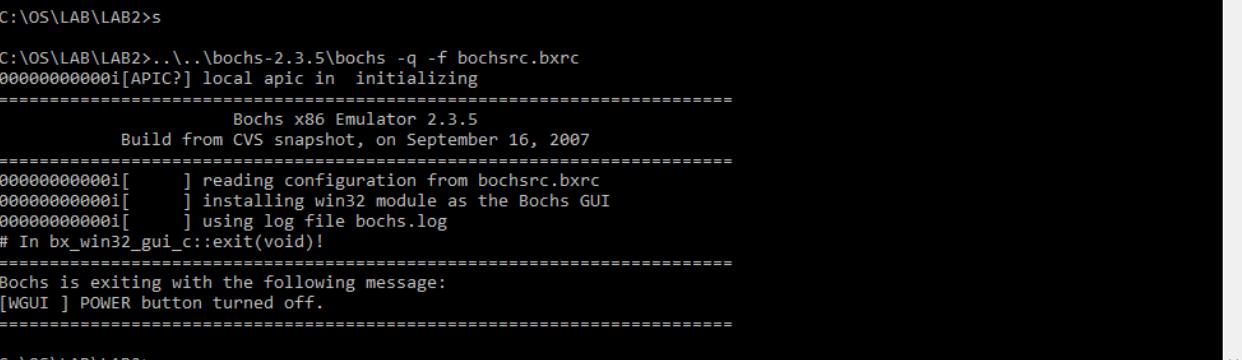


```
C:\OS\LAB\LAB2>
```

Ketikkan make fp.disk jika berhasil maka muncul seperti dibawah

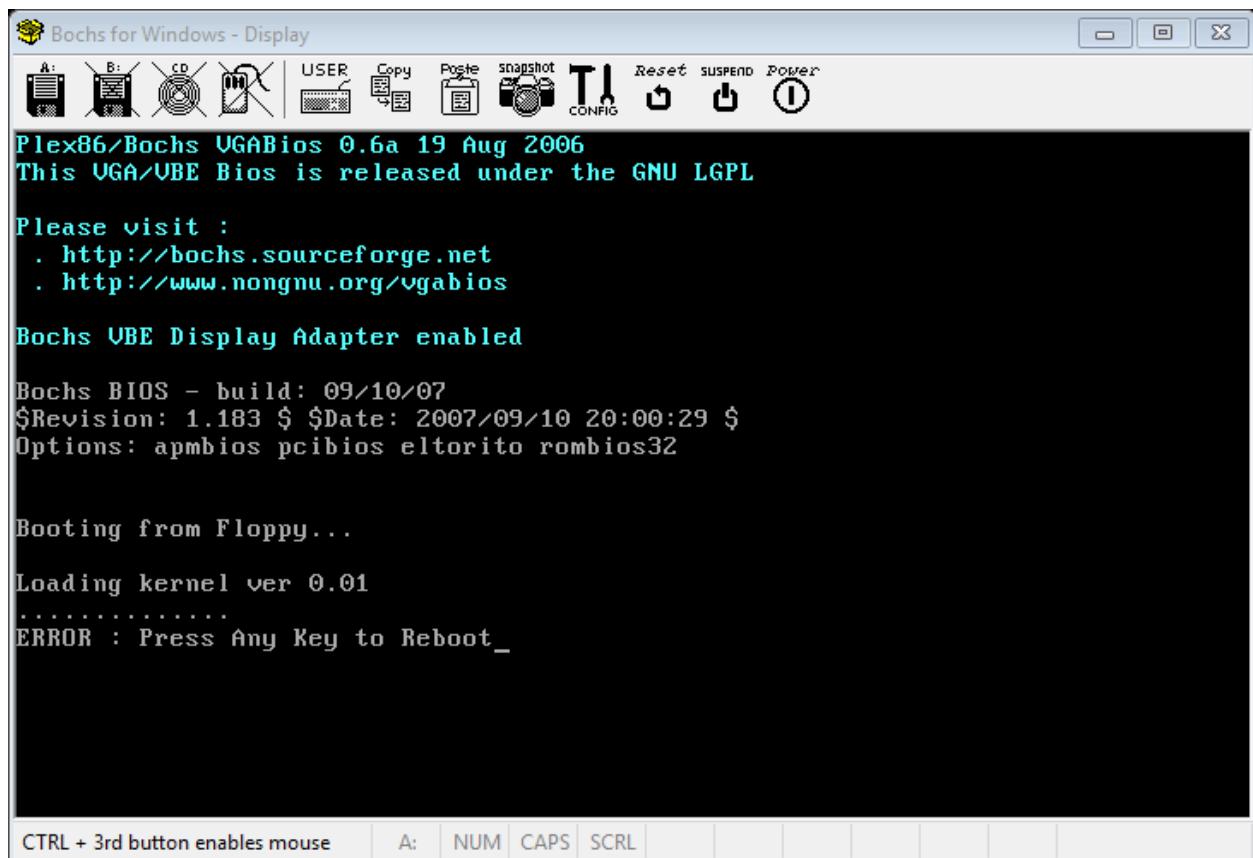


```
C:\OS\LAB\LAB2>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
rawwrite dd for windows version 0.5.
Written by John Newbigin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out
```



```
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\.bochs-2.3.5\bochs -q -f bochsrc.bxrc
0000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====
```

Mengetikkan 's' lalu klik enter maka muncul bochs seperti dibawah:



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

Dengan mengetikkan seperti diatas maka akan muncul seperti gambar dibawah:
Ganti beberapa baris di suatu file boot.asm.

```
boot.asm - Notepad
File Edit Format Lihat Bantuan
=====
; Teks yang akan ditampilkan saat mulai proses
; BOOT : Loading kernel ver 0.01
; Di awali dan diakhiri dengan tanda :
; -- 0x0D akhir baris
; -- 0x0A baris baru
; -- 0x00 Karakter 'NULL' pembatas dengan data di bawahnya
=====
    msgLoading db 0x0D, 0x0A, "Belajar membuat BOOTSTRAP-LOADER", 0x0D, 0x0A, 0x00
    msgCRLF    db 0x0D, 0x0A, 0x00
    msgProgress db ".", 0x00

=====
; Teks yang di tampilkan saat terjadi kesalahan BOOT
=====
    msgFailure db 0x0D, 0x0A, "ERROR : Press Any Key to Reboot", 0x00

=====
;(4) BLOK BOOT SIGNATURE
```

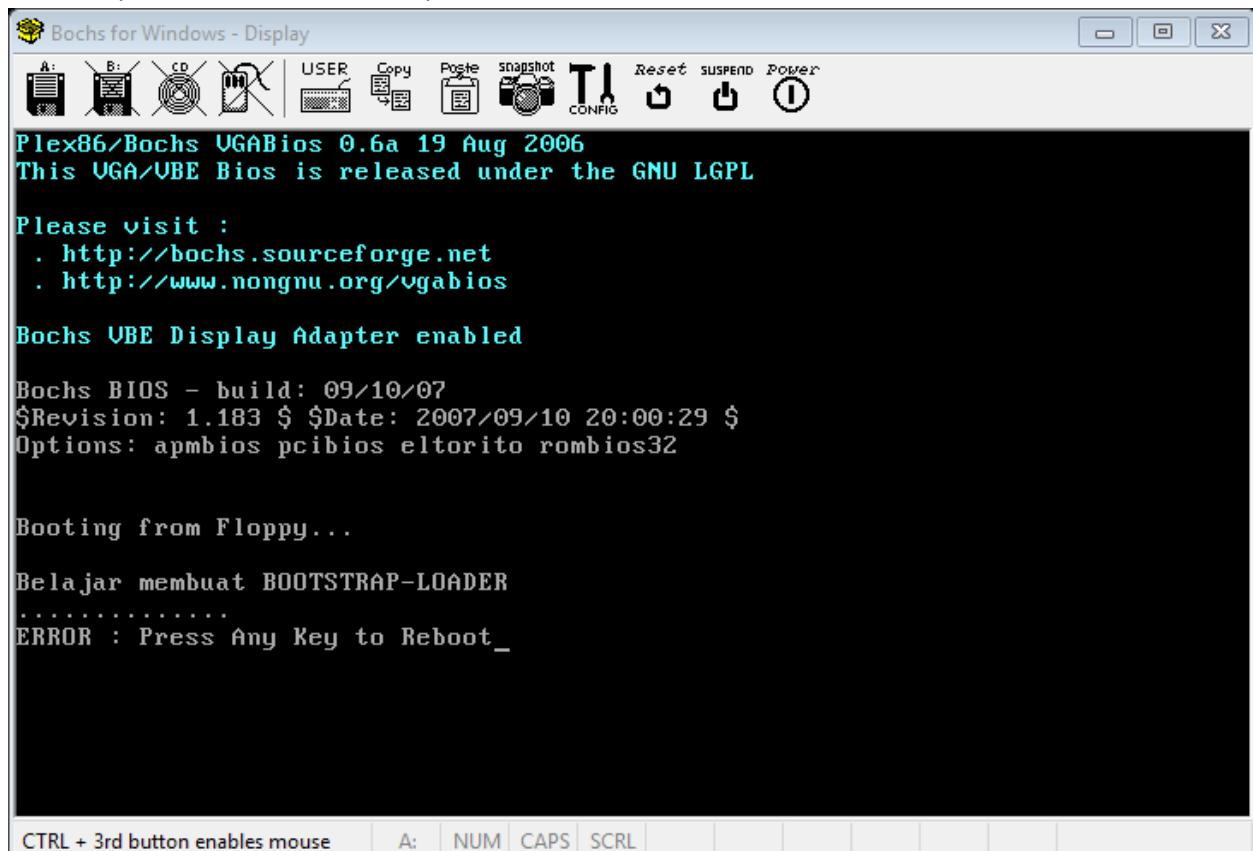
Dengan mengetikkan dosfp maka akan muncul seperti dibawah jika berhasil:

```
C:\OS\LAB\LAB2>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
rawwrite dd for windows version 0.5.
Written by John Newbiggin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out

C:\OS\LAB\LAB2>
```

```
C:\OS\LAB\LAB2>s
C:\OS\LAB\LAB2>..\\bochs-2.3.5\\bochs -q -f bochsrc.bxrc
0000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
```

Jalankan perintah S maka muncul sperti dibawah



```
C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -q -f bochssrc.bxrc
0000000000i[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochssrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!

=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.

=====
C:\OS\LAB\LAB2>
```

Ketikkan make kernel jika berhasil maka muncul seperti dibawah:

```
C:\OS\LAB\LAB2>make kernel
nasm kernel.asm -o kernel.bin -f bin
```

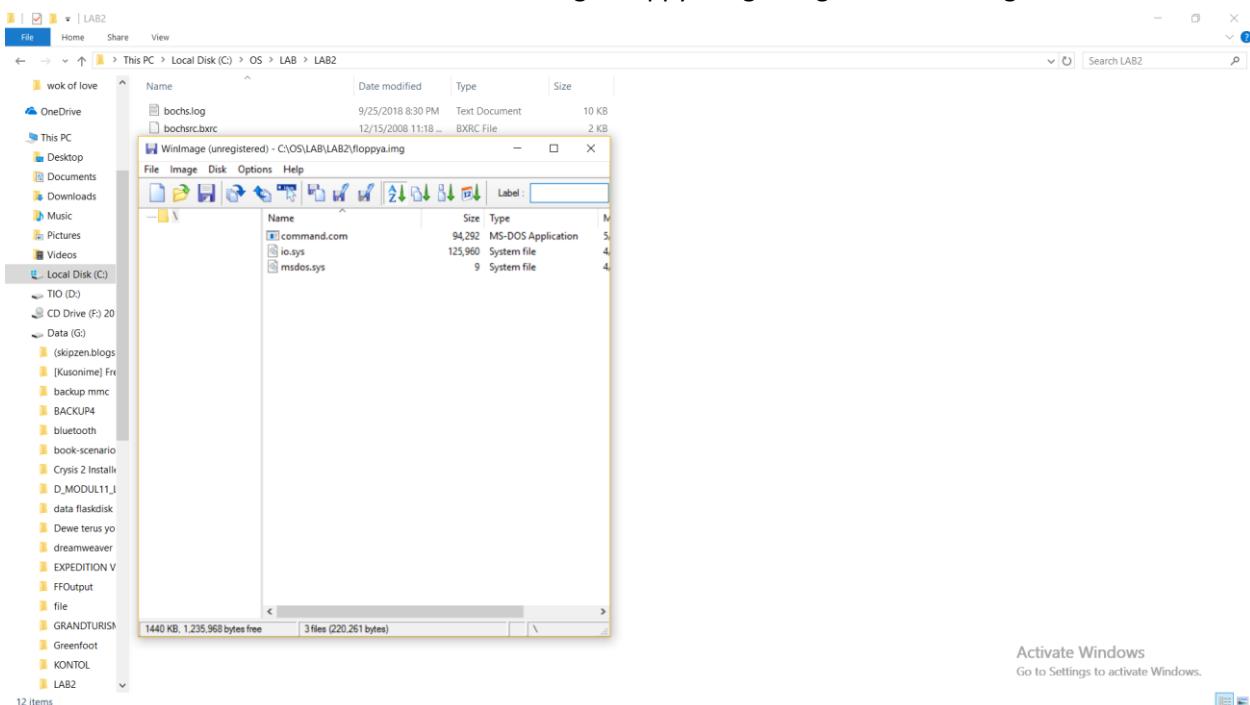
```
C:\OS\LAB\LAB2>dir
Volume in drive C has no label.
Volume Serial Number is 3E4D-4894

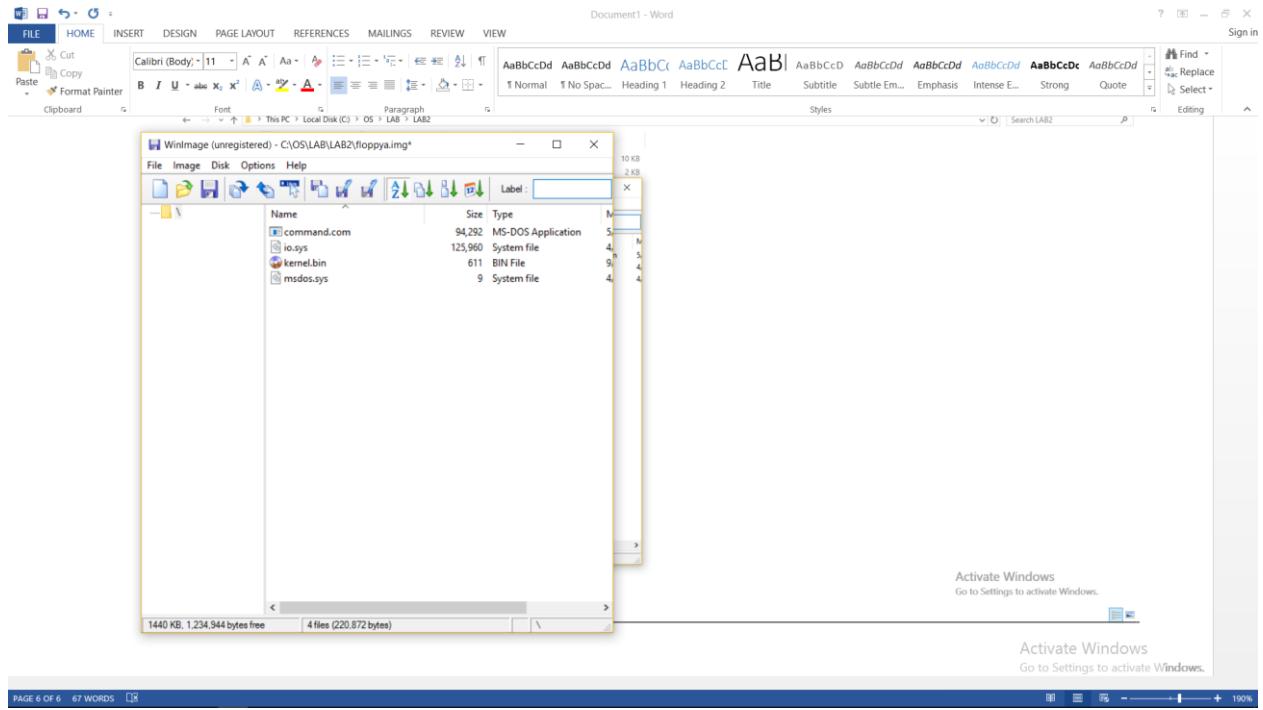
Directory of C:\OS\LAB\LAB2

25/09/2018 18.39 <DIR> .
25/09/2018 18.39 <DIR> ..
25/09/2018 19.37 10.153 bochs.log
15/12/2008 23.18 1.625 bochssrc.bxrc
25/09/2018 19.34 15.931 boot.asm
25/09/2018 19.35 512 boot.bin
16/09/2007 23.22 18.432 bximage.exe
27/02/2007 03.50 342.016 dd.exe
15/12/2008 20.52 78 dosfp.bat
25/09/2018 19.35 1.474.560 floppya.img
19/09/2018 12.09 7.966 kernel.asm
25/09/2018 21.06 611 kernel.bin
15/12/2008 23.21 228 Makefile
15/12/2008 19.20 44 s.bat
12 File(s) 1.872.156 bytes
2 Dir(s) 47.262.019.584 bytes free
```

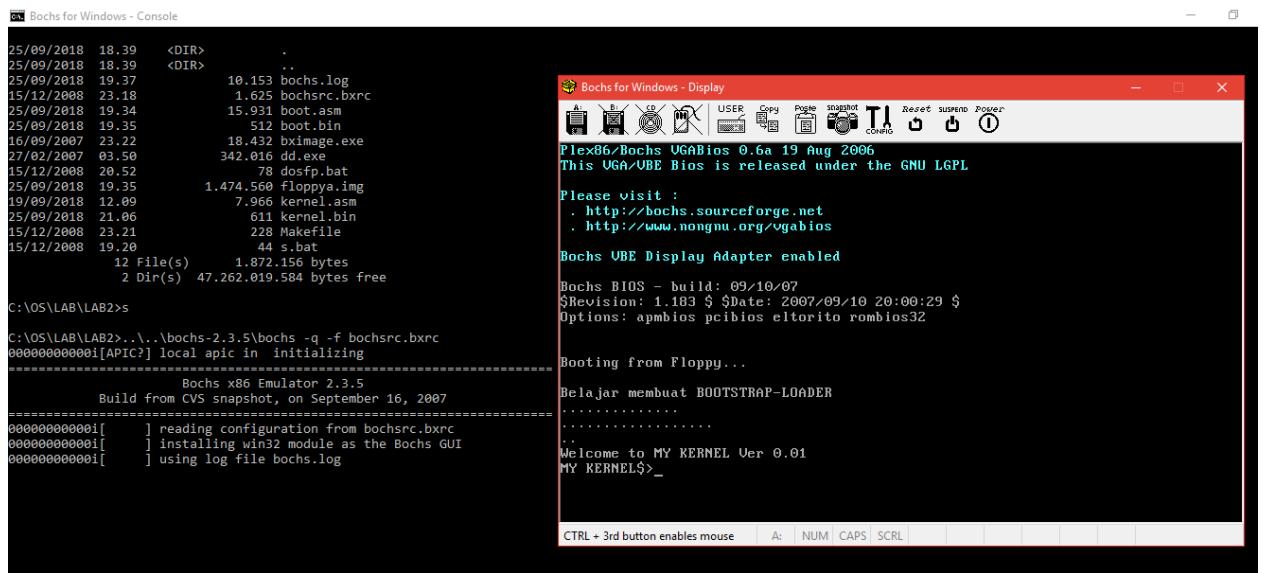
```
C:\OS\LAB\LAB2>
```

Memindahkan file ‘kernel.bin’ ke dalam file image ‘floppya.img’ dengan cara sesuai gambar berikut.





Mengecek kembali dengan dir. Lalu jalankan perintah s maka muncul seperti di gambar:



Di bawah merupakan pembukaan file kernel.asm melalui notepad dengan menggan beberapa kata di dalamnya.

C:\> C:\WINDOWS\system32\cmd.exe

kernel.asm - Notepad

```

File Edit Format Lihat Bantuan
;
; Prototype SIMPLE KERNEL ver 0.01
; LAB-INFORMATIKA
;
[org 0x000]
[bits 16]

[SEGMENT .text]

;START ##### mov ax, 0x100 ;Lokasi memori untuk menempatkan kernel
    mov ds, ax
    mov es, ax

    cli ;set interrupt OFF
    mov ss, ax ;atur stack segment
    mov sp, 0xFFFF ;atur stack pointer maksimum 64k
    sti ;set interrupt ON

    push dx
    push es
    xor ax, ax
    mov es, ax
    cld
    mov word [es:0x21*4], _int0x21 ; setup interrupt service
    mov [es:0x21*4+2], cs ; untuk menampilkan karakter di layar
<

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

kernel.asm - Notepad

```

File Edit Format Lihat Bantuan
int 0x10 ; panggil interupsi BIOS
ret

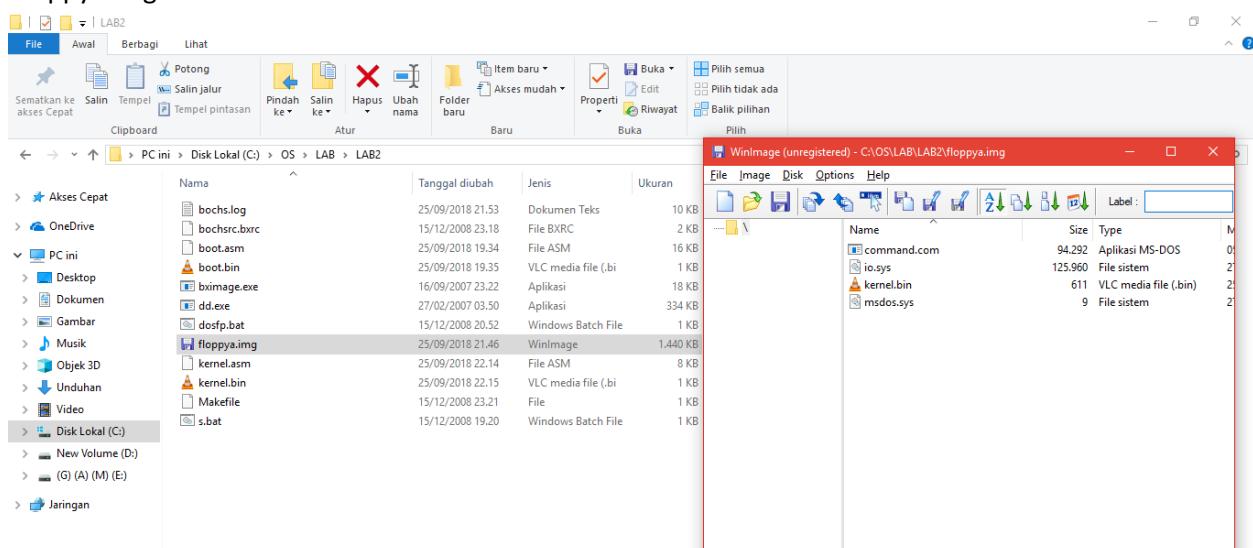
_display_endl:
    mov ah, 0x0E ; aksi ganti baris (akhir baris) dari BIOS teletype!
    mov al, 0x0D
    mov bh, 0x00
    mov bl, 0x07
    int 0x10
    mov ah, 0x0E ; aksi mulai dari baris baru dari BIOS teletype!
    mov al, 0x0A
    mov bh, 0x00
    mov bl, 0x07
    int 0x10
    ret

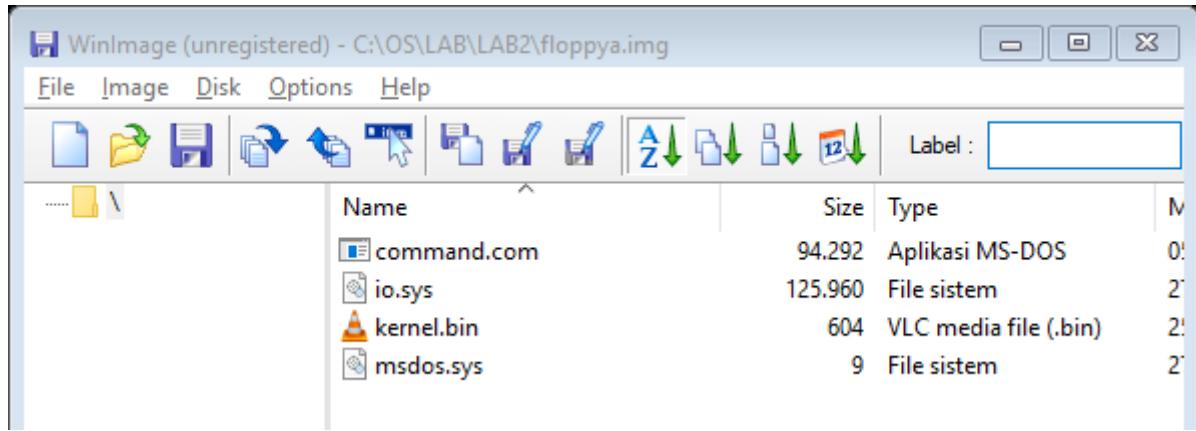
_display_prompt:
    mov si, strPrompt
    mov al, 0x01
    int 0x21
    ret

[SEGMENT .data]
strWelcomeMsg db "Belajar membuat KERNEL", 0x00
strPrompt db "MY KERNEL$>", 0x00
cmdMaxLen db 255 ; maksimum COMMAND
```

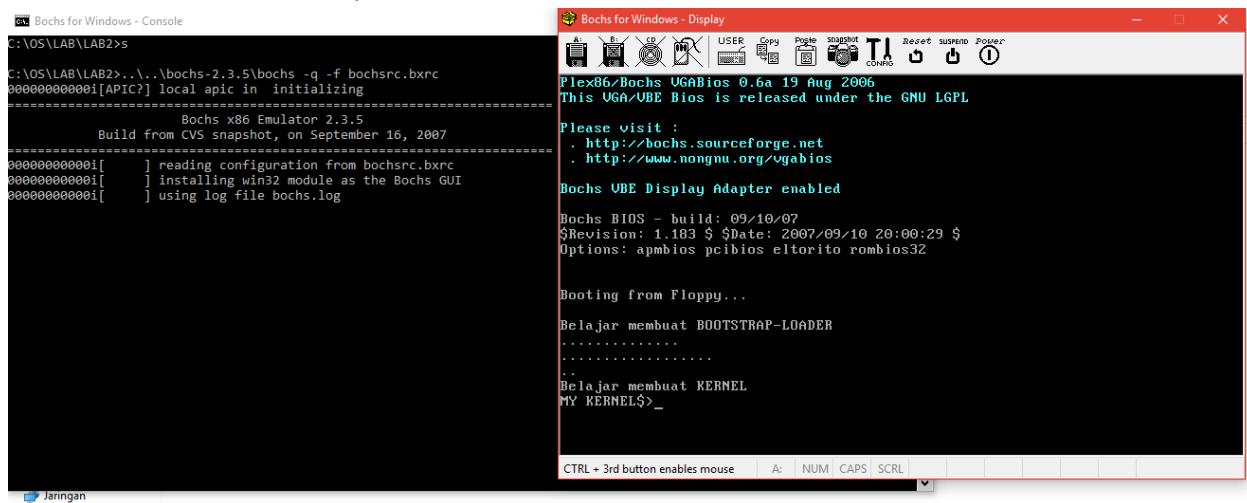
C:\OS\LAB\LAB2>make kernel
nasm kernel.asm -o kernel.bin -f bin

Ulangi proses kompilasi seperti proses sebelumnya untuk memindahkan file 'kernel.bin' ke dalam file 'floppya.img'





Jika berhasil maka muncul seperti dibawah:



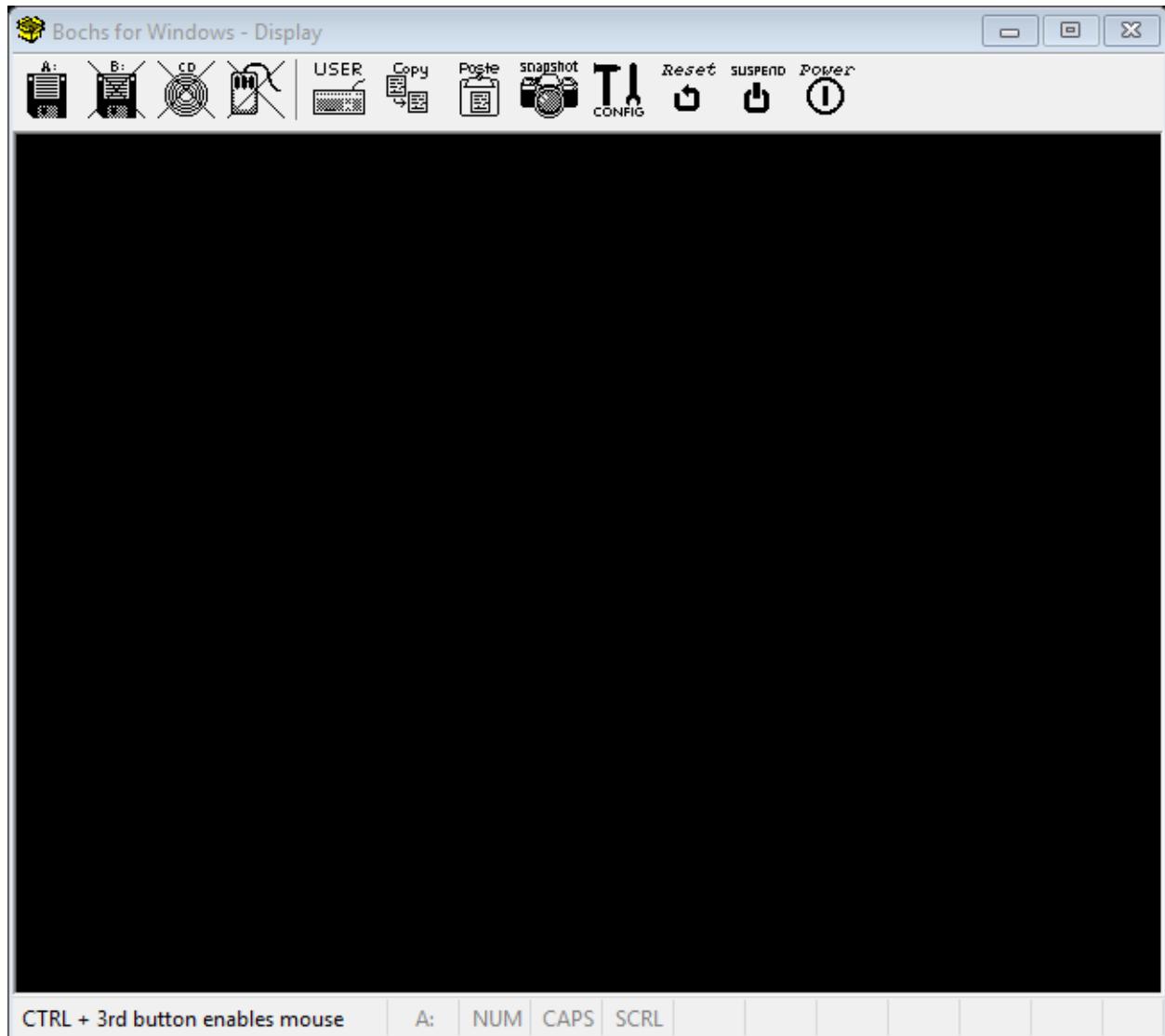
LAPORAN PRAKTIKUM SISTEM OPERASI

```
Bochs for Windows - Console
Microsoft Windows [Version 10.0.17134.285]
(c) 2018 Microsoft Corporation. All rights reserved.

C:\Users\hp>cd c:\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\lab3
c:\os\LAB\LAB3>type s.bat
....\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
c:\os\LAB\LAB3>
c:\os\LAB\LAB3>..\bochs-2.3.5\bochsdbg -q -f bochsrc.bxrc
000000000001[APIC2] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000001[ ] reading configuration from bochsrc.bxrc
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochs.log
Next at t=0
(0) [0xfffffff0] f000:ffff0 (unk. ctxt): jmp far f000:e05b ; ea5be000f0
```

Seperti dengan praktikum lainnya yaitu diawali dengan setpath lalu berpindah ke direktori folder LAB3.

Lalu melakukan proses debugging. Program bochs yang diaktifkan adalah program versi debug yaitu Bochsdbg dengan mengetikkan *type s.bat*. perintah *s* digunakan untuk membuka PC-Simulator dan akan terlihat seperti dibawah:

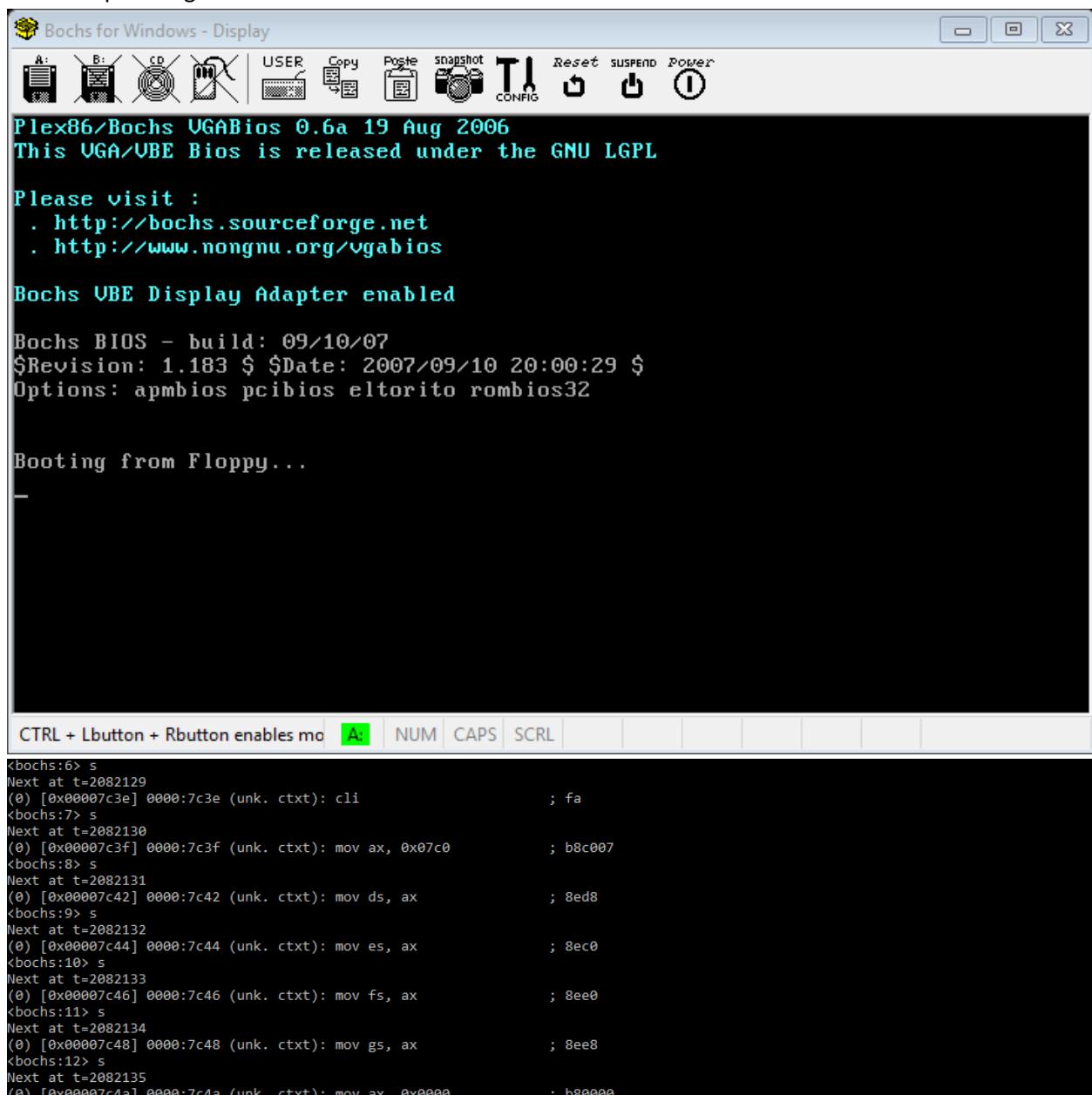


Perintah *r* digunakan untuk melihat isi CS dan IP.sekarang kita suruh PC untuk mengeksekusi dengan perintah *s* . lalu lakukan perintah *r* lagi. Kita biarkan PC melanjutkan pekerjaannya, kemudian kita

suruh berhenti saat PC mulai memasuki tahap BOOT yang dimulai pada alamat 0000:7c00 .

```
<bochs>:1> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000f20 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
rsi: 0x00000000:00000000 rdi: 0x00000000:00000000
r8 : 0x00000000:00000000 r9 : 0x00000000:00000000
r10: 0x00000000:00000000 r11: 0x00000000:00000000
r12: 0x00000000:00000000 r13: 0x00000000:00000000
r14: 0x00000000:00000000 r15: 0x00000000:00000000
rip: 0x00000000:0000ffff
eflags: 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs>:2> s
Next at t=1
(0) [0x000fe05b] f000:e05b (unk. ctxt): xor ax, ax ; 31c0
<bochs>:3> r
rax: 0x00000000:00000000 rcx: 0x00000000:00000000
rdx: 0x00000000:00000f20 rbx: 0x00000000:00000000
rsp: 0x00000000:00000000 rbp: 0x00000000:00000000
rsi: 0x00000000:00000000 rdi: 0x00000000:00000000
r8 : 0x00000000:00000000 r9 : 0x00000000:00000000
r10: 0x00000000:00000000 r11: 0x00000000:00000000
r12: 0x00000000:00000000 r13: 0x00000000:00000000
r14: 0x00000000:00000000 r15: 0x00000000:00000000
rip: 0x00000000:0000e05b
eflags: 0x00000002
IOPL=0 id vip vif ac vm rf nt of df if tf sf zf af pf cf
<bochs>:4> vb 0:0x7c00
<bochs>:5> c
(2006900537) Breakpoint 10285624, in 0000:7c00 (0x00007c00)
Next at t=2082128
(0) [0x00007c00] 0000:7c00 (unk. ctxt): jmp .+0x003b (0x00007c3e) ; e93b00
```

Maksud perintah c adalah teruskan proses sampai ke titik pemberhentian. Lalu masuk ke PC maka akan tampil sebagai berikut.



Lakukan perintah s langkah demi langkah sebanyak maksimal 7 kali lalu bandingkan dengan boot.asm

The screenshot shows two windows side-by-side. On the left is a Notepad window titled 'boot.asm - Notepad' containing assembly code. On the right is a 'Bochs for Windows - Console' window showing the assembly code being executed. The assembly code in the Notepad window includes sections for boot code setup, stack configuration, and displaying a message. The console window shows the assembly instructions and their corresponding memory addresses and opcodes as they are run.

```

File Edit Format Lihat Bantuan
VolumeID dd 0xFFFFFFFF
VolumeLabel db "QUASI" BO
SystemID db "FAT12" <bochs:7> s
=====
;===== ;(3) Blok BOOT CODE ;===== ;=====
;===== START: =====
; Mengatur lokasi kode program pada
    cli      <bochs:6> s
    mov ax, 0x07C0  (0) [0x000007c3e] 0000:7c3e (unk. ctxt): cli      ; fa
    mov ds, ax  Next at t=2082130
    mov es, ax  (0) [0x000007c3f] 0000:7c3f (unk. ctxt): mov ax, 0x07c0      ; b8c007
    mov fs, ax  <bochs:7> s
    mov gs, ax  Next at t=2082131
    sti      <bochs:8> s
    mov ax, 0x0000  (0) [0x000007c41] 0000:7c41 (unk. ctxt): mov ds, ax      ; 8ed8
    mov ss, ax  Next at t=2082132
    mov sp, 0xFFFF  (0) [0x000007c42] 0000:7c42 (unk. ctxt): mov es, ax      ; 8ec0
    sti      <bochs:9> s
    mov ax, 0x0000  (0) [0x000007c44] 0000:7c44 (unk. ctxt): mov fs, ax      ; 8ee0
    mov ax, 0x0000  (0) [0x000007c46] 0000:7c46 (unk. ctxt): mov gs, ax      ; 8ee8
    sti      <bochs:10> s
    mov ax, 0x0000  (0) [0x000007c48] 0000:7c48 (unk. ctxt): mov ax, 0x0000      ; b80000
    sti      <bochs:11> s
    mov si,msgLoading <bochs:12> s
    call DisplayMessage
    sti      <bochs:13>
;
; Menampilkan text di layar
    mov si,msgLoading
    call DisplayMessage
<

```

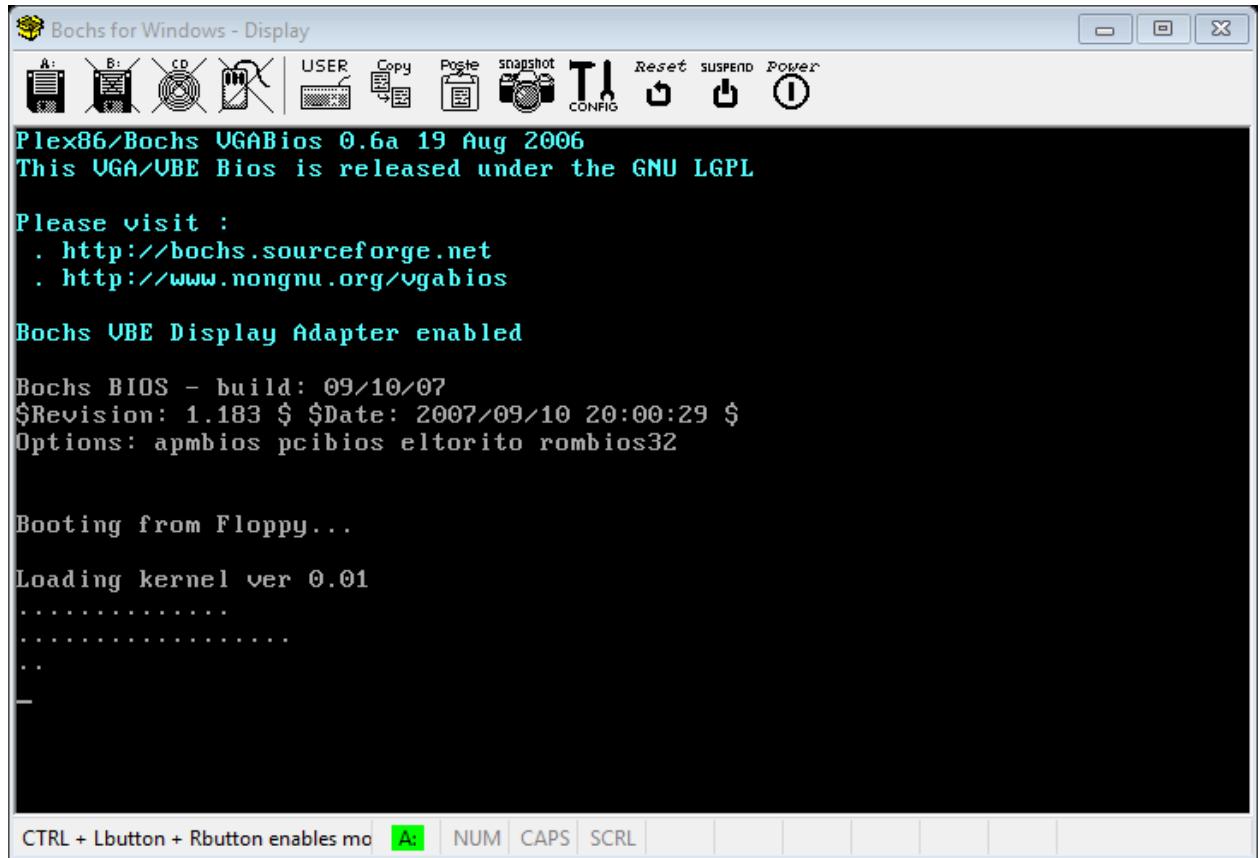
Lalu hapus semua & lakukan semua langkah diatas dengan sama lalu bandingkan dengan kernel.asm

The screenshot shows a single 'Bochs for Windows - Console' window. It displays the assembly code from 'boot.asm' being executed by the Bochs emulator. The output shows the assembly instructions, their memory addresses, and the current state of registers and memory. The window title is 'Bochs for Windows - Console' and the path is 'C:\OS\LAB\LAB3>'. The assembly code is identical to the one shown in the previous screenshot, including the boot code setup and message display.

```

Bochs for Windows - Console
C:\OS\LAB\LAB3> ..\bochs-2.3.5\bochsrc -q -f bochsrc.bxrc
000000000001[APIC] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000001[ ] reading configuration from bochsrc.bxrc
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochs.log
Next at t=0
(0) [0xfffffff0] f000:ffff0 (unk. ctxt): jmp far f000:e05b      ; ea5be000f0
<bochs:1> vb 0x0100:0x0000
<bochs:2> c
(10264512) Breakpoint 10285624, in 0100:0000 (0x00001000)
Next at t=2945498
(0) [0x00001000] 0100:0000 (unk. ctxt): mov ax, 0x0100      ; b80001
<bochs:3> s
Next at t=2945499
(0) [0x00001003] 0100:0003 (unk. ctxt): mov ds, ax      ; 8ed8
<bochs:4> s
Next at t=2945500
(0) [0x00001005] 0100:0005 (unk. ctxt): mov es, ax      ; 8ec0
<bochs:5> s
Next at t=2945501
(0) [0x00001007] 0100:0007 (unk. ctxt): cli      ; fa
<bochs:6> s
Next at t=2945502
(0) [0x00001008] 0100:0008 (unk. ctxt): mov ss, ax      ; 8ed0
<bochs:7> s
Next at t=2945503
(0) [0x0000100a] 0100:000a (unk. ctxt): mov sp, 0xffff      ; bcffff
<bochs:8> s
Next at t=2945504
(0) [0x0000100d] 0100:000d (unk. ctxt): sti      ; fb
<bochs:9> s
Next at t=2945505
(0) [0x0000100e] 0100:000e (unk. ctxt): push dx      ; 52
<bochs:10> s
Next at t=2945506
(0) [0x0000100f] 0100:000f (unk. ctxt): push es      ; 06
<bochs:11> s
Next at t=2945507
(0) [0x00001010] 0100:0010 (unk. ctxt): xor ax, ax      ; 31c0
<bochs:12> s

```



CTRL + Lbutton + Rbutton enables mo A NUM CAPS SCRL

kernel.asm - Notepad

```
;START #####  
    mov ax, 0x0100          ;lokasi memori untuk menempatkan kernel  
    mov ds, ax  
    mov es, ax  
  
    cli                      ;set interrupt OFF  
    mov ss, ax  
    mov sp, 0xFFFF            ;atur stack segment  
    mov es, ax                ;atur stack pointer maksimum 64k  
    sti                      ;set interrupt ON  
  
    push dx  
    push es  
    xor ax, ax  
    mov es, ax  
    cli  
    mov word [es:0x21*4], _int0x21      ; setup interrupt service  
    mov [es:0x21*4+2], cs           ; untuk menampilkan karakter di layar  
    sti  
    pop es  
    pop dx  
  
    mov si, strWelcomeMsg        ; Tampilkan informasi proses  
    mov al, 0x01                 ; request service 0x01  
    int 0x21                     ; int 0x21  
  
    call _shell                  ; call the shell  
  
    int 0x19                     ; reboot  
;END #####  
  
_int0x21:  
_int0x21_ser0x01:             ; service 0x01  
    cmp al, 0x01                 ; periksa apakah service 0x01 yang diinginkan  
    jne _int0x21_end             ; jika bukan service no 0x01 EXIT
```

Bochs for Windows - Console

```
000000000001[     ] installing win32 module as the Bochs GUI  
000000000001[     ] using log file bochs.log  
Next at t=9  
(0) [0xffffffff] f000:ffff0 (unk. ctxt): jmp far f000:e05b      ; ea5be00ef0  
<bochs:1> vb 0x100:0x0000  
<bochs:2> c  
(10264512) Breakpoint 10285624, in 0100:0000 (0x00001000)  
Next at t=2945498  
(0) [0x00001000] 0100:0000 (unk. ctxt): mov ax, 0x0100          ; b80001  
<bochs:3> s  
Next at t=2945499  
(0) [0x00001003] 0100:0003 (unk. ctxt): mov ds, ax              ; 8ed8  
<bochs:4> s  
Next at t=2945500  
(0) [0x00001005] 0100:0005 (unk. ctxt): mov es, ax              ; 8ec0  
<bochs:5> s  
Next at t=2945501  
(0) [0x00001007] 0100:0007 (unk. ctxt): cli                   ; fa  
<bochs:6> s  
Next at t=2945502  
(0) [0x00001008] 0100:0008 (unk. ctxt): mov ss, ax              ; 8ed0  
<bochs:7> s  
Next at t=2945503  
(0) [0x0000100a] 0100:000a (unk. ctxt): mov sp, 0xffff            ; bcffff  
<bochs:8> s  
Next at t=2945504  
(0) [0x0000100d] 0100:000d (unk. ctxt): sti                   ; fb  
<bochs:9> s  
Next at t=2945505  
(0) [0x0000100e] 0100:000e (unk. ctxt): push dx                ; 52  
<bochs:10> s  
Next at t=2945506  
(0) [0x0000100f] 0100:000f (unk. ctxt): push es                ; 06  
<bochs:11> s  
Next at t=2945507  
(0) [0x00001010] 0100:0010 (unk. ctxt): xor ax, ax              ; 31c0  
<bochs:12> s  
Next at t=2945508  
(0) [0x00001012] 0100:0012 (unk. ctxt): mov es, ax              ; 8ec0  
<bochs:13>
```

Modul 4

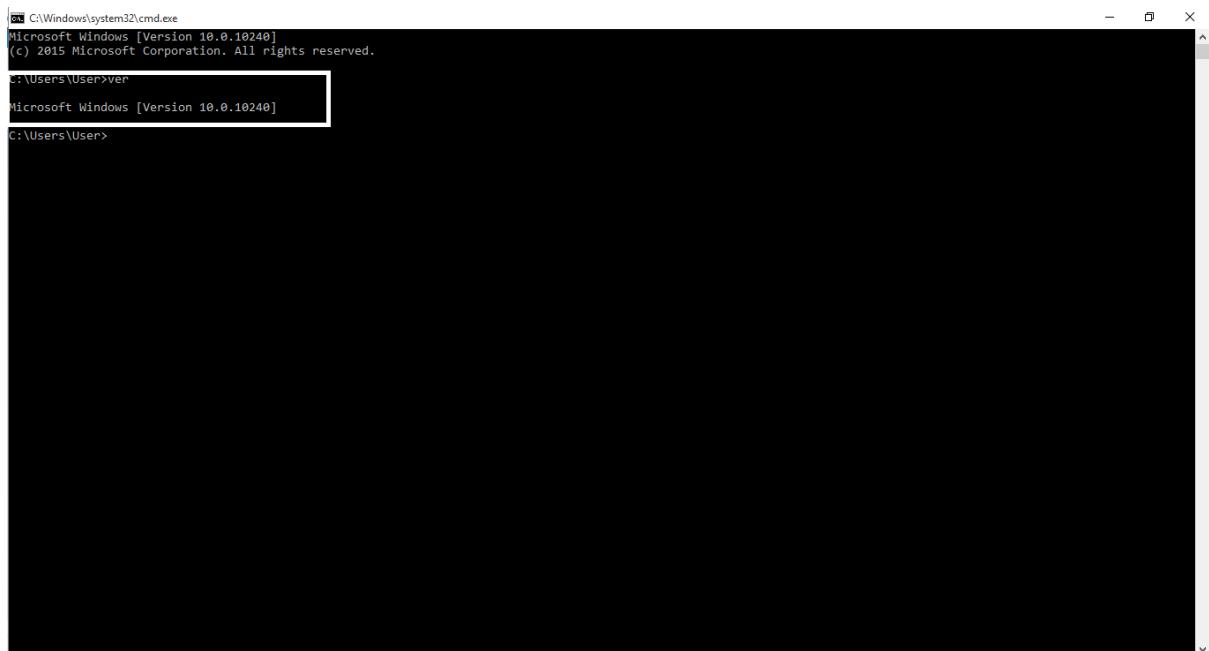
Nama : Rayyan Hanugrah

NIM : L200170109

Kelas : E

Percobaan Pertama: Melihat versi MS-DOS

1. Mengetikkan ver.



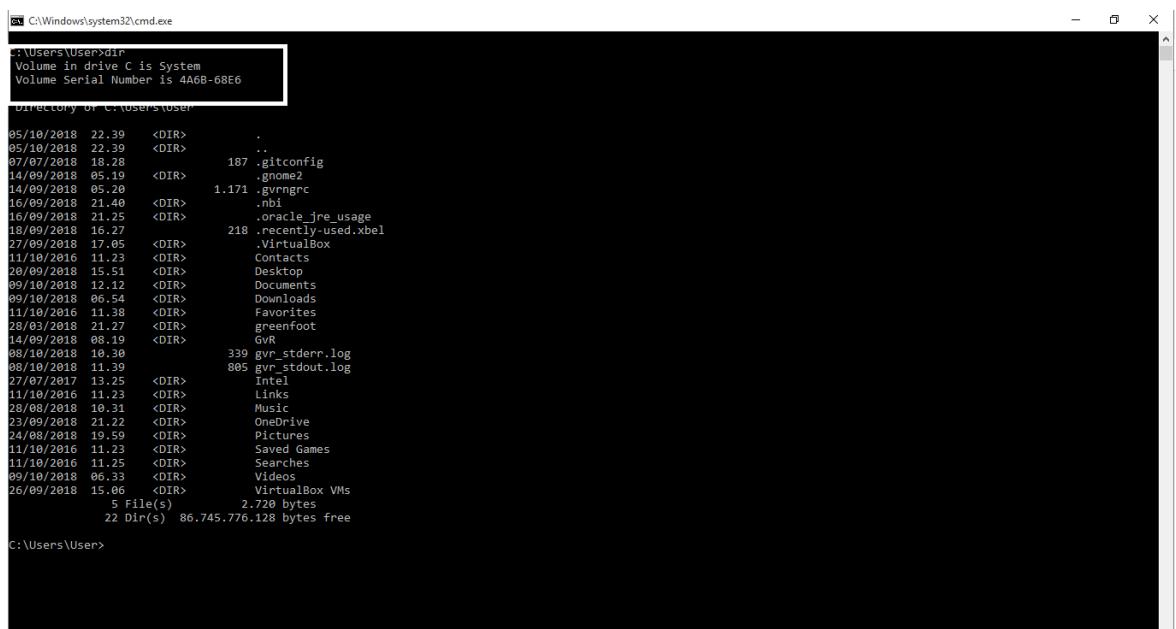
```
C:\Windows\system32\cmd.exe
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>ver
Microsoft Windows [Version 10.0.10240]

C:\Users\User>
```

Percobaan Kedua: Melihat, masuk, keluar dari direktori

1. Melihat isi direktori dengan mengetikkan dir.



```
C:\Windows\system32\cmd.exe
C:\Users\User>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\Users\User

05/10/2018 22.39 <DIR> .
05/10/2018 22.39 <DIR> ..
07/07/2018 18.28 187 .gitconfig
14/09/2018 05.19 <DIR> .gnome2
14/09/2018 05.26 1.171 .gvrngrc
16/09/2018 21.40 <DIR> .nba
16/09/2018 21.25 <DIR> .oracle_jre_usage
18/09/2018 16.27 218 .recently-used.xbel
27/09/2018 17.05 <DIR> .VirtualBox
11/10/2016 11.23 <DIR> Contacts
20/09/2018 15.51 <DIR> Desktop
09/10/2018 12.12 <DIR> Documents
09/10/2018 06.54 <DIR> Downloads
11/10/2016 11.38 <DIR> Favorites
28/03/2018 21.27 <DIR> greenfoot
14/09/2018 08.19 <DIR> GVR
08/10/2018 10.30 339 gvr_stder.log
08/10/2018 11.39 805 gvr_stdout.log
27/07/2017 13.25 <DIR> Intel
11/10/2016 11.23 <DIR> Links
28/08/2018 10.31 <DIR> Music
23/09/2018 21.22 <DIR> OneDrive
24/08/2018 19.59 <DIR> Pictures
11/10/2016 11.23 <DIR> Saved Games
11/10/2016 11.25 <DIR> Searches
09/10/2018 06.33 <DIR> Videos
26/09/2018 15.06 <DIR> VirtualBox VMs
      5 File(s)   2.720 bytes
     22 Dir(s)  86.745.776.128 bytes free

C:\Users\User>
```

2. Keluar dari direktori dengan mengetikkan cd.. hingga sampai ke direktori C:

```
C:\Windows\system32\cmd.exe
C:\Users\User>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\Users\User

05/10/2018 22.39 <DIR> .
05/10/2018 22.39 <DIR> ..
07/07/2018 18.28 187 .gitconfig
14/09/2018 05.19 <DIR> .gnome2
14/09/2018 05.20 1.171 .gvrngrc
16/09/2018 21.40 <DIR> .nbi
16/09/2018 21.25 <DIR> .oracle_jre_usage
18/09/2018 16.27 218 .recently-used.xbel
27/09/2018 17.05 <DIR> .VirtualBox
11/10/2016 11.23 <DIR> Contacts
20/09/2018 15.51 <DIR> Desktop
09/10/2018 12.12 <DIR> Documents
09/10/2018 06.54 <DIR> Downloads
11/10/2016 11.38 <DIR> Favorites
28/03/2018 21.27 <DIR> greenfoot
14/09/2018 08.19 <DIR> GvR
08/10/2018 16.30 339 gvr_stderr.log
08/10/2018 11.39 885 gvr_stdout.log
27/07/2017 13.25 <DIR> Intel
11/10/2016 11.23 <DIR> Links
28/08/2018 16.31 <DIR> Music
23/09/2018 21.22 <DIR> OneDrive
24/08/2018 19.59 <DIR> Pictures
11/10/2016 11.38 <DIR> Saved Games
11/10/2016 11.25 <DIR> Searches
09/10/2018 06.33 <DIR> Videos
26/09/2018 15.06 <DIR> VirtualBox VMs
      5 File(s) 2.720 bytes
     22 Dir(s) 86.745.776.128 bytes free

C:\Users\User>cd..
C:\Users>cd..
C:\>
```

3. Melihat isi direktori C: dengan mengetikkan dir

```
C:\Windows\system32\cmd.exe
11/10/2016 11.23 <DIR> Contacts
20/09/2018 15.51 <DIR> Desktop
09/10/2018 12.12 <DIR> Documents
09/10/2018 06.54 <DIR> Downloads
11/10/2016 11.38 <DIR> Favorites
28/03/2018 21.27 <DIR> greenfoot
14/09/2018 08.19 <DIR> GvR
08/10/2018 16.30 339 gvr_stderr.log
08/10/2018 11.39 885 gvr_stdout.log
27/07/2017 13.25 <DIR> Intel
11/10/2016 11.23 <DIR> Links
28/08/2018 16.31 <DIR> Music
23/09/2018 21.22 <DIR> OneDrive
24/08/2018 19.59 <DIR> Pictures
11/10/2016 11.38 <DIR> Saved Games
11/10/2016 11.25 <DIR> Searches
09/10/2018 06.33 <DIR> Videos
26/09/2018 15.06 <DIR> VirtualBox VMs
      5 File(s) 2.720 bytes
     22 Dir(s) 86.745.776.128 bytes free

C:\Users\User>cd..
C:\Users>cd..
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:

27/07/2017 13.26 <DIR> Intel
14/09/2018 06.09 <DIR> OS
10/07/2015 18.04 <DIR> PerfLogs
26/09/2018 15.01 <DIR> Program Files
14/09/2018 05.19 <DIR> Program Files (x86)
11/10/2016 11.40 <DIR> Transtool
11/10/2016 11.42 <DIR> Users
09/10/2018 07.20 <DIR> Windows
22/03/2018 21.34 <DIR> xamp
      0 File(s) 0 bytes
     9 Dir(s) 86.747.389.952 bytes free

C:\>
```

4. Ketikkan dir/p untuk menampilkan nama file perhalaman

```
C:\Windows\system32\cmd.exe
      5 File(s)          2.720 bytes
      22 Dir(s)  86.745.776.128 bytes free

C:\Users\User>cd..
C:\Users>cd..

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

Directory of C:\

27/07/2017  13.26    <DIR>        Intel
14/09/2018  06.09    <DIR>        OS
10/07/2015  18.04    <DIR>        PerfLogs
26/09/2018  15.01    <DIR>        Program Files
14/09/2018  05.19    <DIR>        Program Files (x86)
11/10/2016  11.40    <DIR>        Transtool
11/10/2016  11.42    <DIR>        Users
09/10/2018  07.20    <DIR>        Windows
22/03/2018  21.34    <DIR>       xampp
          0 File(s)          0 bytes
         9 Dir(s)  86.747.389.952 bytes free

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

Directory of C:\

27/07/2017  13.26    <DIR>        Intel
14/09/2018  06.09    <DIR>        OS
10/07/2015  18.04    <DIR>        PerfLogs
26/09/2018  15.01    <DIR>        Program Files
14/09/2018  05.19    <DIR>        Program Files (x86)
11/10/2016  11.40    <DIR>        Transtool
11/10/2016  11.42    <DIR>        Users
09/10/2018  07.20    <DIR>        Windows
22/03/2018  21.34    <DIR>       xampp
          0 File(s)          0 bytes
         9 Dir(s)  86.746.161.152 bytes free

C:\>
```

5. Ketikkan dir/w untuk menampilkan file secara mendatar.

```
C:\Windows\system32\cmd.exe
10/07/2015  18.04    <DIR>        PerfLogs
26/09/2018  15.01    <DIR>        Program Files
14/09/2018  05.19    <DIR>        Program Files (x86)
11/10/2016  11.40    <DIR>        Transtool
11/10/2016  11.42    <DIR>        Users
09/10/2018  07.20    <DIR>        Windows
22/03/2018  21.34    <DIR>       xampp
          0 File(s)          0 bytes
         9 Dir(s)  86.747.389.952 bytes free

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

Directory of C:\

27/07/2017  13.26    <DIR>        Intel
14/09/2018  06.09    <DIR>        OS
10/07/2015  18.04    <DIR>        PerfLogs
26/09/2018  15.01    <DIR>        Program Files
14/09/2018  05.19    <DIR>        Program Files (x86)
11/10/2016  11.40    <DIR>        Transtool
11/10/2016  11.42    <DIR>        Users
09/10/2018  07.20    <DIR>        Windows
22/03/2018  21.34    <DIR>       xampp
          0 File(s)          0 bytes
         9 Dir(s)  86.746.161.152 bytes free

C:\>dir/w
'dir/w' is not recognized as an internal or external command,
operable program or batch file.

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

Directory of C:\

[Intel]           [OS]           [PerfLogs]           [Program Files]           [Program Files (x86)]           [Transtool]           [Users]
[Windows]          [xampp]          0 File(s)          0 bytes
          9 Dir(s)  86.746.095.616 bytes free

C:\>
```

6. dir/a untuk menampilkan semua file, terutama yang terhidden

```

C:\Windows\system32\cmd.exe
operable program or batch file.

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

Directory of C:\

[Intel] [OS] [PerfLogs] [Program Files] [Program Files (x86)] [Transtool] [Users]
[Windows] [xampp] 0 File(s) 0 bytes
9 Dir(s) 86.746.095.616 bytes free

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

Directory of C:\

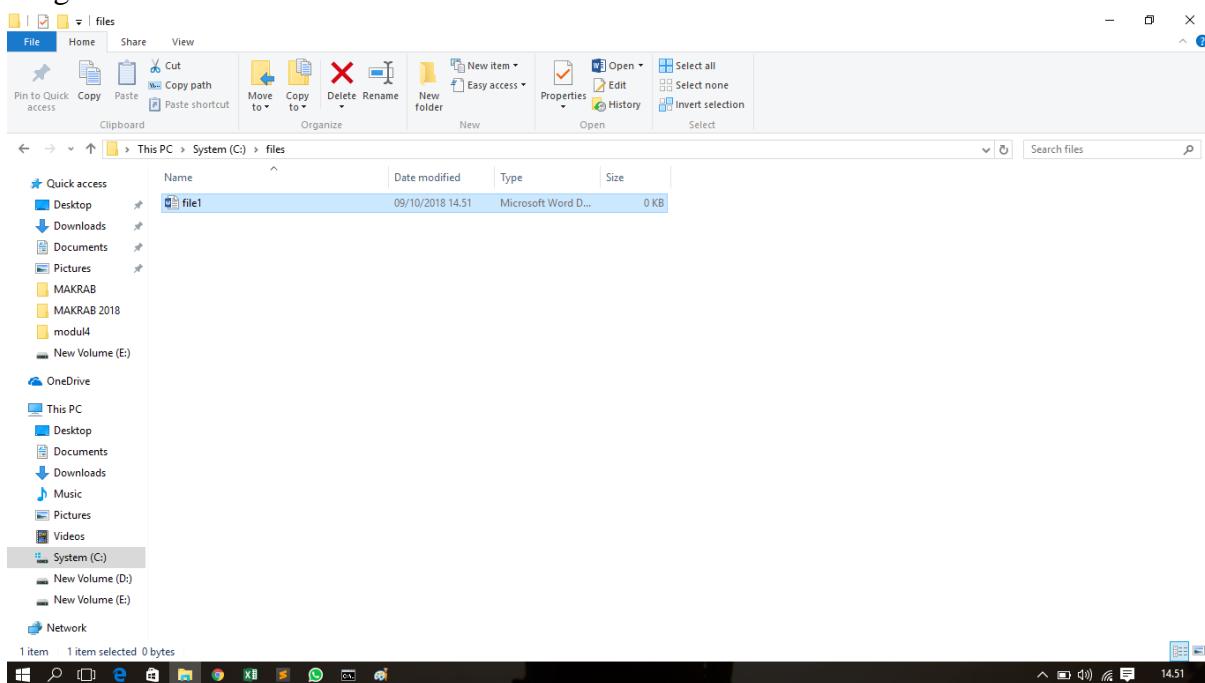
27/07/2017 13.22 <DIR> $Recycle.Bin
16/07/2015 18.00 395.268 bootmgr
16/07/2015 18.00 1 BOOTNXT
01/10/2018 14.08 <DIR> Config.Msi
16/07/2015 19.21 <JUNCTION> Documents and Settings [C:\Users]
09/10/2018 14.09 1.662.713.856 hiberfil.sys
27/07/2017 13.26 <DIR> Intel
11/10/2016 11.36 <DIR> MSOCache
14/09/2018 06.09 <DIR> OS
05/10/2018 07.41 1.006.632.960 pagefile.sys
10/07/2015 18.04 <DIR> PerfLogs
26/09/2018 15.01 <DIR> Program Files
14/09/2018 05.19 <DIR> Program Files (x86)
22/08/2018 12.50 <DIR> ProgramData
11/10/2016 11.19 <DIR> Recovery
05/10/2018 07.41 268.435.456 swapfile.sys
02/05/2018 14.58 <DIR> System Volume Information
11/10/2016 11.40 <DIR> Transtool
11/10/2016 11.42 <DIR> Users
09/10/2018 07.20 <DIR> Windows
22/03/2018 21.34 <DIR> xampp
      5 File(s) 2.938.177.541 bytes
     16 Dir(s) 86.746.828.800 bytes free

C:\>

```

Percobaan Ketiga: Merubah nama file

- Buat semua folder bernama files di direktori C: kemudia buat sebuah file docx di dalamnya dengan ama file1



- Lihat isi direktori, kemudia masuk ke direktori files.

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

Directory of C:\

09/10/2018  14.51    <DIR>        files
27/07/2017  13.26    <DIR>        Intel
14/09/2018  06.09    <DIR>        OS
10/07/2015  18.04    <DIR>        PerfLogs
26/09/2018  15.01    <DIR>        Program Files
14/09/2018  05.19    <DIR>        Program Files (x86)
11/10/2016  11.40    <DIR>        Transtool
11/10/2016  11.42    <DIR>        Users
09/10/2018  07.20    <DIR>        Windows
22/03/2018  21.34    <DIR>       xampp
          0 File(s)   0 bytes
          10 Dir(s)  86.747.557.888 bytes free

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

Directory of C:\files

09/10/2018  14.51    <DIR>        .
09/10/2018  14.51    <DIR>        ..
09/10/2018  14.51           0 file1.docx
          1 File(s)   0 bytes
          2 Dir(s)  86.746.275.840 bytes free
```

3. Ubah nama file dengan perintah ren nama_file_awal.ekstensi nama_file_baru.ekstensi

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

Directory of C:\

09/10/2018  14.51    <DIR>        files
27/07/2017  13.26    <DIR>        Intel
14/09/2018  06.09    <DIR>        OS
10/07/2015  18.04    <DIR>        PerfLogs
26/09/2018  15.01    <DIR>        Program Files
14/09/2018  05.19    <DIR>        Program Files (x86)
11/10/2016  11.40    <DIR>        Transtool
11/10/2016  11.42    <DIR>        Users
09/10/2018  07.20    <DIR>        Windows
22/03/2018  21.34    <DIR>       xampp
          0 File(s)   0 bytes
          10 Dir(s)  86.747.557.888 bytes free

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

Directory of C:\files

09/10/2018  14.51    <DIR>        .
09/10/2018  14.51    <DIR>        ..
09/10/2018  14.51           0 file1.docx
          1 File(s)   0 bytes
          2 Dir(s)  86.746.275.840 bytes free
```

c:\files>ren file1.docx file.docx

```
C:\files>_
```

4. Ubah nama file dengan perintah rename nama_file_awal.ekstensi nama_file_baru.ekstensi

```
C:\Windows\system32\cmd.exe
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 14.51 <DIR>      files
27/07/2017 13.26 <DIR>      Intel
14/09/2018 06.09 <DIR>      OS
10/07/2018 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>      Xamp
    0 File(s)          0 bytes
  10 Dir(s)  86.747.557.888 bytes free

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

Directory of C:\files

09/10/2018 14.51 <DIR>      .
09/10/2018 14.51 <DIR>      ..
09/10/2018 14.51           0 file1.docx
    1 File(s)          0 bytes
    2 Dir(s)  86.746.275.840 bytes free

C:\files>ren file1.docx file.docx
C:\files>rename file.docx file2.docx
C:\files>
```

5. Kemudian apakah sudah terganti dengan melihat isi direktori dengan mengetikkan dir.

```
C:\Windows\system32\cmd.exe
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\files

09/10/2018 14.51 <DIR>      .
09/10/2018 14.51 <DIR>      ..
09/10/2018 14.51           0 file1.docx
    1 File(s)          0 bytes
    2 Dir(s)  86.746.275.840 bytes free

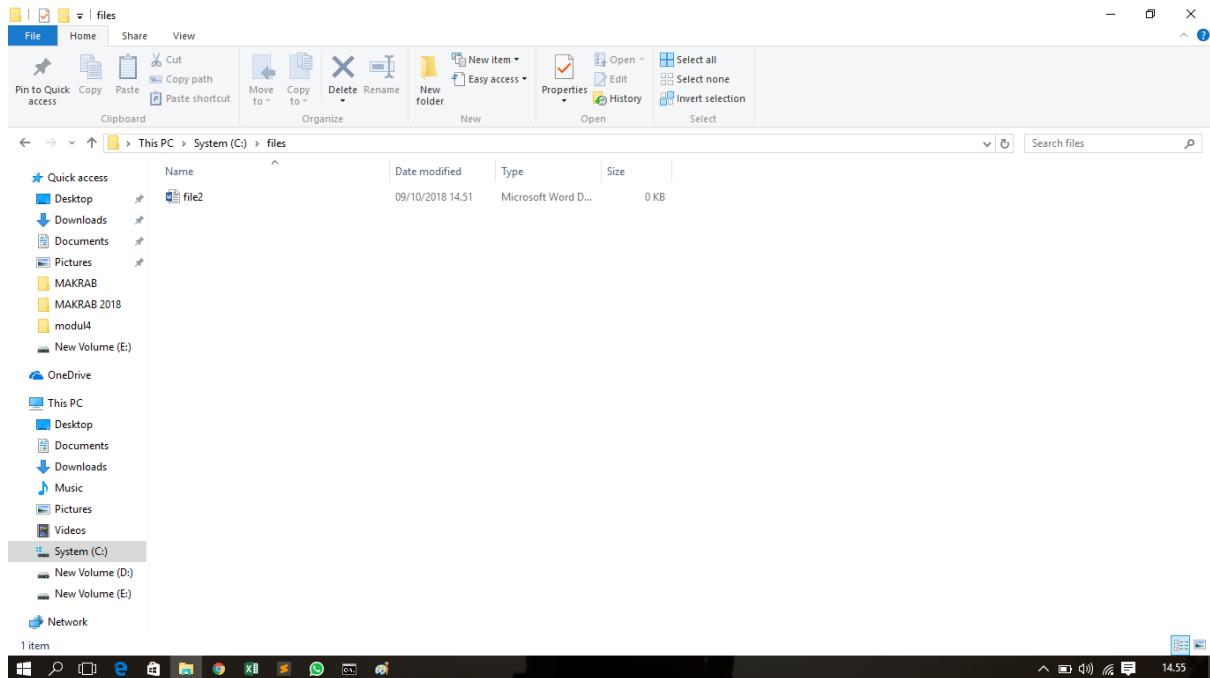
C:\files>ren file1.docx file.docx
C:\files>rename file.docx file2.docx
C:\files>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\files

09/10/2018 14.54 <DIR>      .
09/10/2018 14.54 <DIR>      ..
09/10/2018 14.51           0 file2.docx
    1 File(s)          0 bytes
    2 Dir(s)  86.746.423.296 bytes free

C:\files>
```

6. Kemudian pastikan apakah sudah terganti dengan melihatnya pada windows explorer.

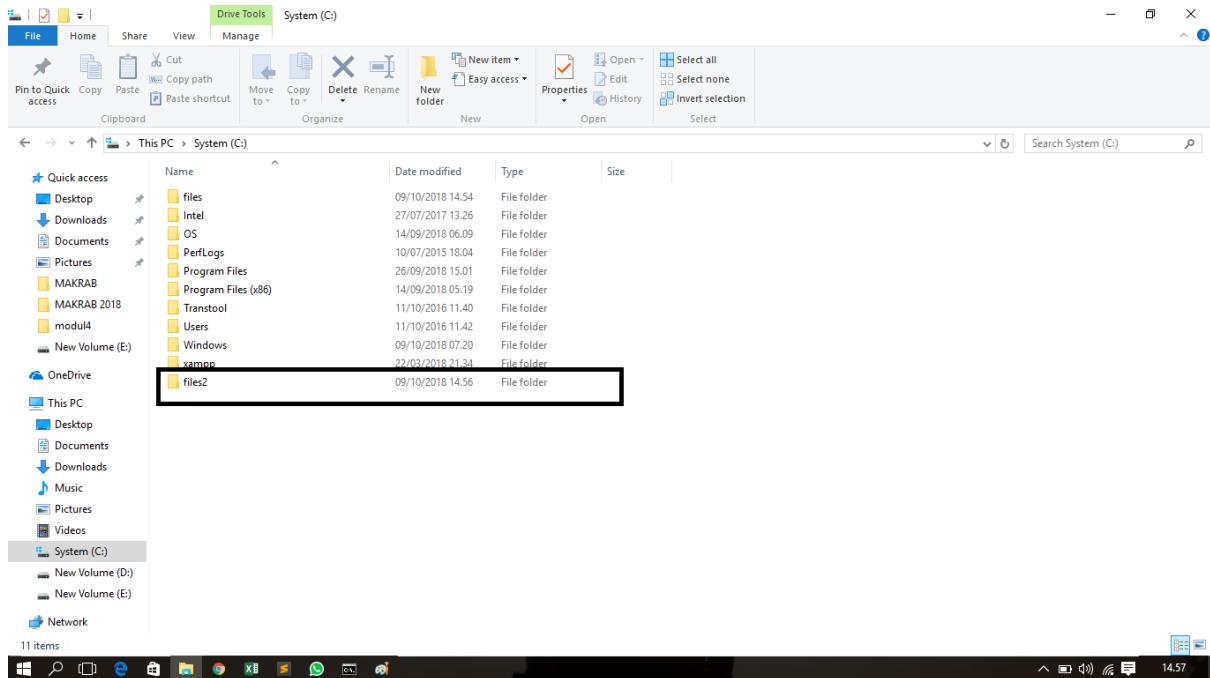


Percobaan keempat: Copy file dan menghapus file

1. Keluar dari direktori files dengan mengetikkan cd..

```
[1] C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>
```

2. Buatlah sebuah folder baru bernama files2 di direktori C:

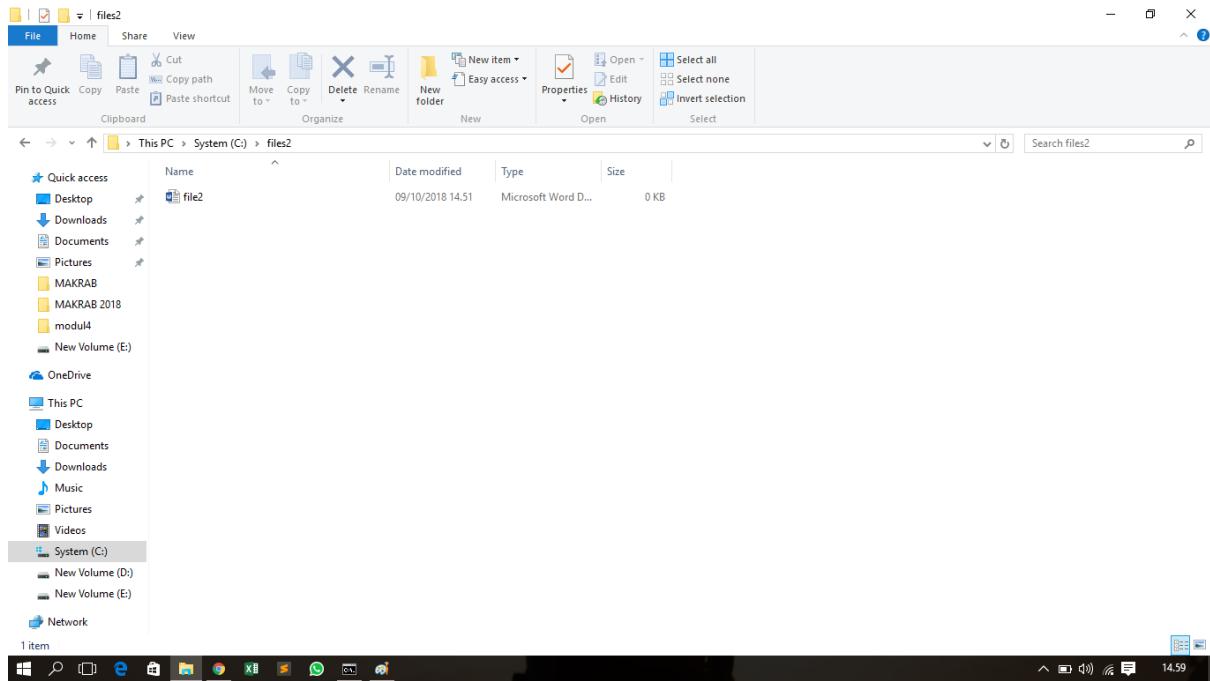


3. Menyalin semua isi file di suatu folder dengan cara mengetikkan copy direktori\nama_folder_awal direktori\ nama_folder_tujuan

```
C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>copy C:\files C:\files2
C:\files\file2.docx
    1 file(s) copied.

C:\>
```

4. Cek pada windows explorer.



5. Untuk mengkopi lain direktori juga berlaku sama. Jika ingin mengecek melalui cmd dapat menggunakan dir.

```
C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>copy C:\files C:\files2
C:\files\file2.docx
    1 file(s) copied.
C:\>cd files
C:\files>copy C:\files\file2.docx D:\file2.docx
    1 file(s) copied.
C:\files>
```

A screenshot of a Windows Command Prompt window. The user has navigated to the 'files' directory and then copied a file named 'file2.docx' to a new directory 'files2' located on drive D. The command used was 'copy C:\files C:\files2'. The output shows that one file was copied. The user then returned to the 'files' directory and copied the same file back to the current directory using 'copy C:\files\file2.docx D:\file2.docx'. The output shows that one file was copied again.

```
ox C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>copy C:\files C:\files2
C:\files\file2.docx
    1 file(s) copied.
C:\>cd files
C:\files>copy C:\files\file2.docx D:\
    1 file(s) copied.
C:\files>cd..
C:\>D:
D:\>
```

```
ox C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>copy C:\files C:\files2
C:\files\file2.docx
    1 file(s) copied.
C:\>cd files
C:\files>copy C:\files\file2.docx D:\
    1 file(s) copied.
C:\files>d
C:\files
C:\files>cd..
C:\>D:
D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B
Directory of D:\

13/05/2018  14.39    <DIR>      ADOBE
03/10/2018  06.57    <DIR>      Aplikasi
28/04/2018  15.17    <DIR>      CETAK
16/08/2018  16.21    <DIR>      DESAINKU
25/06/2018  12.06    <DIR>      FFOutput
09/10/2018  14.51    <DIR>      0 file2.docx
16/07/2018  14.39    <DIR>      cina
18/07/2018  07.44    <DIR>      FOTO
11/04/2018  11.09    <DIR>      HP
12/07/2018  26.24    <DIR>      leaves-and-wombats
16/08/2018  09.22    <DIR>      MUSIC
10/08/2018  16.22    <DIR>      TUTORIAL
18/05/2018  28.07    <DIR>      Wallpaper
31/07/2018  16.36    <DIR>      zia
               1 File(s)          0 bytes
               13 Dir(s)   400.511.463.424 bytes free
D:\>_
```

6. Untuk mengapus ketikkan del nama_folder

```

C:\Windows\system32\cmd.exe
28/04/2018 15.17 <DIR> CETAK
16/08/2018 16.21 <DIR> DESAINKU
25/06/2018 12.06 <DIR> FFOutput
09/10/2018 14.51 0 file2.docx
28/08/2018 16.28 <DIR> FILM
18/07/2018 07.44 <DIR> FOTO
11/04/2018 11.09 <DIR> HP
12/07/2018 28.24 <DIR> leaves-and-wombats
16/08/2018 09.22 <DIR> MUSIC
10/08/2018 16.22 <DIR> TUTORIAL
18/05/2018 28.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
      1 File(s)          0 bytes
     13 Dir(s)  400.511.463.424 bytes free

D:\>C:
C:\>cd
C:\>
C:\>del files
C:\files\*, Are you sure (Y/N)? Y
C:\>

```

7. Kemudia kembali menuju direktori yang terdapat folder dekstop. Kemudia copy semua isi folder dan pindah pada suatu folder baru dibuat saat mengcopy. Dengan cara mengetikkan xcopy Dekstop D:nama_folder\ /s/e

```

C:\Windows\system32\cmd.exe
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvfbc.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvfbc4.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvdi1-smi.1.pd_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvdi1-smi.ex_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvifr.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvifr64.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvifropeng132.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvifropeng164.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvinfo.pb_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvinit.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvinitx.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvlddmkm.sy_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvmcumd.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvml.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvoglshim32.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvoglshim64.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvogl32.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvopenc132.dl_
Desktop\ES-475VGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\nvopenc164.dl_

C:\Users\User>xcopy Desktop D:baru\ /s/e
Desktop\Adobe Premiere Pro CC 2017.lnk
Desktop\CorelDRAW X7 17.3.lnk
Desktop\Flip PDF Professional.lnk
Desktop\Format Factory.lnk
Desktop\GitHub Desktop.lnk
Desktop\Google Chrome.lnk
Desktop\Greenfoot.lnk
Desktop\GvRng.lnk
Desktop\Internet Download Manager.lnk
Desktop\KMPlayer.lnk
Desktop\LINE.lnk
Desktop\Nero Express.lnk
Desktop\PhotoScape.lnk
Desktop\Photoshop CS4.lnk
Desktop\Spotify.lnk
Desktop\Sublime Text 3.lnk
Desktop\WhatsApp.lnk
Desktop\modul\praktikum\pbo\Program.class
Desktop\modul\praktikum\pbo\Program.java
19 File(s) copied

C:\Users\User>

```

8. Kemudian cek pada folder D.

```
C:\Windows\system32\cmd.exe
Desktop\GitHub Desktop.lnk
Desktop\Google Chrome.lnk
Desktop\Greenfoot.lnk
Desktop\GvRng.lnk
Desktop\Internet Download Manager.lnk
Desktop\KMPPlayer.lnk
Desktop\LINE.lnk
Desktop\Nero Express.lnk
Desktop\Photoscape.lnk
Desktop\Photoshop CS4.lnk
Desktop\Spotify.lnk
Desktop\Sublime Text 3.lnk
Desktop\WhatsApp.lnk
Desktop\modul\praktikum\pbo\Program.class
Desktop\modul\praktikum\pbo\Program.java
19 File(s) copied

C:\Users\User>D:
D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018 14.39 <DIR>      ADOBE
09/10/2018 15.15 <DIR>      Aplikasi
09/10/2018 15.26 <DIR>      baru
28/04/2018 15.17 <DIR>      CETAK
16/08/2018 16.21 <DIR>      DESAINKU
25/06/2018 12.06 <DIR>      FFOutput
09/10/2018 14.51 <DIR>      Ø file2.docx
28/08/2018 18.28 <DIR>      FILM
18/07/2018 07.44 <DIR>      FOTO
11/04/2018 11.09 <DIR>      HP
12/07/2018 20.24 <DIR>      leaves-and-wombats
16/08/2018 09.22 <DIR>      MUSIC
10/08/2018 10.22 <DIR>      TUTORIAL
18/05/2018 20.07 <DIR>      Wallpaper
31/07/2018 16.36 <DIR>      zia
1 File(s)          Ø bytes
14 Dir(s)   392.181.448.704 bytes free

D:\>
```

Percobaan Kelima: Membuat dan menghapus direktori

1. Masuk ke direktori C:

```
C:\Windows\system32\cmd.exe
D:\baru>cd..
D:\>C:
C:\Users\User>cd..
C:\Users>cd..
C:\>
```

2. Buat sebuah folder baru dengan nama baru dengan cara mengetikkan md baru, kemudia lihat apakah sudah terbuat dengan melihat isi direktori C:

```
cmd C:\Windows\system32\cmd.exe
D:\baru>cd..
D:\>C:
C:\Users\User>cd..
C:\>cd..
C:\>md baru
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.30 <DIR> baru
09/10/2018 15.05 <DIR> files
09/10/2018 14.58 <DIR> files2
27/07/2017 13.26 <DIR> Intel
14/09/2018 06.09 <DIR> OS
10/07/2015 18.04 <DIR> PerfLogs
26/09/2018 15.01 <DIR> Program Files
14/09/2018 05.19 <DIR> Program Files (x86)
11/10/2016 11.40 <DIR> Transtool
11/10/2016 11.42 <DIR> Users
09/10/2018 07.20 <DIR> Windows
22/03/2018 21.34 <DIR> xampp
               0 File(s)   0 bytes
               12 Dir(s)  91.190.657.024 bytes free

C:\>
```

3. Kemudian hapus direktori dengan rd baru, dan lihat apakah sudah terhapus.

```
cmd C:\Windows\system32\cmd.exe
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.30 <DIR> baru
09/10/2018 15.05 <DIR> files
09/10/2018 14.58 <DIR> files2
27/07/2017 13.26 <DIR> Intel
14/09/2018 06.09 <DIR> OS
10/07/2015 18.04 <DIR> PerfLogs
26/09/2018 15.01 <DIR> Program Files
14/09/2018 05.19 <DIR> Program Files (x86)
11/10/2016 11.40 <DIR> Transtool
11/10/2016 11.42 <DIR> Users
09/10/2018 07.20 <DIR> Windows
22/03/2018 21.34 <DIR> xampp
               0 File(s)   0 bytes
               12 Dir(s)  91.190.652.928 bytes free

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

Directory of C:\

09/10/2018 15.05 <DIR> files
09/10/2018 14.58 <DIR> files2
27/07/2017 13.26 <DIR> Intel
14/09/2018 06.09 <DIR> OS
10/07/2015 18.04 <DIR> PerfLogs
26/09/2018 15.01 <DIR> Program Files
14/09/2018 05.19 <DIR> Program Files (x86)
11/10/2016 11.40 <DIR> Transtool
11/10/2016 11.42 <DIR> Users
09/10/2018 07.20 <DIR> Windows
22/03/2018 21.34 <DIR> xampp
               0 File(s)   0 bytes
               11 Dir(s)  91.190.587.392 bytes free

C:\>
```

4. Kemudian buat kembali suatu folder dengan nama baru1 dengan perintah mkdir nama_file_baru. Kemudian lihat apakah sudah terbuat atau belum.

```
C:\Windows\system32\cmd.exe
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
11 Dir(s)  91.190.648.832 bytes free

C:\>mkdir baru1
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.32 <DIR>      baru1
09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
12 Dir(s)  91.190.648.832 bytes free

C:\>
```

5. Kemudia hapus dengan perintah rmdir nama_folder. Dan lihat apakah sudah terhapus.

```
C:\Windows\system32\cmd.exe
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.32 <DIR>      baru1
09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
12 Dir(s)  91.190.648.832 bytes free

C:\>rmdir baru1
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
11 Dir(s)  91.190.644.736 bytes free

C:\>
```

6. Kemudian buat suatu folder dengan perintah md \nama_folder. Dan cek.

```
C:\Windows\system32\cmd.exe
C:\>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\

09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
11 Dir(s)  91.190.644.736 bytes free

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

Directory of C:\

09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
09/10/2018 15.34 <DIR>      komputer
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
12 Dir(s)  91.190.644.736 bytes free

C:\>
```

7. Lalu buat kembali suatu folder pada suatu folder dengan cara md \folder_awal\folder_yang akan_dibuat

```
C:\Windows\system32\cmd.exe
Directory of C:\

09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
09/10/2018 15.34 <DIR>      komputer
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>     xampp
    0 File(s)          0 bytes
12 Dir(s)  91.190.644.736 bytes free

C:\>md \files\film
C:\>
```

8. Kemudian cek dengan masuk dan melihat isi direktori.

```
□ C:\Windows\system32\cmd.exe
Directory of C:\

09/10/2018 15.05 <DIR>      files
09/10/2018 14.58 <DIR>      files2
27/07/2017 13.26 <DIR>      Intel
09/10/2018 15.34 <DIR>      komputer
14/09/2018 06.09 <DIR>      OS
10/07/2015 18.04 <DIR>      PerfLogs
26/09/2018 15.01 <DIR>      Program Files
14/09/2018 05.19 <DIR>      Program Files (x86)
11/10/2016 11.40 <DIR>      Transtool
11/10/2016 11.42 <DIR>      Users
09/10/2018 07.20 <DIR>      Windows
22/03/2018 21.34 <DIR>      xampp
          0 File(s)   0 bytes free
        12 Dir(s)  91.190.644.736 bytes free

C:>>md \files\film
C:>>cd files
C:\files>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\files

09/10/2018 15.35 <DIR>      .
09/10/2018 15.35 <DIR>      ..
09/10/2018 15.35 <DIR>      film
          0 File(s)   0 bytes free
        3 Dir(s)  91.190.636.544 bytes free

C:\files>
```

Percobaan Keenam: Memindahkan file dan menampilkan isi folder secara terstruktur.

1. Buat suatu file pada folder C:\files\baru. Kemudia pindahkan file ke folder C:\files 2.

```
□ C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>>move C:\files\baru\pindah.docx C:\files2
1 file(s) moved.

C:\>_
```

```
C:\Windows\system32\cmd.exe
C:\files>cd..
C:\>move C:\files\baru\pindah.docx C:\files2
      File(s) moved.
C:\>move C:\files\baru\pindah.txt C:\files2
      1 file(s) moved.
C:\>
```

2. Kemudian cek pada direktori files2.

```
C:\Windows\system32\cmd.exe
27/07/2017 13.26 <DIR>     Intel
09/10/2018 15.34 <DIR>     Komputer
14/09/2018 06.09 <DIR>     OS
10/07/2015 18.04 <DIR>     PerfLogs
26/09/2018 15.01 <DIR>     Program Files
14/09/2018 05.19 <DIR>     Program Files (x86)
11/10/2016 11.40 <DIR>     Transtool
11/10/2016 11.42 <DIR>     Users
09/10/2018 07.20 <DIR>     Windows
22/03/2018 21.34 <DIR>     xampp
      0 File(s)          0 bytes
      12 Dir(s)  91.189.350.400 bytes free
C:\>cd files2
C:\files2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\files2

09/10/2018 15.39 <DIR>     .
09/10/2018 15.39 <DIR>     ..
09/10/2018 14.51           0 file2.docx
09/10/2018 15.38           0 pindah.docx
09/10/2018 15.38           0 pindah.txt
      3 File(s)          0 bytes
      2 Dir(s)  91.189.350.400 bytes free
C:\files2>
```

3. Kemudian lihat hiararki pad suatu folder, seperti folder files dan windows.

```
C:\>C:\Windows\system32\cmd.exe
99/10/2018 07.20 <DIR> Windows
22/03/2018 21.34 <DIR>xampp
    0 File(s) 0 bytes
    12 Dir(s) 91.189.350.400 bytes free

C:\>cd files2
C:\files2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\files2

09/10/2018 15.39 <DIR> .
09/10/2018 15.39 <DIR> ..
09/10/2018 14.51 0 file2.docx
09/10/2018 15.38 0 pindah.docx
09/10/2018 15.38 0 pindah.txt
            3 File(s) 0 bytes
            2 Dir(s) 91.189.350.400 bytes free

C:\files2>cd..
C:\>tree c:\files
Folder PATH listing for volume System
Volume serial number is 4A6B-68E6
C:\FILES
    |---baru
        |---film
```

```
C:\>C:\Windows\system32\cmd.exe
--x86 system.enterpriseservices_b03f5f7f11d50a3a_4.0.10240.16384_none_2d294c34bec1feeb
--x86 system.printing_31bf3856ad364e35_4.0.10240.16384_none_21d09246a470cecd
--x86 system.transactions_b7a5c56193ae089_4.0.10240.16384_none_6b0d6d40dd79387619
--x86 system.web_b03f5f7f11d50a3a_4.0.10240.16384_none_4ea5924272e38ba
--x86 taskschedulersettings.resources_31bf3856ad364e35_10.0.10240.16384_en-us_9f4eee13110079c7f
--x86 wcf-m smsvchost exec cnf_31bf3856ad364e35_10.0.10240.16384_none_a095d427fb5dc169
--x86 wcf-m smsvchost perf_c_reg_31bf3856ad364e35_10.0.10240.16384_none_dc2f7971f100d395
--x86 wcf-m smsvchost perf_c_vreg_31bf3856ad364e35_10.0.10240.16384_none_e1f2fbade4dc74f4
--x86 wcf-m sm_cfg_ins.exe_31bf3856ad364e35_10.0.10240.16384_none_ac03323aa7f75c3d9
--x86 wcf-m sm_evt_dll_vista_31bf3856ad364e35_10.0.10240.16384_none_244c070f7ab17a01
--x86 wcf-m sm_ins_rc_dll_31bf3856ad364e35_10.0.10240.16384_none_74de1b82c147c94
--x86 wcf-m svc_mod_end_perf_reg_31bf3856ad364e35_10.0.10240.16384_none_72b67280722f6be
--x86 wcf-m svc_mod_end_perf_vreg_31bf3856ad364e35_10.0.10240.16384_none_7879f4b6667b0c6d
--x86 wcf-m svc_mod_op_perf_c_reg_31bf3856ad364e35_10.0.10240.16384_none_73a15f9e0ed0dd1c
--x86 wcf-m svc_mod_op_perf_c_vreg_31bf3856ad364e35_10.0.10240.16384_none_74daed5a0e165a75
--x86 wcf-m svc_mod_svc_perf_reg_31bf3856ad364e35_10.0.10240.16384_none_229ce83d718524d1
--x86 wcf-m svc_mod_svc_perf_vreg_31bf3856ad364e35_10.0.10240.16384_none_28696a736dd0c630
--x86 wcf-m svc_mon_sup_dll_31bf3856ad364e35_10.0.10240.16384_none_51bfdb782ddee444b
--x86 wcf-m tx_bridge_perf_c_reg_31bf3856ad364e35_10.0.10240.16384_none_2878312613158ffd
--x86 wcf-m tx_bridge_perf_c_vreg_31bf3856ad364e35_10.0.10240.16384_none_2e3bb35c0f61315c
--x86 wcf-system_identitymodel_selectors_b03f5f7f11d50a3a_10.0.10240.16384_none_3179031ea62581bd
--x86 wcf-system_identitymodel_b03f5f7f11d50a3a_10.0.10240.16384_none_f3b013bb591d44f
--x86 wcf-system_io_log_b03f5f7f11d50a3a_10.0.10240.16384_none_a87549103021a064
--x86 wcf-system_runtime_serialization_b03f5f7f11d50a3a_10.0.10240.16384_none_d5485b0495c85ab6
--x86 wcf-system_servicemodel_b03f5f7f11d50a3a_10.0.10240.16384_none_e3006af068881868
--x86 windows_id-connecte_r-wlndsp_resources_31bf3856ad364e35_10.0.10240.16384_en-us_13ed3a5c46fc567
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_de-de_670354aef881501c3
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_en-gb_086b6fc7ca59c3
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_en-us_0ff42ae876f3d088
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_es-es_0ffb87cc7719ff2d
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_es-mx_11f6757275ade2d8
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_fr-fr_b276fdcb69ec158f
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_it-it_9c9ef412411dfb0d
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_ja-jp_3e4c731f34390ce8
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_ko-kr_e224fd426a9d1fe
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_pt-br_1190616ce3a70b27
--x86 windows-media-speech-winrt_resources_31bf3856ad364e35_10.0.10240.16384_zh-cn_6f7a9556e14e79a
--x86 wordbreakerstemmer-neutral_legacy_31bf3856ad364e35_7.0.10240.16384_none_859fde0e61599e1fd
--x86 wpf-presentationhostexe_31bf3856ad364e35_10.0.10240.16384_none_1bd6097c026db7a7
--x86 wpf-presentationhostproxy_31bf3856ad364e35_10.0.10240.16384_none_d66cecd75c1ef6d9
```

TUGAS

1. Buat file multimedia pada drive D:

```
C:\Windows\system32\cmd.exe
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_es-es_0fbf87cc771ff2d
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_es_mx_11f6757275ade2d8
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_fr_ca_aed48156e47b5f
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_fr_fr_b276fdcb69ec158f
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_it_it_9c9ef4124110fb0d
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_ja_jp_3ec4731f34390ce8
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_ko_kr_e22e4fd426a9d3fe
-x86 windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_pt_br_1190616ce3a70b27
-x86 windows-searchcomponent_31bf3856ad364e35_10.0.10240.16384_zh_ch_6f7a95565e14e79a
-x86 wordbreakerstemmer-neutral-legacy_31bf3856ad364e35_7.0.10240.16384_none_56754738860b73be
-x86 wpf-presentationhostexe_31bf3856ad364e35_10.0.10240.16384_none_1bd689/c026db7a7
-x86 wpf-presentationhostproxy_31bf3856ad364e35_10.0.10240.16384_none_d6bcecd/5clef6d9

C:\>D:
D:\>md \multimedia
D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018 14.39 <DIR> ADOBE
09/10/2018 15.15 <DIR> Aplikasi
09/10/2018 15.26 <DIR> baru
28/04/2018 15.17 <DIR> CETAK
16/08/2018 16.21 <DIR> DESAINKU
25/06/2018 12.06 <DIR> FFOutput
09/10/2018 14.51 0 file2.docx
28/08/2018 16.28 <DIR> FILM
18/07/2018 07.44 <DIR> FOTO
11/04/2018 11.09 <DIR> HP
12/07/2018 20.24 <DIR> leaves-and-wombats
09/10/2018 15.45 <DIR> multimedia
16/08/2018 09.22 <DIR> MUSIC
10/08/2018 10.22 <DIR> TUTORIAL
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
1 File(s) 0 bytes
15 Dir(s) 392.181.448.704 bytes free

D:\>
```

2. Kemudia lihat isi direktori D: apakah sudah ada file atau belum.

```
C:\Windows\system32\cmd.exe
16/08/2018 10.21 <DIR> DESAINKU
25/06/2018 12.06 <DIR> FFOutput
09/10/2018 14.51 0 file2.docx
28/08/2018 16.28 <DIR> FILM
18/07/2018 07.44 <DIR> FOTO
11/04/2018 11.09 <DIR> HP
12/07/2018 20.24 <DIR> leaves-and-wombats
09/10/2018 15.45 <DIR> multimedia
16/08/2018 09.22 <DIR> MUSIC
10/08/2018 10.22 <DIR> TUTORIAL
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
1 File(s) 0 bytes
15 Dir(s) 392.181.448.704 bytes free

D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018 14.39 <DIR> ADOBE
22/05/2018 11.26 382.315 alun.jpg
09/01/2018 05.14 3.951.020 bahagia.mp3
09/01/2018 05.20 0 file2.docx
28/04/2018 15.17 <DIR> CETAK
16/08/2018 10.21 <DIR> DESAINKU
09/05/2018 13.05 <DIR> FFOutput
09/10/2018 14.51 0 file2.docx
28/06/2018 10.28 <DIR> FILM
18/07/2018 07.44 <DIR> FOTO
11/04/2018 11.09 <DIR> HP
12/07/2018 20.24 <DIR> leaves-and-wombats
09/10/2018 15.45 <DIR> multimedia
10/06/2018 05.22 <DIR> nkskc
09/10/2018 15.47 0 teks.txt
10/06/2018 05.22 <DIR> rotiknkc
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
4 File(s) 4.333.335 bytes
15 Dir(s) 392.177.111.044 bytes free

D:\>
```

3. Kemudian copy file ke folder multimedia.

```
C:\Windows\system32\cmd.exe
09/10/2018 15.45 <DIR> multimedia
16/08/2018 09.22 <DIR> MUSIC
10/08/2018 18.22 <DIR> TUTORIAL
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
    1 File(s)      0 bytes
15 Dir(s) 392.181.448.704 bytes free

D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018 14.39 <DIR> ADOBE
22/05/2018 11.26 382.315 alun.jpg
09/10/2018 15.15 <DIR> Aplikasi
09/01/2018 05.14 3.951.020 bahagia.mp3
09/10/2018 15.26 <DIR> baru
28/04/2018 15.17 <DIR> CETAK
16/08/2018 10.21 <DIR> DESAINKU
25/06/2018 12.06 <DIR> FFOutput
09/10/2018 14.51 0 file2.docx
28/08/2018 10.28 <DIR> FILM
18/07/2018 07.44 <DIR> FOTO
11/04/2018 11.09 <DIR> HP
12/07/2018 20.24 <DIR> leaves-and-wombats
09/10/2018 15.45 <DIR> multimedia
16/08/2018 09.22 <DIR> MUSIC
09/10/2018 15.47 0 teks.txt
10/08/2018 10.22 <DIR> TUTORIAL
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
    4 File(s)      4.333.335 bytes
15 Dir(s) 392.177.111.040 bytes free

D:\>copy D:\alun.jpg
The file cannot be copied onto itself.
    0 file(s) copied.

D:\>copy D:\alun.jpg D:\multimedia
    1 file(s) copied.

D:\>
```

```
C:\Windows\system32\cmd.exe
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
    1 File(s)      0 bytes
15 Dir(s) 392.181.448.704 bytes free

D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018 14.39 <DIR> ADOBE
22/05/2018 11.26 382.315 alun.jpg
09/10/2018 15.15 <DIR> Aplikasi
09/01/2018 05.14 3.951.020 bahagia.mp3
09/10/2018 15.26 <DIR> baru
28/04/2018 15.17 <DIR> CETAK
16/08/2018 10.21 <DIR> DESAINKU
25/06/2018 12.06 <DIR> FFOutput
09/10/2018 14.51 0 file2.docx
28/08/2018 10.28 <DIR> FILM
18/07/2018 07.44 <DIR> FOTO
11/04/2018 11.09 <DIR> HP
12/07/2018 20.24 <DIR> leaves-and-wombats
09/10/2018 15.45 <DIR> multimedia
16/08/2018 09.22 <DIR> MUSIC
09/10/2018 15.47 0 teks.txt
10/08/2018 10.22 <DIR> TUTORIAL
18/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
    4 File(s)      4.333.335 bytes
15 Dir(s) 392.177.111.040 bytes free

D:\>copy D:\alun.jpg
The file cannot be copied onto itself.
    0 file(s) copied.

D:\>copy D:\alun.jpg D:\multimedia
    1 file(s) copied.

D:\>copy D:\bahagia.mp3 D:\multimedia
    1 file(s) copied.

D:\>
```

```
C:\Windows\system32\cmd.exe
      15 Dir(s)  392.181.448.704 bytes free

D:\>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018  14.39    <DIR>          ADOBE
22/05/2018  11.26    382.315  alun.jpg
09/10/2018  15.15    <DIR>          Aplikasi
09/01/2018  05.14    3.951.020 bahagia.mp3
09/10/2018  15.26    <DIR>          baru
28/04/2018  15.17    <DIR>          CETAK
16/08/2018  10.21    <DIR>          DESAINKU
25/06/2018  12.06    <DIR>          FFOutput
09/10/2018  14.51    0 file2.docx
28/08/2018  10.28    <DIR>          FILM
18/07/2018  07.44    <DIR>          FOTO
11/04/2018  11.09    <DIR>          HP
12/07/2018  20.24    <DIR>          leaves-and-wombats
09/10/2018  15.45    <DIR>          multimedia
16/08/2018  09.22    <DIR>          MUSIC
09/10/2018  15.47    0 teks.txt
10/08/2018  10.22    <DIR>          TUTORIAL
18/05/2018  20.07    <DIR>          Wallpaper
31/07/2018  16.36    <DIR>          zia
        4 File(s)   4.333.335 bytes
      15 Dir(s)  392.177.111.040 bytes free

D:\>copy D:\alun.jpg
The file cannot be copied onto itself.
  0 file(s) copied.

D:\>copy D:\alun.jpg D:\multimedia
  1 file(s) copied.

D:\>copy D:\bahagia.mp3 D:\multimedia
  1 file(s) copied.

D:\>copy D:\file2.docx D:\multimedia
  1 file(s) copied.

D:\>
```

```
C:\Windows\system32\cmd.exe
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\

13/05/2018  14.39    <DIR>          ADOBE
22/05/2018  11.26    382.315  alun.jpg
09/10/2018  15.15    <DIR>          Aplikasi
09/01/2018  05.14    3.951.020 bahagia.mp3
09/10/2018  15.26    <DIR>          baru
28/04/2018  15.17    <DIR>          CETAK
16/08/2018  10.21    <DIR>          DESAINKU
25/06/2018  12.06    <DIR>          FFOutput
09/10/2018  14.51    0 file2.docx
28/08/2018  10.28    <DIR>          FILM
18/07/2018  07.44    <DIR>          FOTO
11/04/2018  11.09    <DIR>          HP
12/07/2018  20.24    <DIR>          leaves-and-wombats
09/10/2018  15.45    <DIR>          multimedia
16/08/2018  09.22    <DIR>          MUSIC
09/10/2018  15.47    0 teks.txt
10/08/2018  10.22    <DIR>          TUTORIAL
18/05/2018  20.07    <DIR>          Wallpaper
31/07/2018  16.36    <DIR>          zia
        4 File(s)   4.333.335 bytes
      15 Dir(s)  392.177.111.040 bytes free

D:\>copy D:\alun.jpg
The file cannot be copied onto itself.
  0 file(s) copied.

D:\>copy D:\alun.jpg D:\multimedia
  1 file(s) copied.

D:\>copy D:\bahagia.mp3 D:\multimedia
  1 file(s) copied.

D:\>copy D:\file2.docx D:\multimedia
  1 file(s) copied.

D:\>copy D:\teks.txt D:\multimedia
  1 file(s) copied.

D:\>
```

4. Lalu cek pada folder multimedia.

```
C:\Windows\system32\cmd.exe
12/07/2018 20.24    <DIR>      leaves-and-wombats
09/10/2018 15.45    <DIR>      multimedia
16/08/2018 09.22    <DIR>      MUSIC
09/10/2018 15.47    <DIR>      Ø teks.txt
10/08/2018 18.22    <DIR>      TUTORIAL
18/05/2018 20.07    <DIR>      Wallpaper
31/07/2018 16.36    <DIR>      zia
        4 File(s)      4.333.335 bytes
       15 Dir(s)  392.177.111.040 bytes free

D:\>copy D:\alun.jpg
The file cannot be copied onto itself.
        0 file(s) copied.

D:\>copy D:\alun.jpg D:\multimedia
        1 file(s) copied.

D:\>copy D:\bahagia.mp3 D:\multimedia
        1 file(s) copied.

D:\>copy D:\file2.docx D:\multimedia
        1 file(s) copied.

D:\>copy D:\teks.txt D:\multimedia
        1 file(s) copied.

D:\>cd multimedia
D:\multimedia>dir
Volume in drive D is New Volume
Volume Serial Number is F4CA-991B

Directory of D:\multimedia

09/10/2018 18.12    <DIR>      .
09/10/2018 18.12    <DIR>      ..
22/05/2018 11.26    382.315 alun.jpg
09/01/2018 05.14    3.951.020 bahagia.mp3
09/10/2018 14.51    0 file2.docx
09/10/2018 15.47    0 teks.txt
        4 File(s)      4.333.335 bytes
       2 Dir(s)  392.172.773.376 bytes free

D:\multimedia>_
```

MODUL 5

NAMA : Rayyan Hanugrah

NIM : L200170109

1. Distro Linux

I. Ubuntu

Ubuntu adalah salah satu distribusi Linux yang berbasiskan pada Debian. Proyek Ubuntu disponsori oleh Canonical Ltd (perusahaan milik Mark Shuttleworth). Nama Ubuntu diambil dari nama sebuah konsep ideologi di Afrika Selatan. "Ubuntu" berasal dari bahasa kuno Afrika, yang berarti "rasa perikemanusian terhadap sesama manusia".

II. CentOS

CentOS adalah sistem operasi bebas yang didasarkan pada Red Hat Enterprise Linux (RHEL). CentOS singkatan dari Community ENTerprise Operating System (Sistem Operasi Perusahaan buatan Komunitas/Masyarakat).

III. Debian

Debian adalah sistem operasi berbasis kernel Linux. Debian adalah 'kernel independen', yaitu sistem operasi Debiandikembangkan murni tanpa mendasarkan pada sistem operasi yang telah ada.

IV. Slackware

Slackware merupakan sistem operasi yang dibuat oleh Patrick Volkerding dari SlackwareLinux, Inc. Slackware merupakan salah satu distro awal, dan merupakan yang tertua yang masih dikelola. Tujuan utama Slackware adalah stabilitas dan kemudahan desain, serta menjadi distribusiLinux yang paling mirip Unix.

V. Red Hat

Red hat dikembangkan oleh perusahaan Red Hat Inc, 2003 diganti menjadi Red Hat Enterprise Linux khusus untuk lingkungan perusahaan. Red Hat pertama kali memperkenalkan penggunaan sistem RPM Package Manager.

2. Perintah Dasar :

- ✓ Head : menampilkan beberapa baris awal pada file teks
- ✓ Nano : mengedit isi dari suatu file teks
- ✓ Wc : menghitung jumlah baris, kata atau karakter dari sebuah file teks
- ✓ Man : menampilkan dokumentasi (manual pages) dari sebuah perintah
- ✓ Useradd : membuat user
- ✓ Chgrp : merubah kepemilikan direktori/kelompok file
- ✓ Chmod : menambah dan mengurangi ijin pemakai untuk mengakses file/direktori
- ✓ Chown : merubah user ID
- ✓ Fg : mengembalikan suatu proses yang dihentikan sementara agar berjalan kembali di foreground
- ✓ Find : mencari letak file
- ✓ Gzip : software kompresi zip versi GNU
- ✓ Halt : memberitahu kernel supaya mematikan sistem
- ✓ Hostname : menampilkan host/domain

- ✓ Less : perintah more
 - ✓ Login : masuk ke sistem dengan memasukan login ID
 - ✓ Logout : keluar dari sistem
 - ✓ Man : menampilkan teks/manual page
 - ✓ Mesg : memberikan ijin user untuk menampilkan pesan dilayar terminal
 - ✓ More : mempaging hal
 - ✓ Pwd : menampilkan di direktori
 - ✓ Shutdown : mematikan sistem
 - ✓ Su : login sementara sebagai user lain
 - ✓ Talk : percakapan melalui terminal
3. init 0 : untuk maintenance, diagnostic hardware, booting init
1 : single user mode, tambah patches, backup
init 2 : multiuser mode
init 3 : memperluas multiuser mode init
4 : alternative multiuser
init 5 : shutdown
init 6 : menghentikan OS kemudian reboot dan kembali ke init default yang ada di etc / inittab
4. perintah “Quota” : perangkat administrasi sistem untuk membatasi dan memantau pemakaian suatu partisi oleh user atau group

MODUL 6

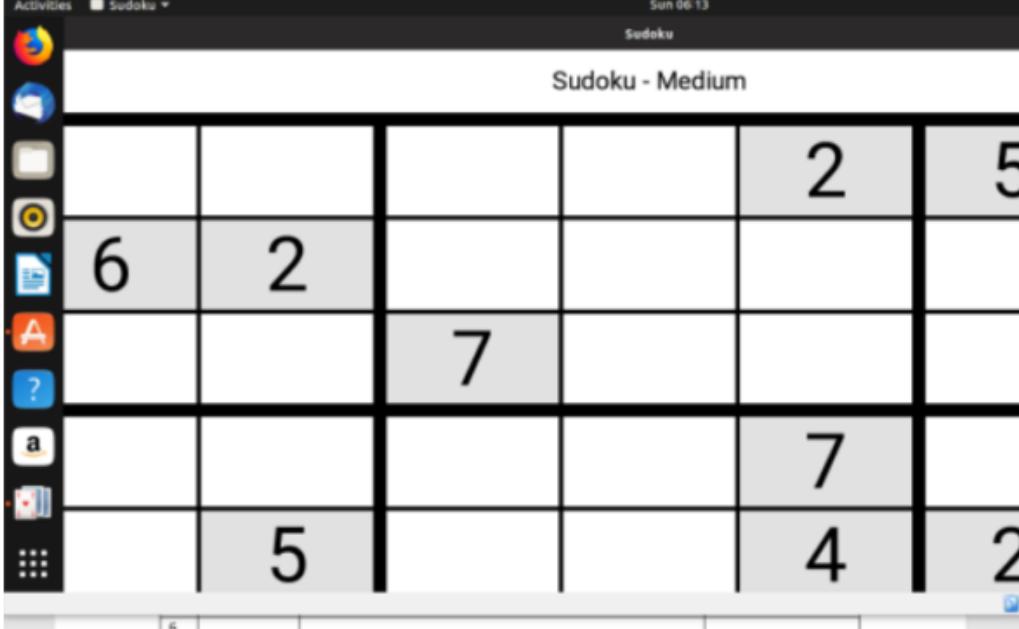
Rayyan Hanugrah

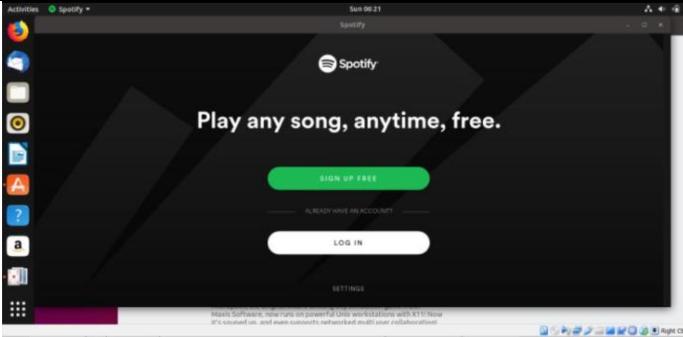
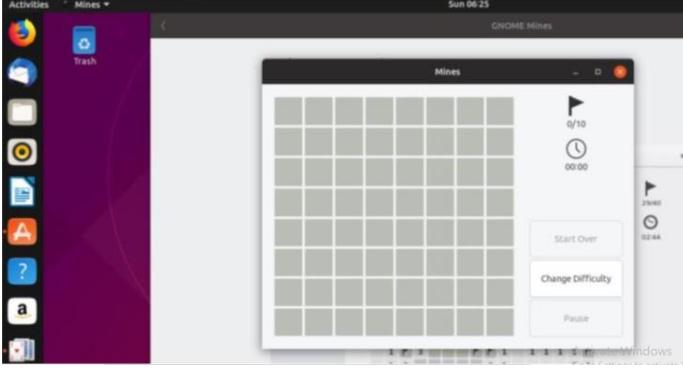
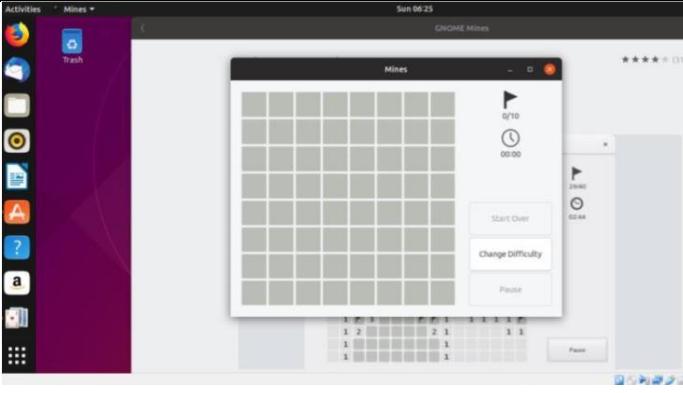
L200170109

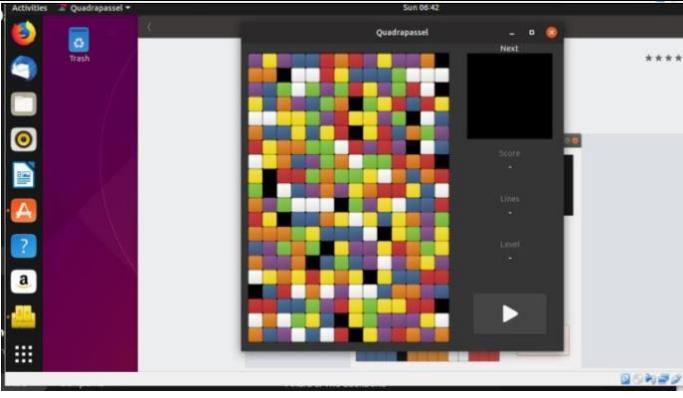
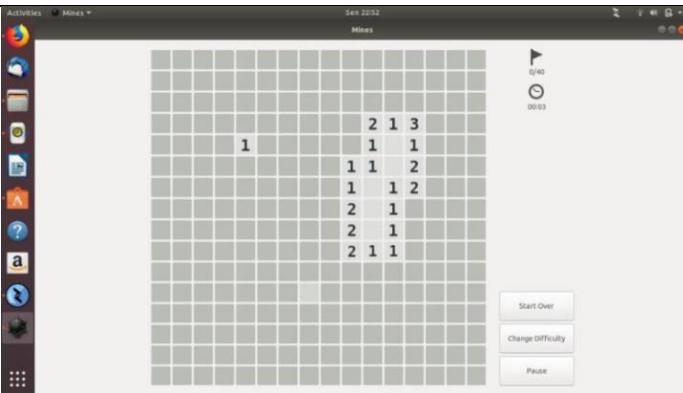
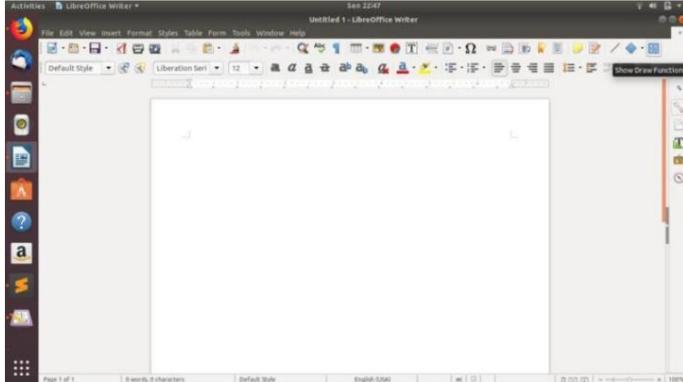
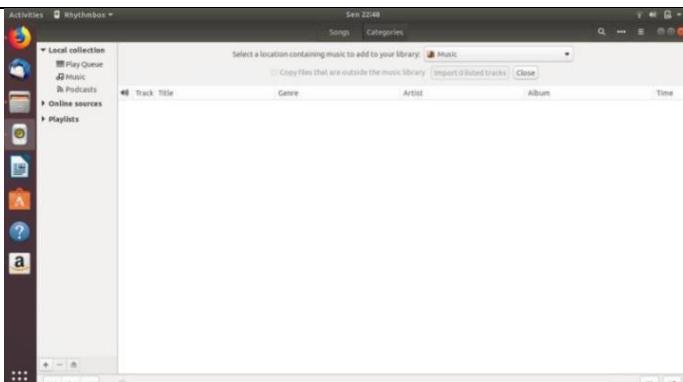
Kelas E

Tugas

1. Menggunakan laptop masing-masing instalkan 10 aplikasi yang berbeda pada linux dan sebutkan fungsinya.

N O	Apilik asi	Tampilan	Fungsi
1	Aisleri ot solitair e		Untuk bermain game solitaire
2	Sudoku game		Untuk bermain game Sudoku

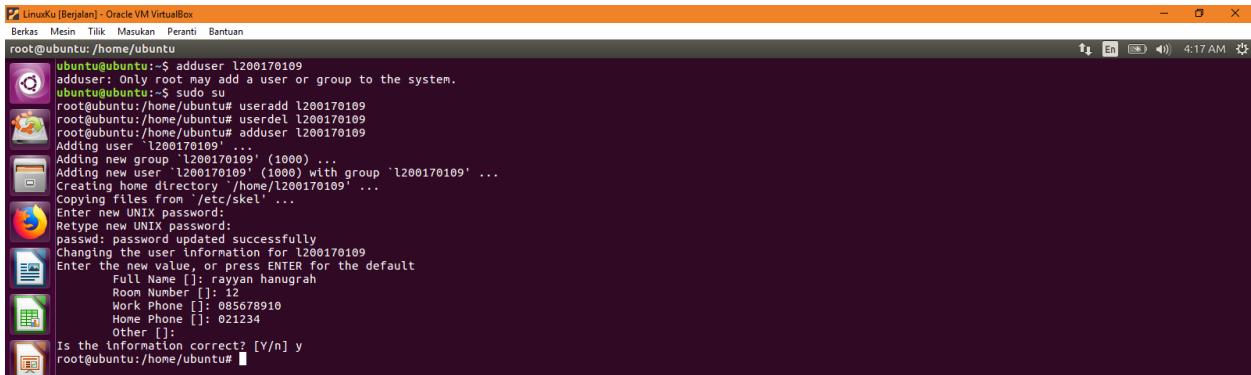
3	Spotify		Untuk mendengarkan musik
4	Micropolis		Untuk bermain game metropolis
5	Gnome Mines		Bermain game
6	Gnome Mahjong		Bermain game

7	Quadrapsel		Bermain game
8	Gnome mine		Bermain game
9	Libre Office		Membuat dokumen
10	Rhythmbox		Memutar lagu

MODUL 7

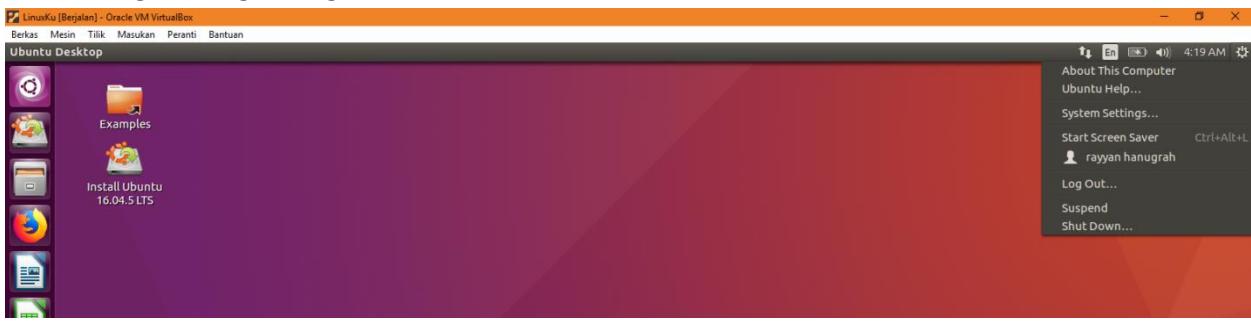
Praktikum 1:

Membuat user baru dan menambahkan informasi user baru yang telah ditambahkan

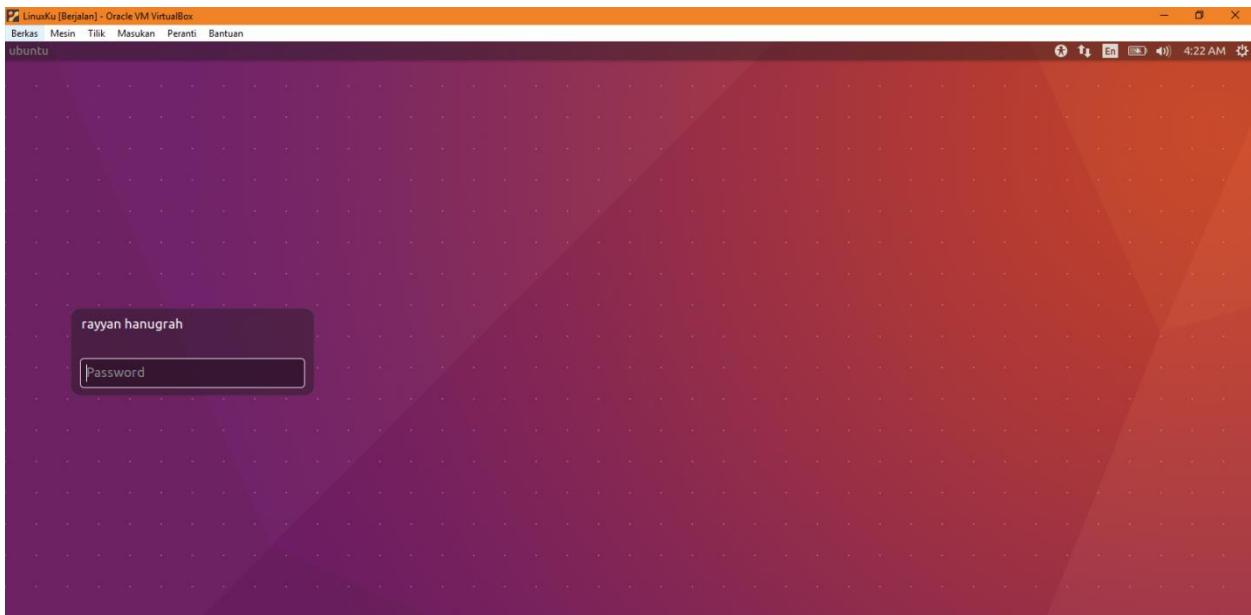


```
LinuxKu [Berjalan] - Oracle VM VirtualBox
Berkas Mesin Tilk Masukan Peranti Bantuan
root@ubuntu:/home/ubuntu
root@ubuntu:~$ adduser l200170109
adduser: Only root may add a user or group to the system.
root@ubuntu:~$ sudo su
root@ubuntu:/home/ubuntu# useradd l200170109
root@ubuntu:/home/ubuntu# userdel l200170109
root@ubuntu:/home/ubuntu# adduser l200170109
Adding user `l200170109' ...
Adding new group `l200170109' (1000) ...
Adding new user `l200170109' (1000) with group `l200170109' ...
Creating home directory `/home/l200170109' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for l200170109
Enter the new value, or press ENTER for the default
    Full Name []: rayyan hanugrah
    Room Number []: 12
    Work Phone []: 085678910
    Home Phone []: 021234
    Other []:
Is the information correct? [Y/n] y
root@ubuntu:/home/ubuntu#
```

Keluar dengan mengklik Log out



Lalu masuk dengan mengisikan password yang telah anda tambahkan pada user baru

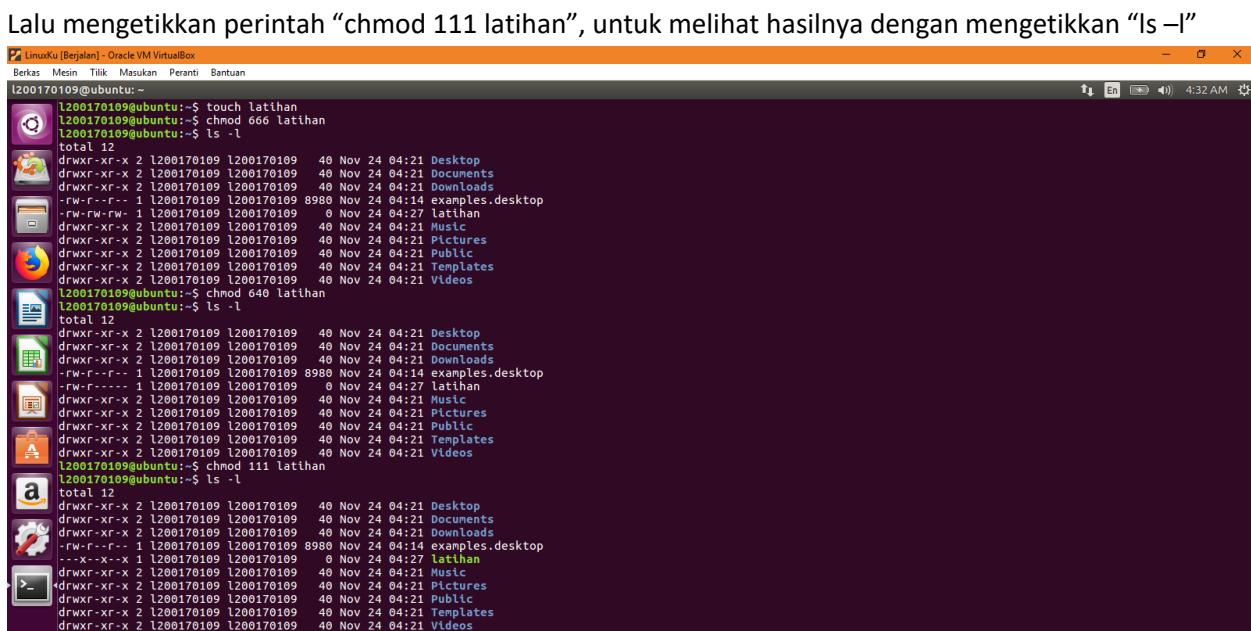


Praktikum 2:

Membuat file bernama latihan

Lalu mengetikkan perintah “chmod 666 latihan”, untuk melihat hasilnya dengan mengetikkan “ls -l”

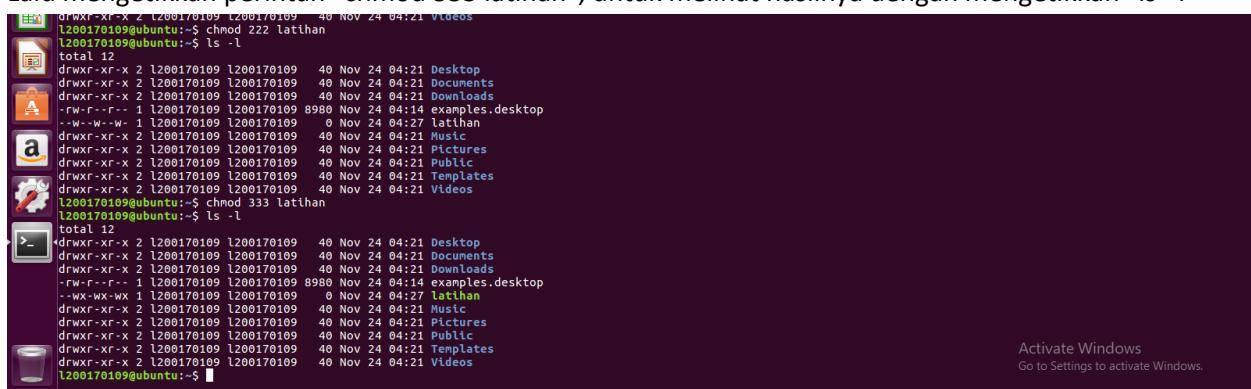
Lalu mengetikkan perintah “chmod 640 latihan”, untuk melihat hasilnya dengan mengetikkan “ls -l”



```
LinuxKu [Bejalan] - Oracle VM VirtualBox
Berkas Mesin Tiltik Masukan Peranti Bantuan
[200170109@ubuntu: ~]
l200170109@ubuntu:~$ touch latihan
l200170109@ubuntu:~$ chmod 666 latihan
l200170109@ubuntu:~$ ls -l
total 12
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Documents
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Downloads
-rw-r--r-- 1 l200170109 l200170109 8980 Nov 24 04:14 examples.desktop
-rw-rw-rw- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Music
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Pictures
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Public
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Templates
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Videos
l200170109@ubuntu:~$ chmod 640 latihan
l200170109@ubuntu:~$ ls -l
total 12
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Documents
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Downloads
-rw-r--r-- 1 l200170109 l200170109 8980 Nov 24 04:14 examples.desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 latihan
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Music
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Pictures
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Public
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Templates
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Videos
l200170109@ubuntu:~$ chmod 111 latihan
l200170109@ubuntu:~$ ls -l
total 12
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Documents
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Downloads
-rw-r--r-- 1 l200170109 l200170109 8980 Nov 24 04:14 examples.desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 latihan
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Music
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Pictures
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Public
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Templates
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Videos
```

Lalu mengetikkan perintah “chmod 222 latihan”, untuk melihat hasilnya dengan mengetikkan “ls -l”

Lalu mengetikkan perintah “chmod 333 latihan”, untuk melihat hasilnya dengan mengetikkan “ls -l”



```
[200170109@ubuntu: ~]
l200170109@ubuntu:~$ chmod 222 latihan
l200170109@ubuntu:~$ ls -l
total 12
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Documents
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Downloads
-rw-r--r-- 1 l200170109 l200170109 8980 Nov 24 04:14 examples.desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 latihan
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Music
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Pictures
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Public
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Templates
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Videos
l200170109@ubuntu:~$ chmod 333 latihan
l200170109@ubuntu:~$ ls -l
total 12
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Documents
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Downloads
-rw-r--r-- 1 l200170109 l200170109 8980 Nov 24 04:14 examples.desktop
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 latihan
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Music
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Pictures
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Public
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Templates
drwxr-xr-x 2 l200170109 l200170109 40 Nov 24 04:21 Videos
```

Praktikum 3:

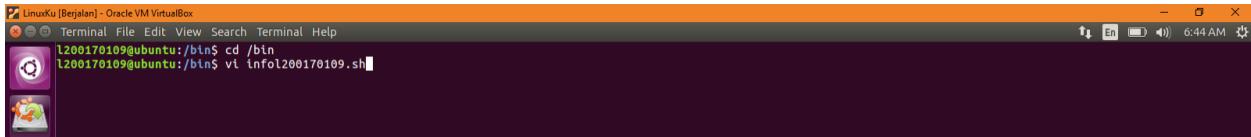
Melakukan perubahan hak akses dengan menggunakan operand +x, -x, +r, -r, +w, dan -w.



```
[200170109@ubuntu: ~]
l200170109@ubuntu:~$ chmod 000 latihan
l200170109@ubuntu:~$ ls -l latihan
----- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$ chmod +r latihan
l200170109@ubuntu:~$ ls -l latihan
-rw-r--r-- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$ chmod +w latihan
l200170109@ubuntu:~$ ls -l latihan
-rw-rw-rw- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$ chmod +x latihan
l200170109@ubuntu:~$ ls -l latihan
-rwxrwxr-x 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$ chmod -x latihan
l200170109@ubuntu:~$ ls -l latihan
-rw-rw-r-- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$ chmod -w latihan
l200170109@ubuntu:~$ ls -l latihan
-rw-r--r-- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$ chmod -r latihan
l200170109@ubuntu:~$ ls -l latihan
----- 1 l200170109 l200170109 0 Nov 24 04:27 latihan
l200170109@ubuntu:~$
```

praktikum 4:

masuk ke dalam direktori /bin
lalu membuat file bernama info.sh



```
LinuxKu [Bejalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
l200170109@ubuntu:/bin$ cd /bin
l200170109@ubuntu:/bin$ vi infol200170109.sh
```



```
E325: ATTENTION
Found a swap file by the name "/var/tmp/infol200170109.sh.swp"
  owned by: l200170109  dated: Sat Nov 24 06:05:23 2018
  file name: /bin/infol200170109.sh
  modified: YES
  user name: l200170109  host name: ubuntu
  process ID: 7660
While opening file "infol200170109.sh"

(1) Another program may be editing the same file. If this is the case,
be careful not to end up with two different instances of the same
file when making changes. Quit, or continue with caution.
(2) An edit session for this file crashed.
If this is the case, use ":recover" or "vim -r infol200170109.sh"
to recover the changes (see ":help recovery").
If you did this already, delete the swap file "/var/tmp/infol200170109.sh.swp"
to avoid this message.

"infol200170109.sh" [New File]
Press ENTER or type command to continue
```



```
LinuxKu [Bejalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
WAKTU="Tanggal dan jam saat ini : `date`"
JMLUSER="Jumlah user : `who | wc -l`"
AKU="Status personal : `echo -e \"$WAKTU\"`"
echo -e "$JMLUSER"
echo -e "$AKU"
whoml
exit 0
```

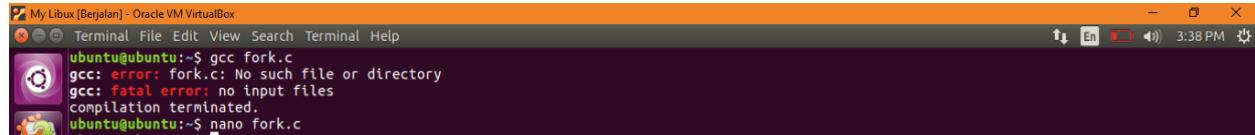
MODUL 8

Rayyan Hanugrah

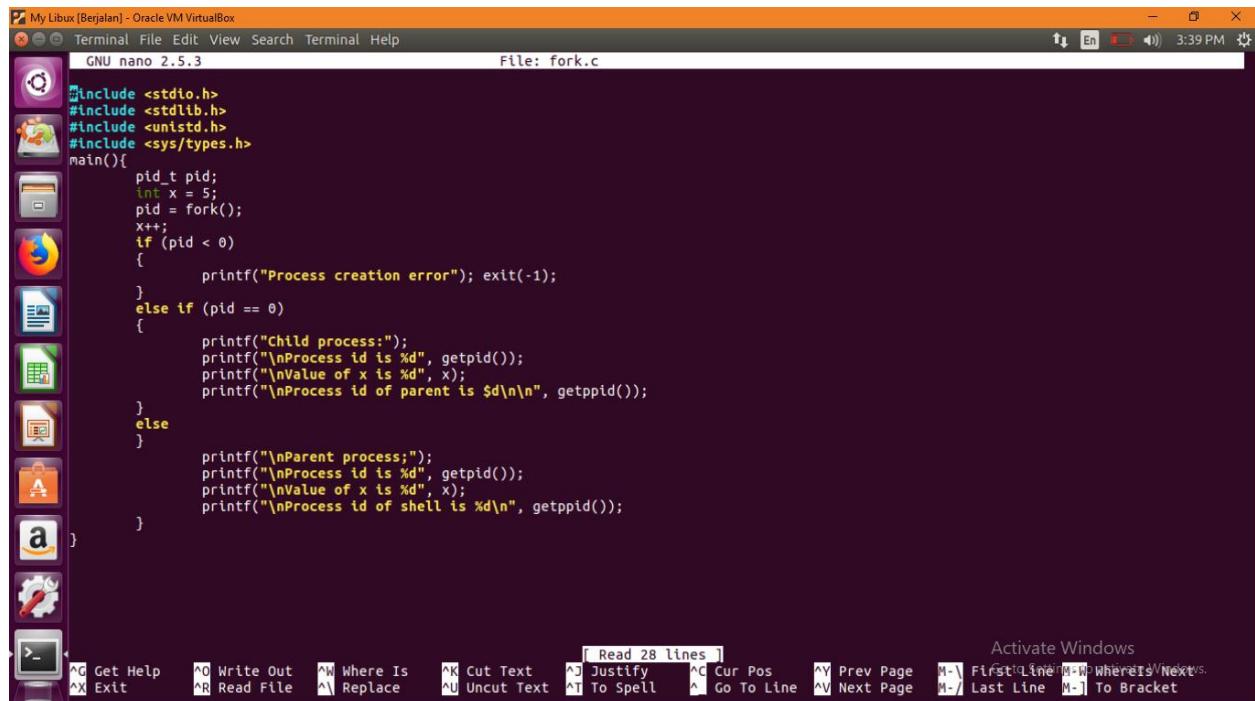
L200170109

Kelas E

Fork.c



```
My Libus [Berjalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
ubuntu@ubuntu:~$ gcc fork.c
gcc: error: fork.c: No such file or directory
gcc: fatal error: no input files
compilation terminated.
ubuntu@ubuntu:~$ nano fork.c
```



```
My Libus [Berjalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
File: fork.c
GNU nano 2.5.3
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
main(){
    pid_t pid;
    int x = 5;
    pid = fork();
    x++;
    if (pid < 0)
    {
        printf("Process creation error"); exit(-1);
    }
    else if (pid == 0)
    {
        printf("\nChild process:");
        printf("\nProcess id is %d", getpid());
        printf("\nValue of x is %d", x);
        printf("\nProcess id of parent is $d\n", getppid());
    }
    else
    {
        printf("\nParent process:");
        printf("\nProcess id is %d", getpid());
        printf("\nValue of x is %d");
        printf("\nProcess id of shell is %d\n", getppid());
    }
}
Activate Windows
```



```
My Libus [Berjalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
ubuntu@ubuntu:~$ nano fork.c
ubuntu@ubuntu:~$ gcc fork.c -o fork
ubuntu@ubuntu:~$ ./fork
Parent process:
Process id is 4573
Value of x is 6
Process id of parent is 4460
ubuntu@ubuntu:~$
```

Wait.c



```
My Libus [Berjalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
ubuntu@ubuntu:~$ nano wait.c
```

My Libux [Berjalan] - Oracle VM VirtualBox

Terminal File Edit View Search Terminal Help

File: wait.c

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>

int main(){
    int i, status;
    pid_t pid;
    pid = fork();

    if (pid < 0){
        printf("\nPembuatan proses gagal\n");
        exit(-1);
    }
    else if (pid > 0){
        wait(NULL);
        printf("\nParent starts\nNomor Genap:");
        for (i=2;i<=10;i+=2)
            printf ("%d",i);
        printf("\nParent ends\n");
    }
    else if (pid ==0){
        printf("Child starts\nNomor Ganjil:");
        for (i=1;i<10;i+=2)
            printf("%d",i);
        printf("\nChild ends\n");
    }
}
```

Activate Windows

Get Help Write Out Where Is Cut Text Uncut Text Justify Cur Pos Prev Page Next Page First Line Last Line To Spell Go To Line To Bracket

ubuntu@ubuntu:~/Desktop\$./wait

Child starts
Nomor Ganjil: 1 3 5 7 9
Child ends

Parent starts
Nomor Genap: 2 4 6 8 10
Parent ends

ubuntu@ubuntu:~\$ nano wait.c

ubuntu@ubuntu:~\$

Exec.c

My Libux [Berjalan] - Oracle VM VirtualBox

Terminal File Edit View Search Terminal Help

File: exec.c

```
#include <stdio.h>
#include <sys/types.h>
#include <unistd.h>
#include <stdlib.h>
#include <wait.h>

int main(int argc, char*argv[]){
    pid_t pid;
    int i;

    if(argc !=3){
        printf("\nInsufficient arguments to load program");
        printf("\nUsage: ./a.out <path> <cmd>\n");
        exit(-1);
    }
    switch(pid = fork()){
        case -1:
            printf("Fork failed");
            exit(-1);
        case 0:
            printf("Child process\n");
            i=execl(argv[1], argv[2], NULL);
            if (i < 0){
                printf("%s program not loaded using exec system call\n", argv[2]);
                exit(-1);
            }
        default:
            wait(NULL);
            printf("Child Terminated\n");
            exit(0);
    }
}
```

Activate Windows

Get Help Write Out Where Is Cut Text Uncut Text Justify Cur Pos Prev Page Next Page First Line Last Line To Spell Go To Line To Bracket

```

ubuntu@ubuntu:~$ nano exec.c
ubuntu@ubuntu:~$ gcc exec.c -o exec
ubuntu@ubuntu:~$ nano exec.c
Amazon ::$ gcc exec.c -o exec
ubuntu@ubuntu:~$ ./exec
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
ubuntu@ubuntu:~$ ./a.out /bin/is is
bash: ./a.out: No such file or directory
ubuntu@ubuntu:~$ ./a.out
bash: ./a.out: No such file or directory
ubuntu@ubuntu:~$ 

```

Activate Windows
Go to Settings to activate Windows.

Stat.c

```

My Libux [Berjalan] - Oracle VM VirtualBox
Terminal File Edit View Search Terminal Help
GNU nano 2.5.3 File: stat.c


```

#include <stdio.h>
#include <sys/stat.h>
#include <stdlib.h>
#include <time.h>

int main(int argc, char*argv[]){
 struct stat
 files; int n;
 if (argc != 2){
 printf("Usage: ./a.out <filename>\n");
 exit(-1);
 }
 if ((n=stat(argv[1], &file)) == -1){
 perror(argv[1]);
 exit(-1);
 }
 printf("User id : %d\n", file.st_uid);
 printf("Group id : %d\n", file.st_gid);
 printf("Block size : %d\n", file.st_blksize);
 printf("Blocks allocated : %d\n", file.st_blocks);
 printf("Inode no. : %d\n", file.st_ino);
 printf("Last accessed : %d\n", file.st_atime);
 printf("Last modified : %d\n", file.st_mtime);
 printf("File size : %d\n", file.st_size);
 printf("No. of links : %d\n", file.st_nlink);
 printf("Permissions : ");
 printf((S_ISDIR(file.st_mode)) ? "d" : "-");
 printf((file.st_mode & S_IRUSR) ? "r" : "-");
 printf((file.st_mode & S_IWUSR) ? "w" : "-");
 printf((file.st_mode & S_IXUSR) ? "x" : "-");
 printf((file.st_mode & S_IRGRP) ? "r" : "-");
 printf((file.st_mode & S_IWGRP) ? "w" : "-");
 printf((file.st_mode & S_IXGRP) ? "x" : "-");
 printf((file.st_mode & S_IROTH) ? "r" : "-");
 printf((file.st_mode & S_IWOTH) ? "w" : "-");
 printf((file.st_mode & S_IXOTH) ? "x" : "-");
 printf("\n");
 if(file.st_mode & S_IFREG)
 printf("file type : Regular\n");
 if(file.st_mode & S_IFDIR)
 printf("file type : Directory\n");
}

```



Activate Windows  
Go to Settings to activate Windows.


```

```

My Libux [Berjalan] - Oracle VM VirtualBox
root@ubuntu:~/home/ubuntu
root@ubuntu:~/home/ubuntu# nano stat.c
root@ubuntu:~/home/ubuntu# gcc stat.c -o stat
stat.c: In function 'main':
stat.c:13:24: error: 'file' undeclared (first use in this function)
    if ((n=stat(argv[1], &file)) == -1){
                           ^
stat.c:13:24: note: each undeclared identifier is reported only once for each function it appears in

```

Dirlist.c

A screenshot of a Linux desktop environment, likely Ubuntu, running in Oracle VM VirtualBox. The desktop has a dark theme with icons for various applications like a web browser, file manager, and system tools. In the foreground, a terminal window titled "GNU nano 2.5.3" is open, displaying a C program named "dirlist.c". The code uses the dirent.h library to list directory contents. Below the terminal is a menu bar with standard options like "File", "Edit", "View", etc. At the bottom is a toolbar with keyboard shortcut keys for various functions.

```
#include <stdio.h>
#include <dirent.h>
#include <stdlib.h>

int main(int argc, char*argv[]){
    struct dirent*dptr;
    DIR *dname;

    if(argc !=2){
        printf("Usage: ./a.out <dirname>\n");
        exit(-1);
    }
    if((dname = opendir(argv[1])) == NULL){
        perror(argv[1]);
        exit(-1);
    }
    while(dptr=readdir(dname))
        printf("%s\n", dptr->d_name);
    closedir(dname);
}
```

A screenshot of a terminal window showing the compilation and execution of the C program. The user runs "gcc dirlist.c -o dirlist", then "./dirlist", which outputs the usage message. The terminal window also shows the Windows activation watermark.

```
root@ubuntu:/home/ubuntu# nano dirlist.c
root@ubuntu:/home/ubuntu# gcc dirlist.c -o dirlist
root@ubuntu:/home/ubuntu# ./dirlist
Usage: ./a.out <dirname>
root@ubuntu:/home/ubuntu#
```

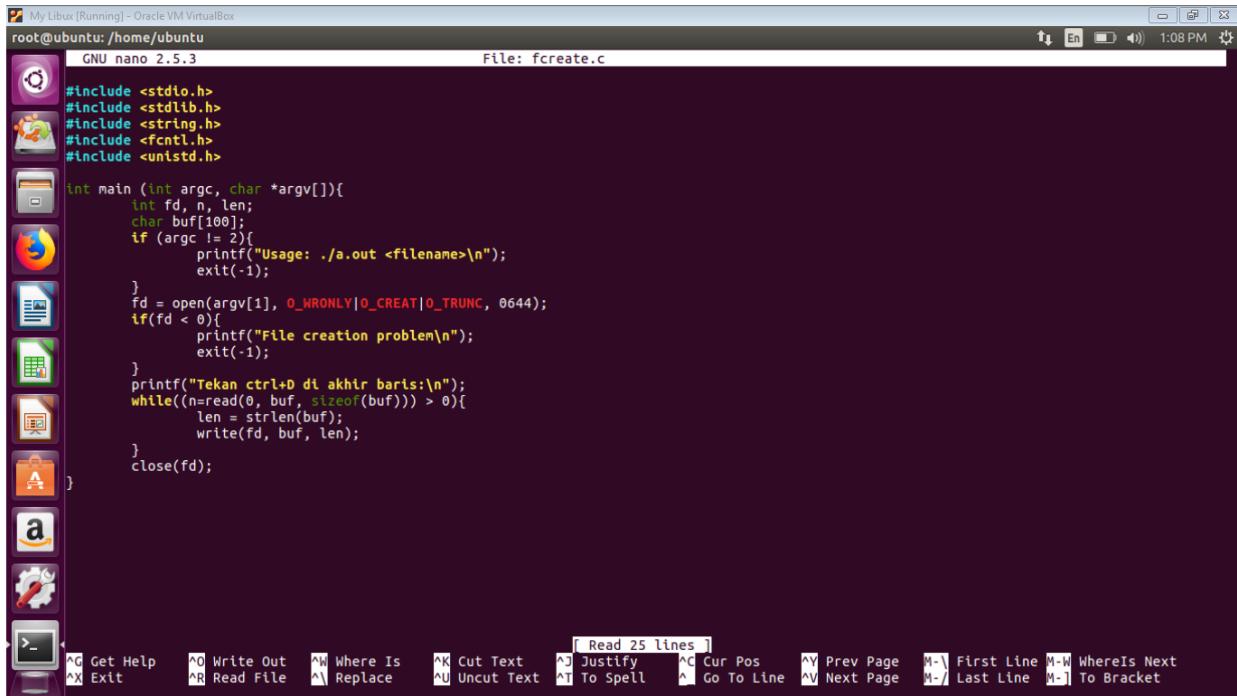
MODUL 9

RAYYAN HANUGRAH
L200170109
KELAS E

A. Membuat sebuah file dan mengisikan data didalamnya

```
root@ubuntu:/home/ubuntu# nano fcreate.c
root@ubuntu:/home/ubuntu# gcc fcreate.c -o fcreate
```

Lalu mengetikkan seperti di bawah



The screenshot shows a terminal window titled "My Linux [Running] - Oracle VM VirtualBox". The command "root@ubuntu:/home/ubuntu# nano fcreate.c" is entered at the prompt. The terminal displays the C code for "fcreate.c". The code includes headers for stdio.h, stdlib.h, string.h, fcntl.h, and unistd.h. It defines a main function that checks for two arguments. If none are provided, it prints usage information and exits. It then opens a file with flags O_WRONLY|O_CREAT|O_TRUNC and mode 0644. If the file fails to open, it prints an error message and exits. It reads from standard input into a buffer of size 100, then writes the buffer back to the same file. Finally, it closes the file descriptor. The terminal also shows a menu bar with "File: fcreate.c" and various keyboard shortcuts for nano editor commands like Get Help, Write Out, Where Is, Cut Text, Justify, Cur Pos, Prev Page, Next Page, First Line, Last Line, and To Bracket.

```
#include <stdio.h>
#include <stdlib.h>
#include <string.h>
#include <fcntl.h>
#include <unistd.h>

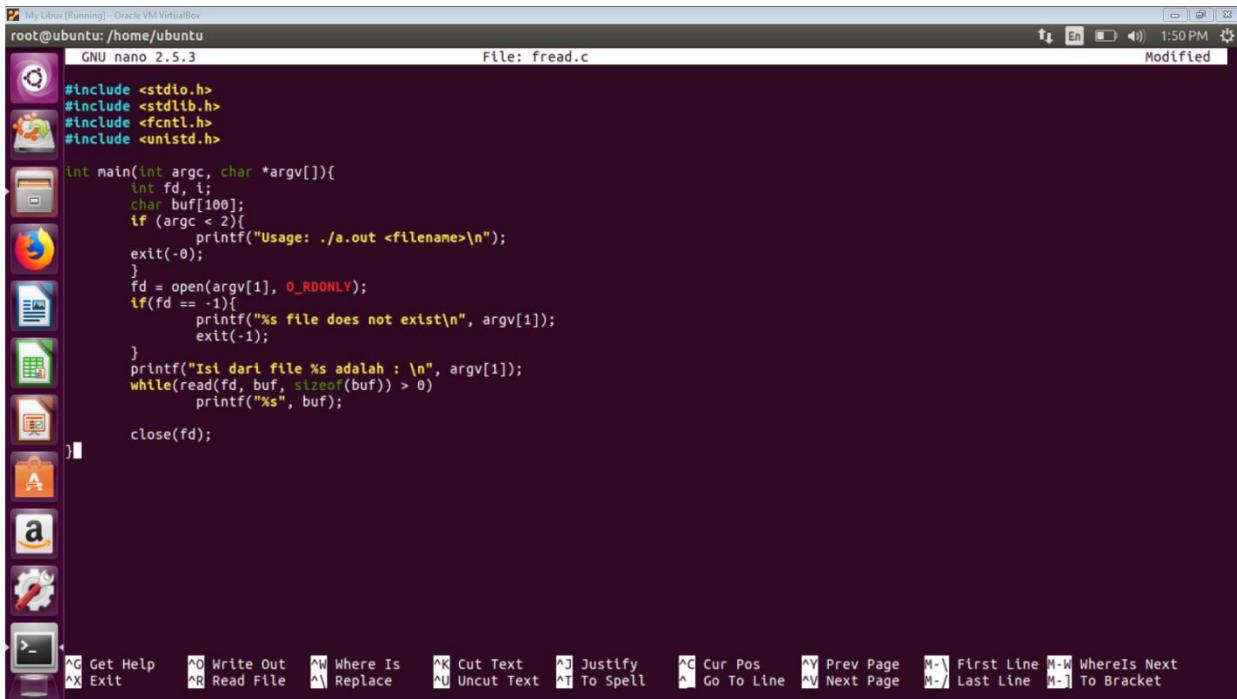
int main (int argc, char *argv[]){
    int fd, n, len;
    char buf[100];
    if (argc != 2){
        printf("Usage: ./a.out <filename>\n");
        exit(-1);
    }
    fd = open(argv[1], O_WRONLY|O_CREAT|O_TRUNC, 0644);
    if(fd < 0){
        printf("File creation problem\n");
        exit(-1);
    }
    printf("Tekan ctrl+D di akhir baris:\n");
    while((n=read(0, buf, sizeof(buf))) > 0){
        len = strlen(buf);
        write(fd, buf, len);
    }
    close(fd);
}
```

Lalu mengeksekusi denagn kode dibawah dan pastikan tidak ada yang error.

```
root@ubuntu:/home/ubuntu# ./fcreate test.txt
Tekan ctrl+D di akhir baris:
L200170109
saya
Rayyan
root@ubuntu:/home/ubuntu#
```

B. Membaca sebuah file dan menampilkan hasilnya di layar.

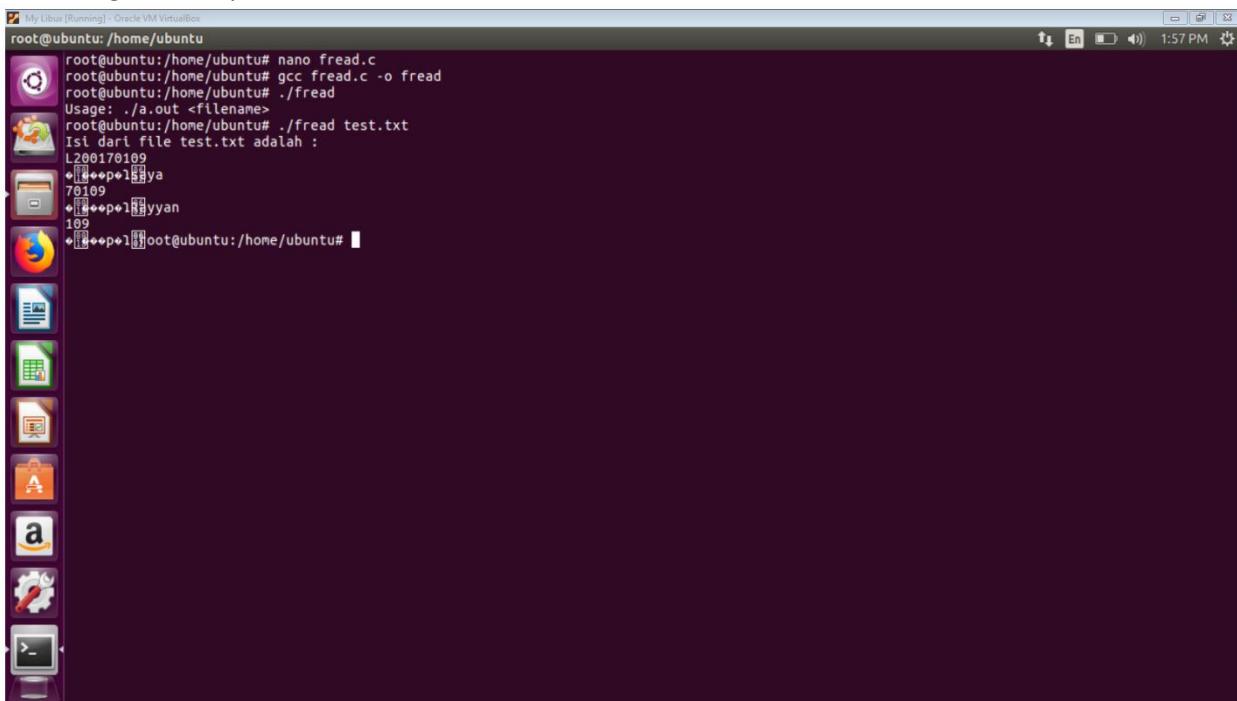
Dengan menambahkan code dibawah ini dibuka dangan perintah “nano fread.c”



```
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
#include <unistd.h>

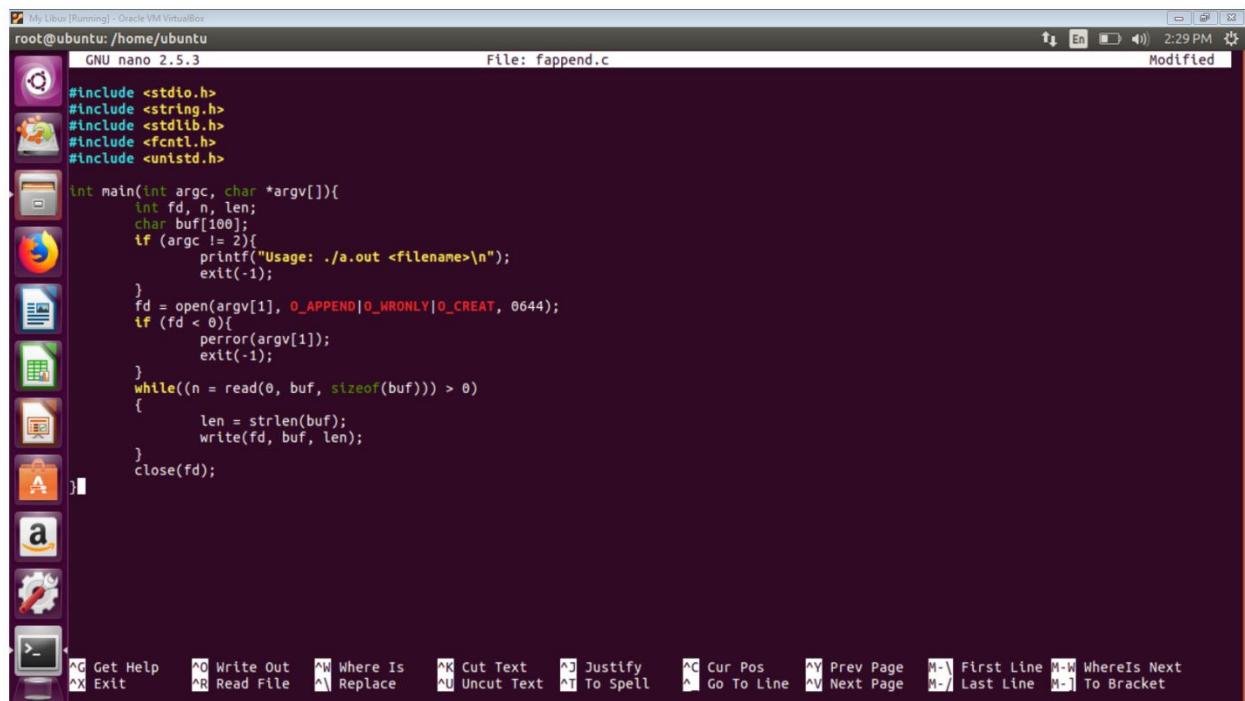
int main(int argc, char *argv[]){
    int fd, i;
    char buf[100];
    if (argc < 2){
        printf("Usage: ./a.out <filename>\n");
        exit(-1);
    }
    fd = open(argv[1], O_RDONLY);
    if(fd == -1){
        printf("%s file does not exist\n", argv[1]);
        exit(-1);
    }
    printf("Isi dari file %s adalah : \n", argv[1]);
    while(read(fd, buf, sizeof(buf)) > 0)
        printf("%s", buf);
    close(fd);
}
```

Lalu mengeksekusi perintah tersebut.



```
root@ubuntu:/home/ubuntu# nano fread.c
root@ubuntu:/home/ubuntu# gcc fread.c -o fread
root@ubuntu:/home/ubuntu# ./fread test.txt
Usage: ./a.out <filename>
root@ubuntu:/home/ubuntu# ./fread test.txt
Isi dari file test.txt adalah :
L200170109
+---+---+---+---+---+---+
70109
+---+---+---+---+---+---+
109
+---+---+---+---+---+---+
root@ubuntu:/home/ubuntu#
```

C. Menambah isi file



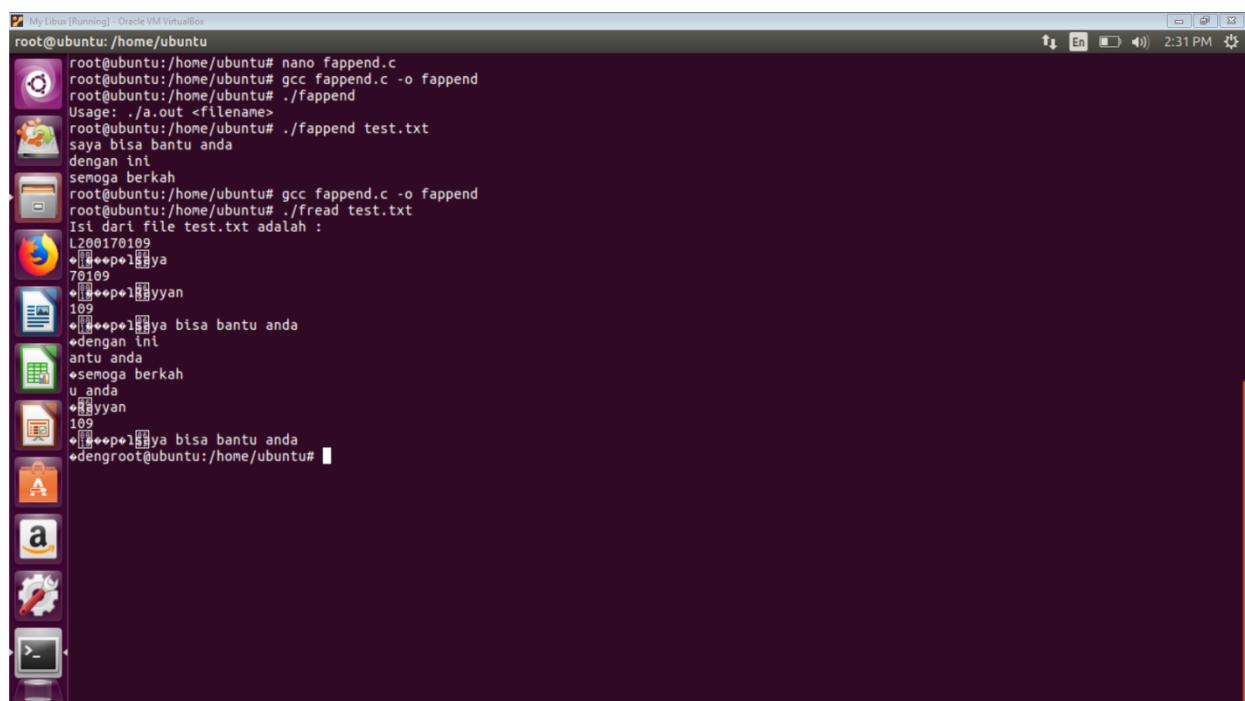
My Libas [Running] - Oracle VM VirtualBox
root@ubuntu:/home/ubuntu
GNU nano 2.5.3 File: fappend.c Modified
Modified
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <fcntl.h>
#include <unistd.h>

int main(int argc, char *argv[]){
 int fd, n, len;
 char buf[100];
 if (argc != 2){
 printf("Usage: ./a.out <filename>\n");
 exit(-1);
 }
 fd = open(argv[1], O_APPEND|O_WRONLY|O_CREAT, 0644);
 if (fd < 0){
 perror(argv[1]);
 exit(-1);
 }
 while((n = read(0, buf, sizeof(buf))) > 0)
 {
 len = strlen(buf);
 write(fd, buf, len);
 }
 close(fd);
}

Get Help Write Out Where Is Cut Text Justify Cur Pos Prev Page First Line Last Line To Bracket
Exit Read File Replace Uncut Text Go To Line Next Page To Spell

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
#include <fcntl.h>
#include <unistd.h>

int main(int argc, char *argv[]){
    int fd, n, len;
    char buf[100];
    if (argc != 2){
        printf("Usage: ./a.out <filename>\n");
        exit(-1);
    }
    fd = open(argv[1], O_APPEND|O_WRONLY|O_CREAT, 0644);
    if (fd < 0){
        perror(argv[1]);
        exit(-1);
    }
    while((n = read(0, buf, sizeof(buf))) > 0)
    {
        len = strlen(buf);
        write(fd, buf, len);
    }
    close(fd);
}
```



My Libas [Running] - Oracle VM VirtualBox
root@ubuntu:/home/ubuntu
root@ubuntu:/home/ubuntu# nano fappend.c
root@ubuntu:/home/ubuntu# gcc fappend.c -o fappend
root@ubuntu:/home/ubuntu# ./fappend
Usage: ./a.out <filename>
root@ubuntu:/home/ubuntu# ./fappend test.txt
saya bisa bantu anda
dengan ini
semoga berkah
root@ubuntu:/home/ubuntu# gcc fappend.c -o fappend
root@ubuntu:/home/ubuntu# ./fread test.txt
Isi dari file test.txt adalah :
L200178199
•[1440p1]nya
78109
•[1440p1]nya
109
•[1440p1]nya bisa bantu anda
*dengan int
antu anda
*semoga berkah
u anda
•[1440p1]nya
109
•[1440p1]nya bisa bantu anda
*dengroot@ubuntu:/home/ubuntu#
File: fappend.c Modified
Modified
Get Help Write Out Where Is Cut Text Justify Cur Pos Prev Page First Line Last Line To Bracket
Exit Read File Replace Uncut Text Go To Line Next Page To Spell

```
root@ubuntu:/home/ubuntu# nano fappend.c
root@ubuntu:/home/ubuntu# gcc fappend.c -o fappend
root@ubuntu:/home/ubuntu# ./fappend
Usage: ./a.out <filename>
root@ubuntu:/home/ubuntu# ./fappend test.txt
saya bisa bantu anda
dengan ini
semoga berkah
root@ubuntu:/home/ubuntu# gcc fappend.c -o fappend
root@ubuntu:/home/ubuntu# ./fread test.txt
Isi dari file test.txt adalah :
L200178199
•[1440p1]nya
78109
•[1440p1]nya
109
•[1440p1]nya bisa bantu anda
*dengan int
antu anda
*semoga berkah
u anda
•[1440p1]nya
109
•[1440p1]nya bisa bantu anda
*dengroot@ubuntu:/home/ubuntu#
```

MODUL 10

Rayyan Hanugrah

L200170109

Kelas E

MODUL 10

A. Program untuk mensimulasikan perintah 'ls'

```
root@ubuntu:/home/ubuntu# nano list.c
root@ubuntu:/home/ubuntu# gcc list.c -o list
list.c:7:2: warning: implicit declaration of function 'getcwd' [-Wimplicit-function-declaration]
    getcwd(pathname);
      ^
list.c:11:3: warning: implicit declaration of function 'printf' [-Wimplicit-function-declaration]
    printf("Error\n");
      ^
list.c:11:3: note: include '<stdio.h>' or provide a declaration of 'printf'
list.c:14:3: warning: incompatible implicit declaration of built-in function 'printf'
    printf("%-20s", namelist[i]->d_name);
      ^
list.c:14:3: note: include '<stdio.h>' or provide a declaration of 'printf'
root@ubuntu:/home/ubuntu# ./list
Error
root@ubuntu:/home/ubuntu#
```

```
root@ubuntu:/home/ubuntu
GNU nano 2.5.3                               File: list.c
#include <stdlib.h>
#include <dirent.h>
int main(){
    struct dirent
        **namelist; int n, i;
    char pathname[100];
    getcwd(pathname);

    n = scandir(pathname, &namelist, 0, alphasort);
    if(n < 0)
        printf("Error\n");
    else
        for(i=0, i<n; i++) if(namelist[i]->d_name[0] != '.')
            printf("%-20s", namelist[i]->d_name);
}
```

B. Program untuk mensimulasikan perintah ‘grep’.

The screenshot shows a terminal window on a Linux system. The terminal window title is "root@ubuntu:/home/ubuntu". The command entered is "nano copy.c", followed by "gcc mygrep.c -o mygrep", and finally "mygrep L200170109 test.txt". The terminal also displays a message from Microsoft about activating Windows. The desktop environment visible in the background includes icons for LibreOffice Writer, LibreOffice Impress, and LibreOffice Calc.

```
root@ubuntu:/home/ubuntu# nano copy.c
root@ubuntu:/home/ubuntu# gcc mygrep.c -o mygrep
root@ubuntu:/home/ubuntu# ./mygrep L200170109 test.txt
L200170109
root@ubuntu:/home/ubuntu#
```

Activate Windows
Go to Settings to activate Windows.

GNU nano 2.5.3 File: mygrep.c

```
#include <stdio.h>
#include <string.h>
#include <stdlib.h>
int Main(int argc, char *argv[]){
    FILE *fd;
    char str[100];
    char c;
    int i, flag, j, m, k;
    char temp[30];

    if (argc != 3){
        printf("Usage: gcc mygrep -o mygrep\n");
        printf("Usage: ./mygrep <search_text> <filename>\n");
    }
    fd = fopen(argv[2], "r");
    if(fd == NULL){
        printf("%s is not exist\n", argv[2]);
        exit(-0);
    }
    while(!feof(fd)){
        i = 0;
        while(1){
            c = fgetc(fd);
            if(feof(fd)){
                str[i++] = '\0'; break;
            }
            if(c == '\n'){
                str[i++] = '\0'; break;
            }
            str[i++] = c;
        }
        if(strlen(str) >= strlen(argv[1])){
            for(k=0; k<strlen(str)-strlen(argv[1]); k++){
                for(m=0; m<strlen(argv[1]); m++)
                    temp[m] = str[k+m];
                temp[m] = '\0';
                if(strcmp(temp, argv[1]) == 0){
                    break;
                }
            }
        }
    }
}
```

LibreOffice Writer LibreOffice Impress LibreOffice Calc

Get Help Write Out Where Is Cut Text Justify Cur Pos Prev Page First Line WhereIs Next

Exit Read File Replace Uncut Text To Spell Go To Line Next Page Last Line To Bracket

C. Program untuk mensimulasikan perintah 'cp'.

The screenshot shows a terminal window titled "File: copy.c" running on an Ubuntu system. The code in the editor is a C program that copies a file from one location to another. It includes error handling for usage and file operations. The terminal window has a dark theme and shows standard Linux keyboard shortcuts at the bottom.

```
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
#include <sys/stat.h>
#define SIZE 1024
int main(int argc, char *argv[]){
    int src, dst, nread;
    char buf[SIZE];
    if (argc != 3){
        printf("Usage: gcc copy.c -o copy\n");
        printf("Usage: ./copy <filename> <newfile> \n");
        exit(-1);
    }
    LibreOfficeWriter = open (argv[1], O_RDONLY) == -1{
        perror(argv[1]);
        exit(-1);
    }
    if ((dst = creat(argv[2], 0644)) == -1){
        perror(argv[1]);
        exit(-1);
    }
    while ((nread = read(src, buf, SIZE)) > 0){
        if (write(dst, buf, nread) == -1){
            printf("can't write\n");
            exit(-1);
        }
    }
    close(src);
    close(dst);
}
```

File Name to Write: copy.c

^G Get Help M-D DOS Format M-A Append M-B Backup File
^C Cancel M-M Mac Format M-P Prepend M-T To Files

The screenshot shows a terminal window with a dark theme. It starts with the command "nano copy.c" to edit the source code. After saving, it runs "gcc copy.c -o copy". The terminal then shows warnings from the compiler about implicit declarations of functions like "read", "write", and "close". Finally, it executes the compiled program "copy" with the arguments "test.txt" and "baru.txt". The terminal also displays a watermark for "Activate Windows" and "Go to Settings to activate Windows".

```
root@ubuntu:/home/ubuntu# nano copy.c
root@ubuntu:/home/ubuntu# gcc copy.c -o copy
copy.c: In function 'main'.
copy.c:22:18: warning: implicit declaration of function 'read' [-Wimplicit-function-declaration]
    while ((nread = read(src, buf, SIZE)) > 0){
                  ^
copy.c:23:7: warning: implicit declaration of function 'write' [-Wimplicit-function-declaration]
    if (write(dst, buf, nread) == -1){
                  ^
copy.c:28:2: warning: implicit declaration of function 'close' [-Wimplicit-function-declaration]
    close(src);
                  ^
root@ubuntu:/home/ubuntu# ./copy test.txt baru.txt
baru.txt  copy  copy.c  Desktop  Documents  Downloads  list  list.c  Music  mygrep  mygrep.c  Pictures  Public  Templates  test.txt  Videos
root@ubuntu:/home/ubuntu#
```

Activate Windows
Go to Settings to activate Windows

D. Program untuk mensimulasikan perintah ‘rm’.

The screenshot shows a Linux desktop environment with a terminal window open. The terminal window title is "File: del.c". The code in the terminal is:

```
#include <stdio.h>
#include <stdlib.h>
#include <fcntl.h>
int main(int argc, char* argv[]){
    int fd;
    if (argc != 2){
        printf("Usage: gcc del.c -o del\n");
        printf("Usage: ./del <filename>\n");
        exit(-1);
    }
    fd = open(argv[1], O_RDONLY);
    if (fd != -1){
        close(fd);
        unlink(argv[1]);
    } else
        perror(argv[1]);
}
```

Below the terminal, a message asks "Save modified buffer (ANSWERING "No" WILL DESTROY CHANGES) ?" with options Y Yes, N No, and C Cancel. The desktop background shows various application icons like LibreOffice Impress, LibreOffice Calc, and LibreOffice Writer.

The screenshot shows a terminal window with the following command history:

```
root@ubuntu:/home/ubuntu# nano del.c
root@ubuntu:/home/ubuntu# gcc del.c -o del
del.c: In function 'main':
del.c:13:3: warning: implicit declaration of function 'close' [-Wimplicit-function-declaration]
    close(fd);
^
del.c:14:3: warning: implicit declaration of function 'unlink' [-Wimplicit-function-declaration]
    unlink(argv[1]);
^
root@ubuntu:/home/ubuntu# ./del baru.txt
```

At the bottom right of the terminal window, there is a watermark: "Activate Windows Go to Settings to activate Windows".