

# PRAKTIKUM SO



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Kelas : E

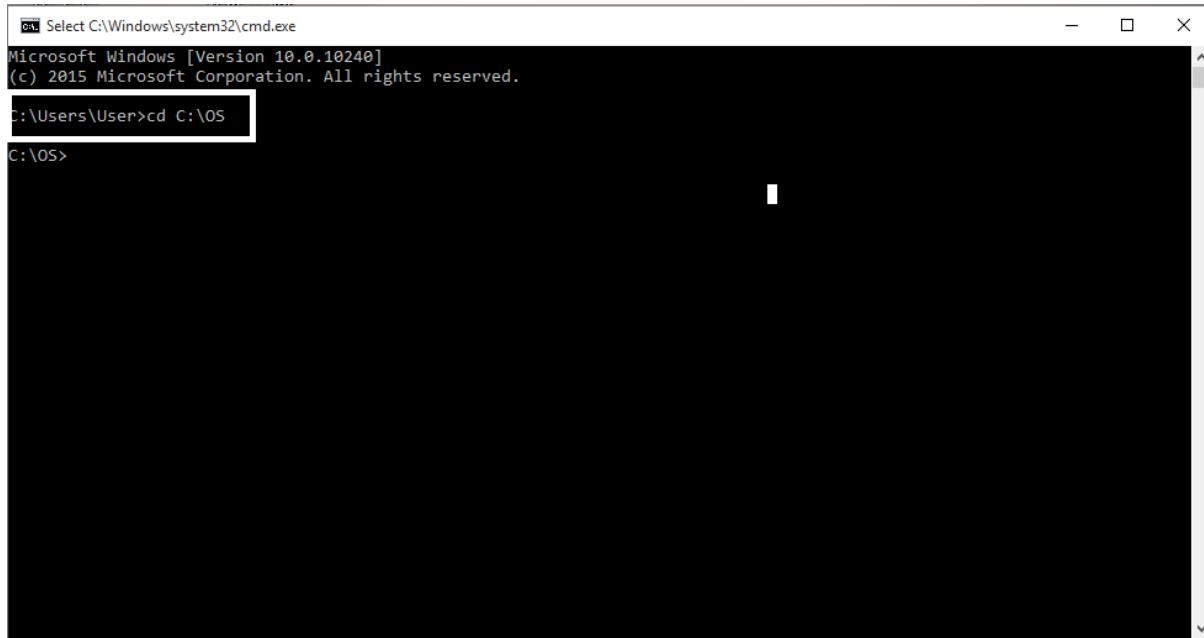
UNIVERSITAS MUHAMMADIYAH SURAKARTA

SURAKARTA

2017

# PRAKTIKUM 1

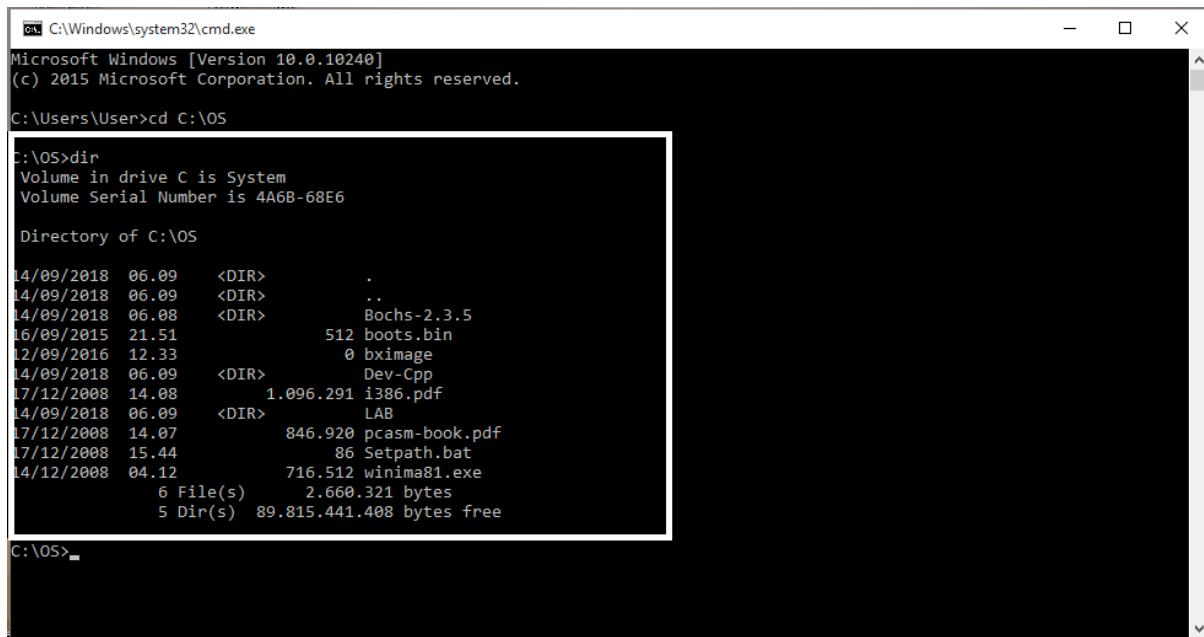
## 1. Masuk ke direktori kerja OS



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

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

## 2. Melihat isi direktori di dalam folder tersebut



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

C:\Users\User>cd C:\OS

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

Directory of C:\OS

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

C:\OS>
```

## 3. Mengatur setpath, yang digunakan untuk mengatur lingkungan kerja selama melakukan praktikum

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

C:\Users\User>cd C:\OS

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

 Directory of C:\OS

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

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

#### 4. Masuk pada direktori LAB/LAB1

```
R C:\Windows\system32\cmd.exe
C:\Users\User>cd C:\OS

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

 Directory of C:\OS

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

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

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

#### 5. Melihat isi dari file boot.asm dengan menggunakan notepad

```

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

Directory of C:\OS

14/09/2018  06.09      <DIR>          .
14/09/2018  06.09      <DIR>          ..
14/09/2018  06.08      <DIR>          Bochs-2.3.5
16/09/2015  21.51      512 boots.bin
12/09/2016  12.33      0 bximage
14/09/2018  06.08      <DIR>          Dev-Cpp
17/12/2008  14.08      1.096.291 i386.pdf
14/09/2018  06.09      <DIR>          LAB
17/12/2008  14.07      846.920 pcasm-book.pdf
17/12/2008  15.44      86 Setpath.bat
14/12/2008  04.12      716.512 winim81.exe
               6 File(s)   2.660.321 bytes
               5 Dir(s)  89.815.441.408 bytes free

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

C:\OS>cd LAB\LAB1
C:\OS\LAB\LAB1>Notepad boot
C:\OS\LAB\LAB1>Notepad boot.asm
C:\OS\LAB\LAB1>

```

bootasm - Notepad

```

; ****
; 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 0x0840
MediaDescriptor  db 0xF0
SectorsPerFAT    dw 0x0009
SectorsPerTrack  dw 0x0012
NumHeads         dw 0x0002
HiddenSectors    dd 0x00000000
TotalSectorsLarge dd 0x00000000
DriveNumber      db 0x00
Flags            db 0x00

```

## 6. Membuka file teks makefile dengan menggunakan makefile, yang di mana berisi kumpulan perintah CMD.

```

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

Directory of C:\OS

14/09/2018  06.09      <DIR>          .
14/09/2018  06.09      <DIR>          ..
14/09/2018  06.08      <DIR>          Bochs-2.3.5
16/09/2015  21.51      512 boots.bin
12/09/2016  12.33      0 bximage
14/09/2018  06.09      <DIR>          Dev-Cpp
17/12/2008  14.08      1.096.291 i386.pdf
14/09/2018  06.09      <DIR>          LAB
17/12/2008  14.07      846.920 pcasm-book.pdf
17/12/2008  15.44      86 Setpath.bat
14/12/2008  04.12      716.512 winim81.exe
               6 File(s)   2.660.321 bytes
               5 Dir(s)  89.815.441.408 bytes free

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

C:\OS>cd LAB\LAB1
C:\OS\LAB\LAB1>Notepad boot
C:\OS\LAB\LAB1>Notepad boot.asm
C:\OS\LAB\LAB1>Notepad Makefile
C:\OS\LAB\LAB1>

```

Makefile - Notepad

```

# 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

```

```
on C:\Windows\system32\cmd.exe
17/12/2008 15.44             86 Setpath.bat
14/12/2008 04.12           716.512 winimage81.exe
    6 File(s)   2.660 321 bytes
    5 Dir(s)  89.815.441.408 bytes free

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

C:\OS>cd LAB\LAB1
C:\OS\LAB\LAB1>Notepad boot
C:\OS\LAB\LAB1>Notepad boot.asm
C:\OS\LAB\LAB1>Notepad Makefile
C:\OS\LAB\LAB1>del floppya.img

C:\OS\LAB\LAB1>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB1

18/09/2018 10.20 <DIR> .
18/09/2018 10.20 <DIR> ..
12/09/2017 00.48     8.358 bochsout.txt
16/12/2008 06.17     1.628 bochsrc.bxrc
18/10/2016 04.36    14.339 boot.asm
18/10/2016 04.50      512 boot.bin
12/09/2017 00.37      512 boots.bin
17/09/2007 06.22    18.432 bximage.exe
12/09/2017 00.21    10.321.920 c.img
27/02/2007 10.50    342.016 dd.exe
15/12/2008 14.47      78 dosfp.bat
15/12/2008 01.45     7.966 kernel.asm
16/12/2008 06.21    227 Makefile
16/12/2008 02.20      44 s.bat
31/01/2000 19.00    261.120 tdump.exe
  13 File(s)   10.977.152 bytes
  2 Dir(s)  89.815.986.176 bytes free

Activate Windows
Go to Settings to activate Windows.

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

## 7. Menghapus suatu bootdisk yang bernama floppya.img dan cek pada direktori

```
on C:\Windows\system32\cmd.exe
17/12/2008 15.44             86 Setpath.bat
14/12/2008 04.12           716.512 winimage81.exe
    6 File(s)   2.660 321 bytes
    5 Dir(s)  89.815.441.408 bytes free

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

C:\OS>cd LAB\LAB1
C:\OS\LAB\LAB1>Notepad boot
C:\OS\LAB\LAB1>Notepad boot.asm
C:\OS\LAB\LAB1>Notepad Makefile
C:\OS\LAB\LAB1>del floppya.img

C:\OS\LAB\LAB1>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB1

18/09/2018 10.20 <DIR> .
18/09/2018 10.20 <DIR> ..
12/09/2017 00.48     8.358 bochsout.txt
16/12/2008 06.17     1.628 bochsrc.bxrc
18/10/2016 04.36    14.339 boot.asm
18/10/2016 04.50      512 boot.bin
12/09/2017 00.37      512 boots.bin
17/09/2007 06.22    18.432 bximage.exe
12/09/2017 00.21    10.321.920 c.img
27/02/2007 10.50    342.016 dd.exe
15/12/2008 14.47      78 dosfp.bat
15/12/2008 01.45     7.966 kernel.asm
16/12/2008 06.21    227 Makefile
16/12/2008 02.20      44 s.bat
31/01/2000 19.00    261.120 tdump.exe
  13 File(s)   10.977.152 bytes
  2 Dir(s)  89.815.986.176 bytes free

Activate Windows
Go to Settings to activate Windows.

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

## 8. Membuat suatu bootdisk baru dengan menggunakan aplikasi bximage.exe

Yang pertama ketik fd

C:\Windows\system32\cmd.exe - bximage  
C:\OS>cd LAB\LAB1  
C:\OS\LAB\LAB1>Notepad boot  
C:\OS\LAB\LAB1>Notepad boot.asm  
C:\OS\LAB\LAB1>Notepad Makefile  
C:\OS\LAB\LAB1>del floppya.img  
C:\OS\LAB\LAB1>dir  
Volume in drive C is System  
Volume Serial Number is 4A6B-68E6  
Directory of C:\OS\LAB\LAB1  
18/09/2018 10.20 <DIR> .  
18/09/2018 10.20 <DIR> ..  
12/09/2017 00.48 8.358 bochsout.txt  
16/12/2008 06.17 1.628 bochsrc.bxrc  
18/10/2016 04.36 14.339 boot.asm  
18/10/2016 04.50 512 boot.bin  
12/09/2017 00.37 512 boots.bin  
17/09/2007 06.22 18.432 bximage.exe  
12/09/2017 00.21 10.321.920 c.img  
27/02/2007 10.50 342.016 dd.exe  
15/12/2008 14.47 78 dosfp.bat  
15/12/2008 01.45 7.966 kernel.asm  
16/12/2008 06.21 227 Makefile  
16/12/2008 02.20 44 s.bat  
31/01/2000 19.00 261.120 tdump.exe  
13 File(s) 10.977.152 bytes  
2 Dir(s) 89.815.986.176 bytes free  
C:\OS\LAB\LAB1>bximage  
=====  
bximage  
Disk Image Creation Tool for Bochs  
\$Id: bximage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp \$  
=====  
Do you want to create a floppy disk image or a hard disk image?  
Please type hd or fd. [hd] -

Kemudian untuk ukuran tekan enter untuk memilih default

C:\Windows\system32\cmd.exe - bximage  
C:\OS>cd LAB\LAB1  
C:\OS\LAB\LAB1>Notepad boot.asm  
C:\OS\LAB\LAB1>Notepad Makefile  
C:\OS\LAB\LAB1>del floppya.img  
C:\OS\LAB\LAB1>dir  
Volume in drive C is System  
Volume Serial Number is 4A6B-68E6  
Directory of C:\OS\LAB\LAB1  
18/09/2018 10.20 <DIR> .  
18/09/2018 10.20 <DIR> ..  
12/09/2017 00.48 8.358 bochsout.txt  
16/12/2008 06.17 1.628 bochsrc.bxrc  
18/10/2016 04.36 14.339 boot.asm  
18/10/2016 04.50 512 boot.bin  
12/09/2017 00.37 512 boots.bin  
17/09/2007 06.22 18.432 bximage.exe  
12/09/2017 00.21 10.321.920 c.img  
27/02/2007 10.50 342.016 dd.exe  
15/12/2008 14.47 78 dosfp.bat  
15/12/2008 01.45 7.966 kernel.asm  
16/12/2008 06.21 227 Makefile  
16/12/2008 02.20 44 s.bat  
31/01/2000 19.00 261.120 tdump.exe  
13 File(s) 10.977.152 bytes  
2 Dir(s) 89.815.986.176 bytes free  
C:\OS\LAB\LAB1>bximage  
=====  
bximage  
Disk Image Creation Tool for Bochs  
\$Id: bximage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp \$  
=====  
Do you want to create a floppy disk image or a hard disk image?  
Please type hd or fd. [hd] fd  
choose the size of floppy disk image to create, in megabytes.  
Please type 0.16, 0.18, 0.32, 0.36, 0.72, 1.2, 1.44, 1.68, 1.72, or 2.88.  
[1.44]

Lalu beri nama. Di mana di sini diberi nama floppya.img

```
cmd C:\Windows\system32\cmd.exe - bximage
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB1

18/09/2018 10.20 <DIR> .
18/09/2018 10.20 <DIR> ..
12/09/2017 00.48 8.358 bochsout.txt
16/12/2008 06.17 1.628 bochsrc.bxrc
18/10/2016 04.36 14.339 boot.asm
18/10/2016 04.50 512 boot.bin
12/09/2017 00.37 512 boots.bin
17/09/2007 06.22 18.432 bximage.exe
12/09/2017 00.21 10.321.920 c.img
27/02/2007 10.50 342.016 dd.exe
15/12/2008 14.47 78 dosfp.bat
15/12/2008 01.45 7.966 kernel.asm
16/12/2008 06.21 227 Makefile
16/12/2008 02.20 44 s.bat
31/01/2000 19.00 261.120 tdump.exe
           13 File(s)   10.977.152 bytes
           2 Dir(s)  89.815.986.176 bytes free

C:\OS\LAB\LAB1>bximage
=====
          bximage
Disk Image Creation Tool for Bochs
$Id: bximage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp $

=====
Do you want to create a floppy disk image or a hard disk image?
Please type hd or fd. [hd] fd

Choose the size of floppy disk image to create, in megabytes.
Please type 0.16, 0.18, 0.32, 0.36, 0.72, 1.2, 1.44, 1.68, 1.72, or 2.88.
[1.44]
I will create a floppy image with
cyl=80
heads=2
sectors per track=18
total sectors=2880
total bytes=1474560

What should I name the image?
[a.img] floppya.img
```

Activate Windows  
Go to Settings to activate Windows.

```
cmd C:\Windows\system32\cmd.exe
=====
12/09/2017 00.21 10.321.920 c.img
27/02/2007 10.50 342.016 dd.exe
15/12/2008 14.47 78 dosfp.bat
15/12/2008 01.45 7.966 kernel.asm
16/12/2008 06.21 227 Makefile
16/12/2008 02.20 44 s.bat
31/01/2000 19.00 261.120 tdump.exe
           13 File(s)   10.977.152 bytes
           2 Dir(s)  89.815.986.176 bytes free

C:\OS\LAB\LAB1>bximage
=====
          bximage
Disk Image Creation Tool For Bochs
$Id: bximage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp $

=====
Do you want to create a floppy disk image or a hard disk image?
Please type hd or fd. [hd] fd

Choose the size of floppy disk image to create, in megabytes.
Please type 0.16, 0.18, 0.32, 0.36, 0.72, 1.2, 1.44, 1.68, 1.72, or 2.88.
[1.44]
I will create a floppy image with
cyl=80
heads=2
sectors per track=18
total sectors=2880
total bytes=1474560

What should I name the image?
[a.img] floppya.img

Writing: [] Done.

I wrote 1474560 bytes to floppya.img.

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

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

Activate Windows  
Go to Settings to activate Windows.

## 9. Cek isi direktori kembali apakah floppya.img telah dibuat.

```
C:\Windows\system32\cmd.exe
heads=2
sectors per track=18
total sectors=2880
total bytes=1474560

What should I name the image?
[a.img] floppya.img

Writing: [] Done.

I wrote 1474560 bytes to floppya.img.

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

Press any key to continue

C:\OS\LAB\LAB1>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB1

18/09/2018 10.24 <DIR> .
18/09/2018 10.24 <DIR> ..
12/09/2017 00.48 8.358 bochsout.txt
16/12/2008 06.17 1.628 bochsrc.bxrc
18/10/2016 04.36 14.339 boot.asm
18/10/2016 04.50 512 boot.bin
12/09/2017 00.37 512 boots.bin
17/09/2007 06.22 18.432 bximage.exe
12/09/2017 00.21 10.321.920 c.img
27/02/2007 18.50 342.016 dd.exe
15/12/2008 14.47 78 dosfp.bat
18/09/2018 10.24 1.474.560 floppya.img
15/12/2008 01.45 7.966 kernel.asm
16/12/2008 06.21 227 Makefile
16/12/2008 02.20 44 s.bat
31/01/2000 19.00 261.120 tdump.exe
14 File(s) 12.451.712 bytes
2 Dir(s) 89.813.987.328 bytes free

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

Activate Windows  
Go to Settings to activate Windows.

## 10. Kemudian format floppya.img agar menjadi bootdisk.

```
Bochs for Windows - Console
15/12/2008 14.47 78 dosfp.bat
18/09/2018 10.24 1.474.560 floppya.img
15/12/2008 01.45 7.966 kernel.asm
16/12/2008 06.21 227 Makefile
16/12/2008 02.20 44 s.bat
31/01/2000 19.00 261.120 tdump.exe
14 File(s) 12.451.712 bytes
2 Dir(s) 89.813.987.328 bytes free

C:\OS\LAB\LAB1>DosFp
C:\OS\LAB\LAB1>cd "...\\Bochs-2.3.5\\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsout.txt
# In bx_wm32_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>DosFp
A:>Format B:
Insert new diskette for drive B:
and press ENTER when ready...
Checking existing disk format.
Formatting 1.44M
Format complete.

Volume label (11 characters, ENTER for none)?
1,457,664 bytes total disk space
1,457,664 bytes available on disk
512 bytes in each allocation unit.
2,847 allocation units available on disk.

Volume Serial Number is 422F-120A
Format another (Y/N)?n

C:\OS\LAB\LAB1>cd "...\\Bochs-2.3.5\\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -F bochsrc2.txt
000000000001[APIC?] local apic in initializing
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsout.txt
```

Activate Windows  
Go to Settings to activate Windows.

## 11. Kemudian salin byte dari floppya.img ke boots.bin yang digunakan untuk bootloader

```
C:\Windows\system32\cmd.exe
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsrc.txt
# In bx_win32_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[!GUI] POWER button turned off.
=====

C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab1"
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
000000000001[!APIC] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsrc.txt
# In bx_win32_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[!GUI] POWER button turned off.
=====

C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab1"
C:\OS\LAB\LAB1>dd if=floppya.img of=boots.bin count=1
rawwrite dd for windows version 0.5.
Written by John 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\LAB1>
```

Activate Windows  
Go to Settings to activate Windows.

## 12. Melihat isi memori dari boots.bin

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

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

000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 00 .<.MSWIN4.1.....
000010: 02 E0 00 40 0B F0 09 00 12 00 02 00 00 00 00 ...@. .....
000020: 00 00 00 00 00 00 29 0A 12 2F 42 4E 4F 20 4E 41 .....).BNO NA
000030: D4 45 20 20 20 46 41 54 31 32 20 20 20 33 C9 ME FAT12 3.
000040: 8E D1 BC FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 ....{...x..v..V.
000050: 55 BF 22 05 89 7E 00 89 4E 02 B1 00 FC F3 A4 00 U."...N.....
000060: 1F BD 00 7C C6 45 FE 0F 38 4E 24 7D 20 8B C1 99 ...|.E..8NS} ...
000070: E8 7E 01 83 EB 3A 66 A1 1C 7C 66 3B 07 8A 57 FC ..|.f.|.f.;.W.
000080: 75 00 88 CA 02 88 56 02 80 C3 10 73 ED 33 C9 FE u.....V....S.|.
000090: 06 D0 7D 8A 46 10 98 F7 66 16 03 46 1C 13 56 1F ...).F.....f..V.
0000A0: 03 46 0E 13 D1 88 76 11 60 88 46 FC 89 56 FE B8 .F.....v..F..V..
0000B0: 20 00 F7 E6 88 5E 00 03 C3 48 F7 F3 01 46 FC 11 ....^..H..F.:
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(.r>8-t.:
0000D0: B1 00 BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....).at-Nt...
0000E0: 3B FB 72 E7 EB DD FE 0E 08 70 78 A7 BE 7F 7D AC ;.r....\}.....
0000F0: 98 03 F0 AC 98 49 74 0C 48 74 13 B4 0E BB 07 00 .....@.H. .....
000100: CD 10 EB EF BE 82 7D EB E6 BE 80 7D EB E1 CD 16 .....).r.....
000110: FF 1F 66 8F F4 CD 19 BE 81 7D 88 70 1A 80 45 FE ^..f.....).|.~.E.
000120: 8A 4E 00 F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V. .....
000130: 72 D7 EA 00 02 70 00 52 50 06 53 6A 01 6A 16 91 r...p.RP.Sj.|.
000140: 88 46 18 A2 26 05 96 92 33 D2 F7 F6 91 F7 64 42 .F. &...3....B
000150: 87 CA F7 76 1A 8A F2 0A E8 C8 C0 02 0A CC 88 01 ...v.....
000160: 02 80 7E 02 0E 75 04 84 42 88 F4 8A 56 24 CD 13 ...~.U..B..V$..
000170: 61 61 72 0A 48 75 01 42 03 5E 08 49 75 77 C3 03 aar@.U.B.^Iuw.
000180: 18 01 27 0D 0A 49 6E 76 61 6C 69 64 20 73 79 73 ...Invalid sys
000190: 74 65 60 20 64 69 73 68 FF 00 0A 44 69 73 68 20 tem disk...Disk
0001A0: 49 2F 4F 20 65 72 6F 72 FF 00 0A 52 65 78 6C I/O error...Repl
0001B0: 61 63 65 20 74 68 65 20 04 69 73 6B ZC 20 61 6E ace the disk, an
0001C0: 64 20 74 68 65 6E 20 70 72 65 73 73 20 61 6E 79 d then press any
0001D0: 20 68 65 79 00 0A 00 00 49 4F 20 20 20 20 28 20 key....IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYMSDOS ..SYS..
0001F0: 00 41 BB 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...fj.;....U.
```

Activate Windows  
Go to Settings to activate Windows.

### 13. Memanggil Bosch.

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

C:\OS\LAB\LAB1>tdump boots.bin
turbo Dump Version 5.0.16.12 Copyright (c) 1988, 2000 Inprise Corporation
Display Of File BOOTS.BIN

000000: EB 3C 90 4D 53 57 49 4E 34 2E 31 00 02 01 01 00 .<.MSWIN4.1.....
000010: 02 E0 00 40 08 F0 09 00 12 00 02 00 00 00 00 00 ...@.....
000020: 00 00 00 00 00 00 29 0A 12 2F 42 4E 4F 20 4E 41 .....).//BNO NA
000030: D0 45 20 20 20 20 46 41 54 31 32 20 20 33 C9 ME FAT12 3.
000040: 8E D1 BC FC 7B 16 07 BD 78 00 C5 76 00 1E 56 16 ....{...x..v..V.
000050: 55 BF 22 05 89 7E 00 89 4E 02 B1 08 FC F3 A4 06 U."...N.....
000060: 1F BD 00 7C C6 45 FE 0F 38 4E 24 7D 20 88 C1 99 ...).E..8N$) ...
000070: E8 7E 01 B3 CA 3A 6A 1C 7C 66 3D 07 8A 57 Fc .....,f.;.F.;.W.
000080: 75 00 80 CA 02 88 56 02 88 C3 10 73 ED 33 C9 FE u.....V....s.3..
000090: 06 D8 7D 8A 46 10 98 F7 66 00 03 46 1C 13 56 1E ..}.F...f..F..V.
0000A0: 03 46 0E 13 D1 8B 76 11 60 89 46 Fc 89 56 FE BB .F...v.`F..V..
0000B0: 20 00 F7 E6 88 SE 00 93 C3 48 F7 F3 01 46 FC 11 ....^...H..F. ;
0000C0: 4E FE 61 BF 00 07 E8 28 01 72 3E 38 2D 74 17 60 N.a....(.>>8-t.
0000D0: B1 00 BE D8 7D F3 A6 61 74 3D 4E 74 09 83 C7 20 ....}...at.Nt...
0000E0: 3B FB 72 E7 EB DD FE 0E D8 7D 78 A7 BE 7F 7D A0 ;r.....}{...}.
0000F0: 98 03 F0 AC 98 40 7C 0C 48 74 13 B3 0E BB 07 00 .....@t.Ht....
000100: CD 18 EB EF BE 82 7D EB E6 B0 80 7D EB E1 CD 16 .....}....}.
000110: 5E 1F 66 8F 04 CD 19 BE 81 70 88 7D 1A 8D 45 FE ^..f.....}.E.
000120: 8A 4E 0D F7 E1 03 46 FC 13 56 FE B1 04 E8 C2 00 .N....F..V. .....
000130: 72 D7 EA 00 20 00 52 50 00 53 6A 01 6A 10 91 r....p.RP.Sj.j. .....
000140: 88 46 18 A2 26 85 96 92 33 D2 F7 F6 91 F7 F6 42 .F..&...3....B
000150: 87 CA F7 76 1A 8A F2 8A E8 C0 CC 02 0A CC 88 01 ....V.....
000160: 02 88 7E 02 0E 75 04 84 42 88 F4 8A 56 24 CD 13 ..~..u..B...V$..
000170: 61 61 72 0A 40 75 01 42 03 5E 0B 75 77 C3 03 aar.@u.B.^_Iu.. .
000180: 18 01 27 00 0A 49 6E 76 61 60 69 60 28 73 79 73 ...'.Invalid sys
000190: 74 65 6D 20 64 69 73 6B FF 00 0A 44 69 73 6B 20 tem disk..Disk
0001A0: 49 2F 4F 20 65 72 72 6F 72 FF 0D 0A 52 65 70 6C I/O error...Repl
0001B0: 61 63 65 20 74 68 65 28 64 69 73 6B 20 61 6E ace the disk, an
0001C0: 64 29 74 68 65 6E 20 70 72 65 73 73 28 61 6E 79 d them press any
0001D0: 20 68 65 79 00 00 00 00 49 4E 20 28 20 20 20 key...IO
0001E0: 53 59 53 4D 53 44 4F 53 20 20 20 53 59 53 7F 01 SYSMSDOS  SYS..
0001F0: 00 41 BB 00 07 60 66 6A 00 E9 3B FF 00 00 55 AA .A...fj.;...U.

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

Activate Windows  
Go to Settings to activate Windows.

### 14. Format floppya.img, dan menambahkan sistem file ke dalamnya, dengan bantuan bosch.

```
Bosch for Windows - Console
=====
000000000001[ ] reading configuration from bochsrc.bxrc
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochcout.txt
# In bx_w32_gui.c::exit(void)

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

C:\OS\LAB\LAB1>
C:\OS\LAB\LAB1>..\bochs-2.3.5\bochs -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 bochcout.txt
# In bx_w32_gui.c::exit(void)

Bochs is exiting with the following message:
[WGUI ] Window closed, exiting!
=====

Bochs is exiting. Press ENTER when you're ready to close this window.

C:\OS\LAB\LAB1>DOSFP
C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"
C:\OS\LAB\LAB1>cd ..\..\Bochs-2.3.5\dos
000000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochcout.txt
```

CD-ROM Device Driver for IDE (Four Channels Supported)
(C)Copyright Oak Technology Inc. 1993-1996
Driver Version : V340
Device Name : OSLAB
Transfer Mode : Programmed I/O
Drive 0: Port= 1FO (Primary Channel), Slave IRQ= 14
Firmware version : ALPH

MSCDEX Version 2.23
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.
Drive R: = Driver OSLAB unit 0

A:>\_

CTRL + 3rd button enables mouse A: B: HD0-M CD0-S NUM CAPS SCRL

Activate Windows  
Go to Settings to activate Windows.

## 15. Selesaikan proses format

The screenshot shows two windows. The left window is a terminal session titled 'Bochs for Windows - Console'. It displays the command '# In bx\_win32\_gui c::exit(void)!' followed by Bochs initialization messages. The right window is 'Bochs for Windows - Display', showing a graphical interface with icons for floppy drives A: and B:. A message box in the center says: 'A:>Format B:/S Insert new diskette for drive B: and press ENTER when ready...'. Below it, another message box says: 'Checking existing disk format. Verifying 1.44M Format complete. System transferred'. The terminal window continues with Bochs configuration and initialization messages. At the bottom right of the screen, there is an 'Activate Windows' watermark.

```
# 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>DosFp
C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] 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>DosFp
C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsout.txt

A:>Format B:/S
Insert new diskette for drive B:
and press ENTER when ready...

Checking existing disk format.
Verifying 1.44M
Format complete.
System transferred

Volume label (11 characters, ENTER for none)?
1,457,664 bytes total disk space
221,696 bytes used by system
1,235,968 bytes available on disk
512 bytes in each allocation unit.
2,414 allocation units available on disk.

Volume Serial Number is 1B43-16E5

Format another (Y/N)?n

A:>_
```

Activate Windows  
Go to Settings to activate Windows.

## 16. Lihat isi direktori

The screenshot shows two windows. The left window is a terminal session titled 'Bochs for Windows - Console'. It displays the command '# In bx\_win32\_gui c::exit(void)!' followed by Bochs initialization messages. The right window is 'Bochs for Windows - Display', showing a graphical interface with icons for floppy drives A: and B:. A message box in the center says: 'Volume label (11 characters, ENTER for none)?'. Below it, another message box says: '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 1B43-16E5 Format another (Y/N)?n'. The terminal window continues with Bochs configuration and initialization messages. At the bottom right of the screen, there is an 'Activate Windows' watermark.

```
# 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>DosFp
C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] 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>DosFp
C:\OS\LAB\LAB1>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsout.txt

A:>Format B:/S
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 1B43-16E5

Format another (Y/N)?n

A:>dir B:
Volume in drive B has no label
Volume Serial Number is 1B43-16E5
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:>_
```

Activate Windows  
Go to Settings to activate Windows.

## Tugas

1. Kode ASCII (*American Standard Code for Information Interchange*) merupakan suatu standar internasional dalam kode huruf dan simbol seperti Hex dan Unicode tetapi ASCII lebih bersifat universal, contohnya 124 adalah untuk karakter "|". Ia selalu digunakan oleh komputer dan alat komunikasi lain untuk menunjukkan teks. Kode ASCII sebenarnya memiliki komposisi bilangan biner sebanyak 7 bit. Namun, ASCII disimpan sebagai sandi 8 bit dengan menambahkan satu angka 0 sebagai bit significant paling tinggi. Bit tambahan ini sering digunakan untuk uji prioritas. Karakter control pada ASCII dibedakan menjadi 5 kelompok sesuai dengan penggunaan yaitu berturut-turut meliputi logical communication, Device control, Information separator, Code extention, dan physical communication. Code ASCII ini banyak dijumpai pada papan ketik (keyboard) computer atau instrument-instrument digital.

# 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]

2. Perintah Bahasa assembly untuk keluarga intel x86

- ⊕ Komentar: Komentar diawali dengan tanda titik koma (;). ; ini adalah komentar
- ⊕ Label : Label diakhiri dengan tanda titik dua (:). Contoh: main: ,loop: ,proses: ,keluar:
- ⊕ Definisi data: **DB** : define bytes. **DW** : define words. **DD** : define double words. **EQU** : equals. Membentuk konstanta.
- ⊕ Perpindahan data **MOV** : move. **LEA** : load effective address. Mengisi suatu register dengan alamat offset sebuah data. **CHG** : exchange. Menukar dua buah register langsung.
- ⊕ Operasi logika: **AND** : melakukan bitwise and. sintaks: **OR** : melakukan bitwise or. **NOT** : melakukan bitwise not (*one's complement*). **XOR** : melakukan bitwise eksklusif or. **SHL** : shift left. Menggeser bit ke kiri. Bit paling kanan diisi nol. **HR** : shift right.

Menggeser bit ke kanan. Bit paling kiri diisi nol. **ROL** : rotate left. Memutar bit ke kiri. Bit paling kiri jadi paling kanan kali ini. **ROR** : rotate right. Memutar bit ke kanan. Bit paling kanan jadi paling kiri.

⊕ Operasi matematika: **ADD** : add. Menjumlahkan dua buah register. **ADC** : add with carry. Menjumlahkan dua register dan carry flag (CF). **INC** : increment. Menjumlah isi sebuah register dengan 1. **BB** : subtract with borrow. Mengurangkan dua register dan carry flag (CF). **DEC** : decrement. Mengurang isi sebuah register dengan 1. **MUL** : multiply. Mengalikan register dengan AX atau AH. **UL** : signed multiply. **DIV** : divide. Membagi AX atau DX:AX dengan sebuah register. **IDIV** : signed divide. Sama dengan DIV, hanya saja IDIV menganggap bit-bit yang ada di register sumber sudah dalam bentuk *two's complement*. **NEG** : negate. Membuat isi register menjadi negatif (*two's complement*).

⊕ Pengulangan: **LOOP** : loop. Mengulang sebuah proses. Pertama register CX dikurangi satu. Bila CX sama dengan nol, maka looping berhenti. Bila tidak nol, maka lompat ke label tujuan. **LOOPE** : loop while equal. Melakukan pengulangan selama CX ≠ 0 dan ZF = 1. CX tetap dikurangi 1 sebelum diperiksa. sintaks: **LOOPZ** : loop while zero. Identik dengan LOOPE. **LOOPNE** : loop while not equal. Melakukan pengulangan selama CX ≠ 0 dan ZF = 0. CX tetap dikurangi 1 sebelum diperiksa. **LOOPNZ** : loop while not zero. Identik dengan LOOPNE. **REP** : repeat. Mengulang perintah sebanyak CX kali.

## PRAKTIKUM 2

1. Masuk ke direktori C:/OS dan melakukan setpath, kemudia masuk ke dorektori lab/lab2. Kemudia lakukan dir untuk mengecek isi dari direktori

```
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>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>
```

```
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>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>
```

```
cmd Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>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>

Activate Windows
Go to Settings to activate Windows.

20.51
```

## 2. Kemudian buat suatu file bernama “floppya.img”, dengan bantuan aplikasi bximage

```
C:\Windows\system32\cmd.exe
21/09/2018 26.53      1.474.560 floppya.img
19/09/2018 12.09      7.966 kernel.asm
08/09/2016 26.36      684 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)   87.873.486.848 bytes free

C:\OS\LAB\LAB2>del floppya.img
C:\OS\LAB\LAB2>bximage
=====
          bximage
          Disk Image Creation Tool for Bochs
          $!d: 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

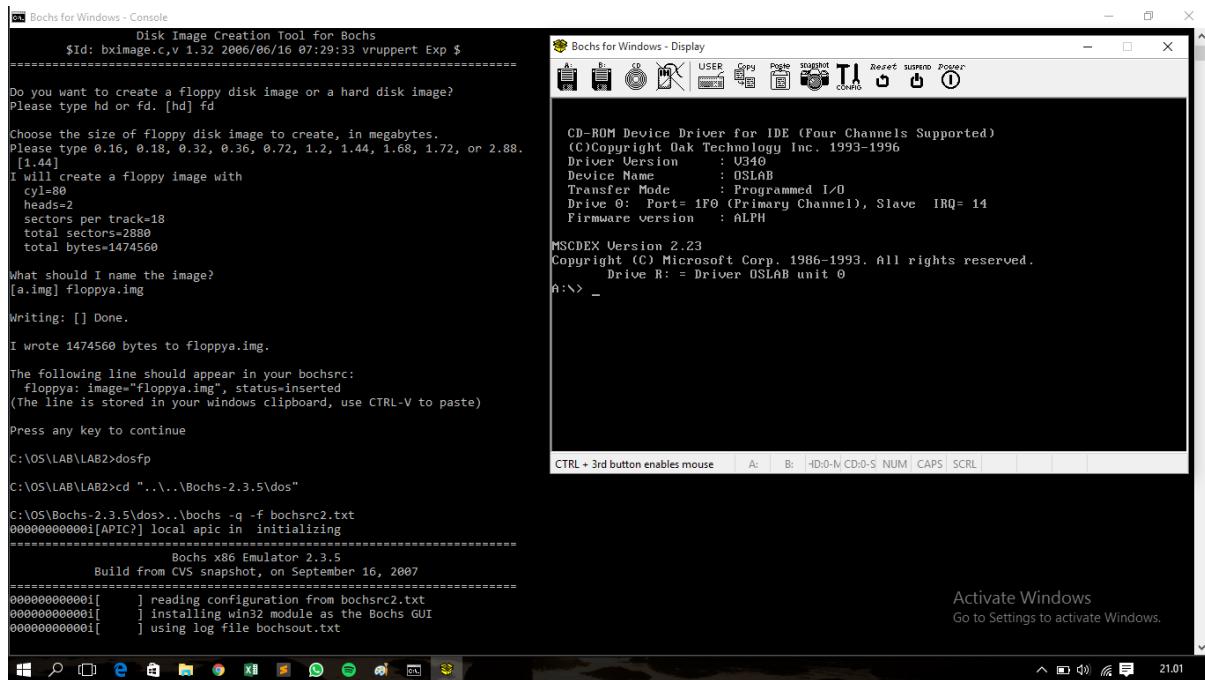
What should I name the image?
[f.a.img] floppya.img
Writing: [] Done.

I wrote 1474560 bytes to floppya.img.

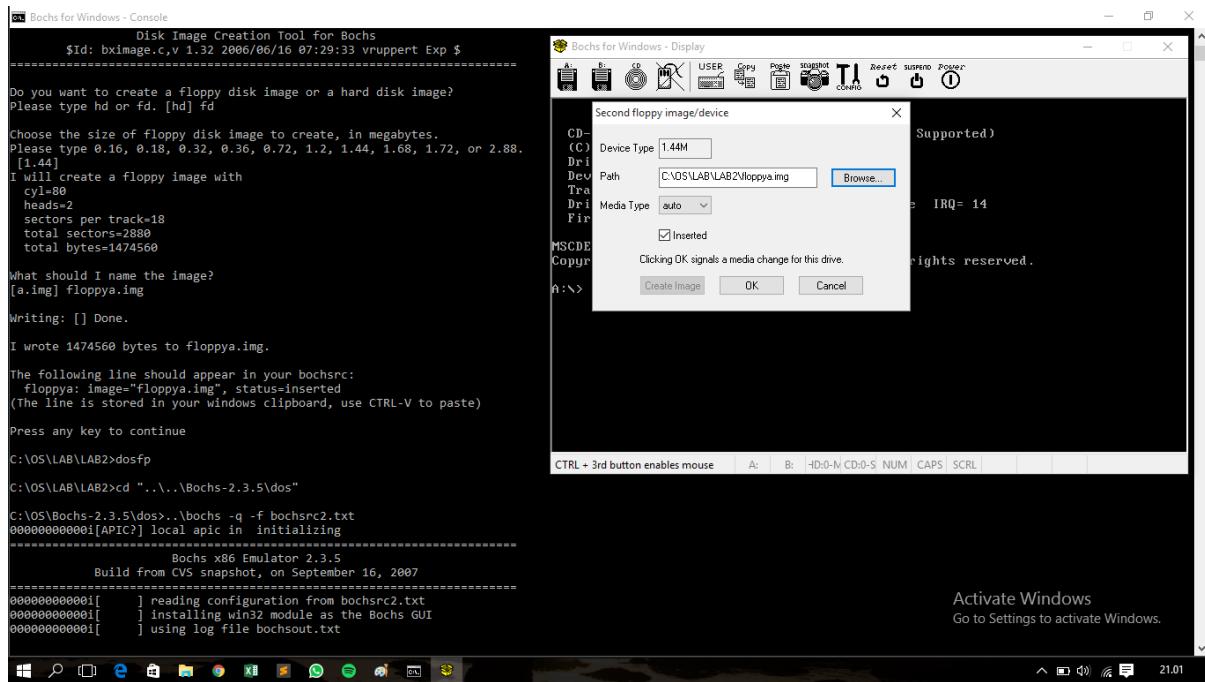
The following line should appear in your bochsrc:
  floppy: image="floppya.img", status=inserted
(The line is stored in your windows clipboard, use CTRL-V to paste)

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

### 3. Kemudian format floppya.img dengan mengisi DOS ke dalamnya



### 4. Aturl lokassi floppya.img yang ada dalam folder lab2. Kemudia lakukan pemformatan.



Bochs for Windows - Console

```

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
  cyls=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:
  floppy: 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>dosfp

C:\OS\LAB\LAB2>cd ..\..\Bochs-2.3.5\dos

C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochsout.txt
# In bx_win32_gui_c::exit(void)

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

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

```

Bochs for Windows - Display

```

Drive R: = Driver OSLoB unit 0
A:> Format B: /S
Insert next diskette for drive B:
and press ENTER when ready...

Checking existing disk format.
Formatting 1.44M
Format complete.
System transferred

Volume label (11 characters, ENTER for none)?
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 0C1A-1CFE

Format another (Y/N)?n

A:>

```

Activate Windows  
Go to Settings to activate Windows.

5. Memasukkan source code dari boot.asm ke bootsector “floppya.img”. Kemudian jalankan perintah make fp.disk

C:\Windows\system32\cmd.exe

```

C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt
000000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
000000000001[ ] reading configuration from bochsrc2.txt
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] 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\lab2"

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -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
# In bx_win32_gui_c::exit(void)

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

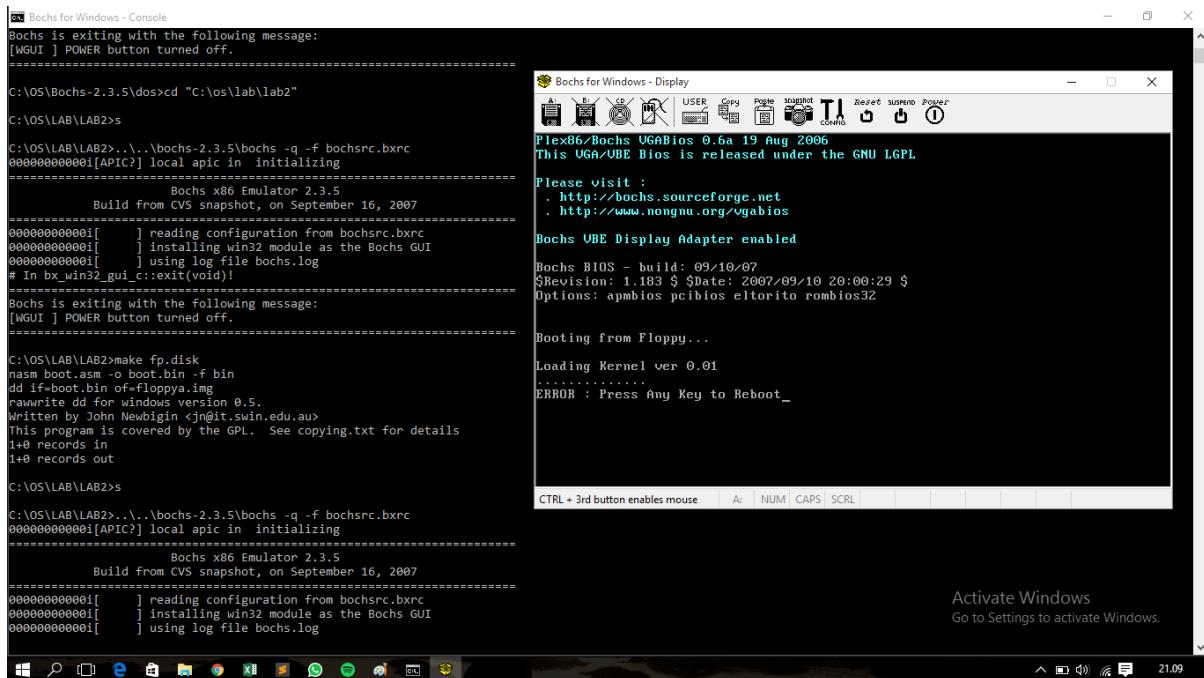
C:\OS\LAB\LAB2>make fp.disk
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin of=floppya.img
rawrite dd for windows version 0.5.
Written by John Newbigin <jn@it.swin.edu.au>
This program is covered by the GPL. See copying.txt for details
1+0 records in
1+0 records out

C:\OS\LAB\LAB2>

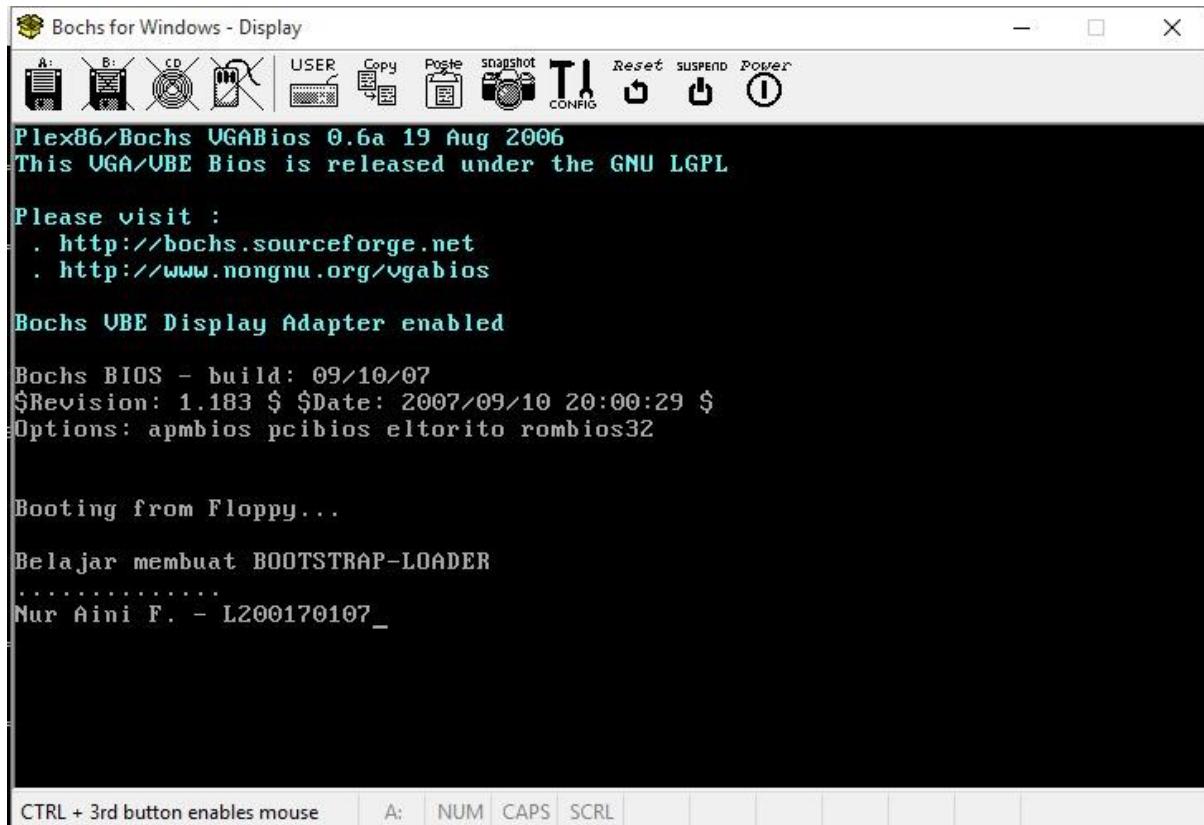
```

Activate Windows  
Go to Settings to activate Windows.

## 6. Lalu ketikkan ‘S’



7. Selanjutnya suntukng boot.asm dengan mengetikkan ‘notepad boot.asm’ di mana membuka file boot.asm dengan menggunakan notepad. Kemudian ganti msgLoading sesuai perintah. Dan ganti error dengan nama dan nim.



8. Ketikkan make kernel. Kemudian cek apakah sudah ada file baru bernama “kernel.bin”

```
on C:\Windows\system32\cmd.exe
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
# In bx_win32.gui c::exit(void)

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

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

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
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
# In bx_win32.gui c::exit(void)

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

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

Activate Windows  
Go to Settings to activate Windows.

```
on C:\Windows\system32\cmd.exe
C:\OS\LAB\LAB2>

C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -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
# In bx_win32.gui c::exit(void)

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

=====
C:\OS\LAB\LAB2>make kernel
nasm kernel.asm -o kernel.bin -f bin
C:\OS\LAB\LAB2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

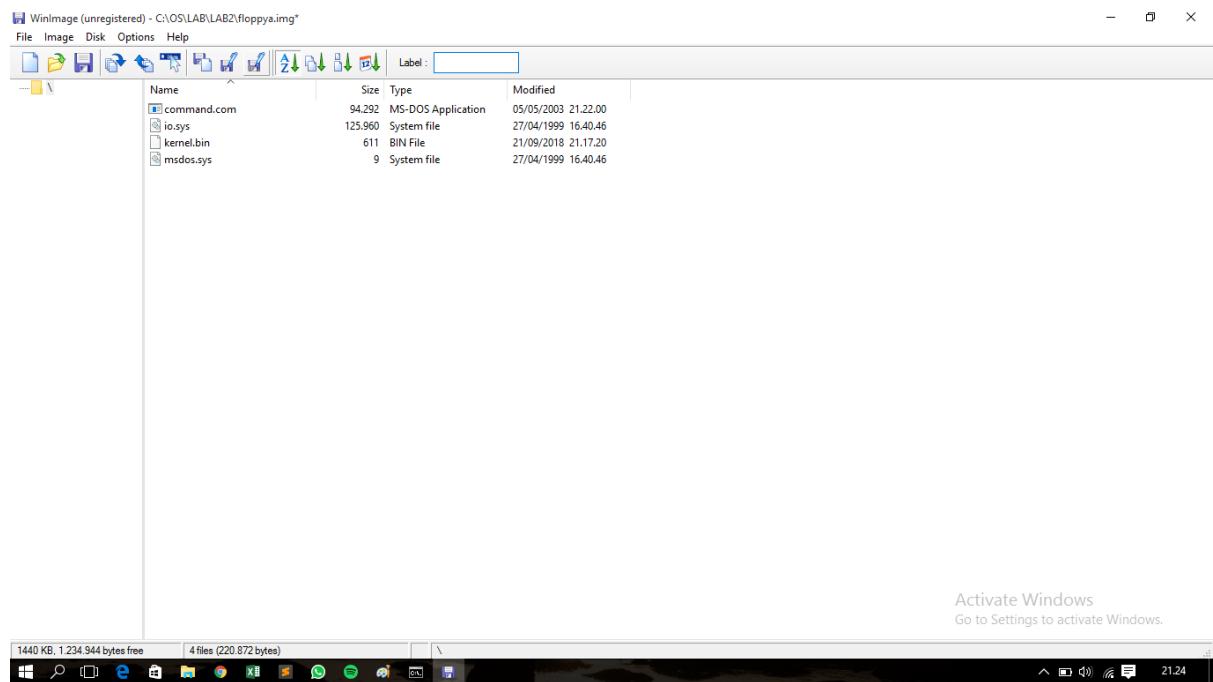
Directory of C:\OS\LAB\LAB2

21/09/2018 20:54 <DIR> .
21/09/2018 20:54 <DIR> ..
21/09/2018 21:17 10.153 bochs.log
15/12/2008 23:18 1.625 bochsrc.bxrc
21/09/2018 21:16 15.921 boot.asm
21/09/2018 21:16 512 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
21/09/2018 21:16 1.474.560 floppya.img
10/09/2018 12:09 7.966 kernel.asm
21/09/2018 21:17 611 kernel.bin
15/12/2008 23:21 44 s.bat
15/12/2008 19:20 12 File(s) 1.872.146 bytes
2 Dir(s) 87.871.979.520 bytes free

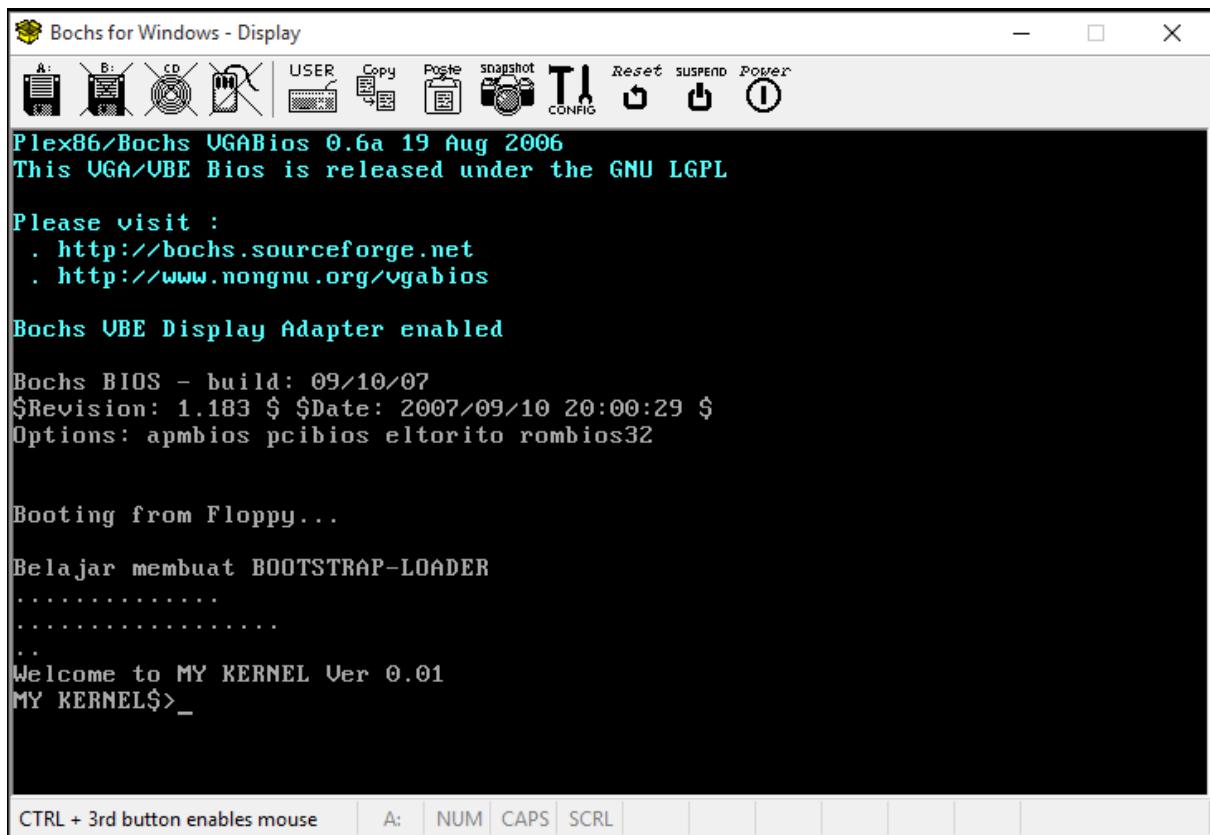
C:\OS\LAB\LAB2>
```

Activate Windows  
Go to Settings to activate Windows.

## 9. Memasukkan file kernel.bin ke dalam file floppya.img



10. Cek dengan “S”



## 11. Modifikasi file kernel.asm. Ganti strWelcomeMsg sesuai perintah.

```

C:\OS\LAB\LAB2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

21/09/2018  20:54    <DIR>        .
21/09/2018  20:54    <DIR>        ..
21/09/2018  21:17      10.153 bochs.log
15/12/2008  23:18      1.625 bochsrc.bxrc
21/09/2018  21:16      15.921 boot.asm
21/09/2018  21:16      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
21/09/2018  21:16      1.474.560 floppya.img
19/09/2018  12:09      7.966 kernel.asm
21/09/2018  21:17      611 kernel.bin
15/12/2008  23:21      228 Makefile
15/12/2008  19:20      44 s.bat
12 File(s)   1.872.146 bytes
2 Dir(s)   87.871.979.520 bytes free

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -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
# In bx_win32_gui.c::exit(void)!

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

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

```

kernel.asm - Notepad

```

File Edit Format View Help
-----_display_end1:
        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
-----strOsName db "MY KERNEL", 0x00 ; OS details
-----strMajorVer db "0", 0x00
-----strMinorVer db ".03", 0x00
-----cmdVer db "ver", 0x00 ; COMMAND internal
-----cmdExit db "exit", 0x00
-----txtVersion db "version", 0x00

```

## 11. Kemudia make kernel kembali untuk merefresh.

```

C:\> C:\Windows\system32\cmd.exe
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

21/09/2018  20:54    <DIR>          .
21/09/2018  20:54    <DIR>          ..
21/09/2018  21:17           10,153 bochs.log
15/12/2008  23:18            1,625 bochsrc.bxrc
21/09/2018  21:16            15,921 boot.asm
21/09/2018  21:16            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
21/09/2018  21:16            1,474,560 floppya.img
19/09/2018  12:09            7,966 kernel.asm
21/09/2018  21:17            611 kernel.bin
15/12/2008  23:21            228 Makefile
15/12/2008  19:20            44 s.bat
12 File(s)     1,872,146 bytes
2 Dir(s)   87,871,979,520 bytes free

C:\OS\LAB\LAB2>s

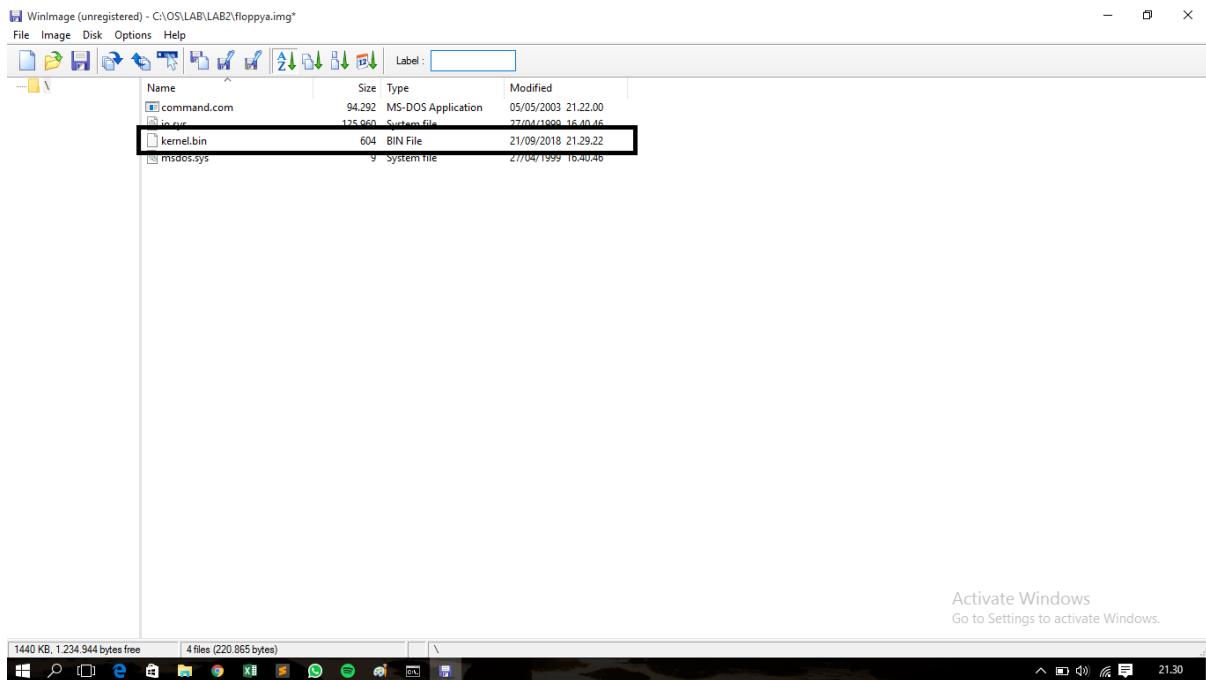
C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
000000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
000000000001[ ] reading configuration from bochsrc.bxrc
000000000001[ ] installing win32 module as the Bochs GUI
000000000001[ ] using log file bochs.log
# In bx_winx2_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

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

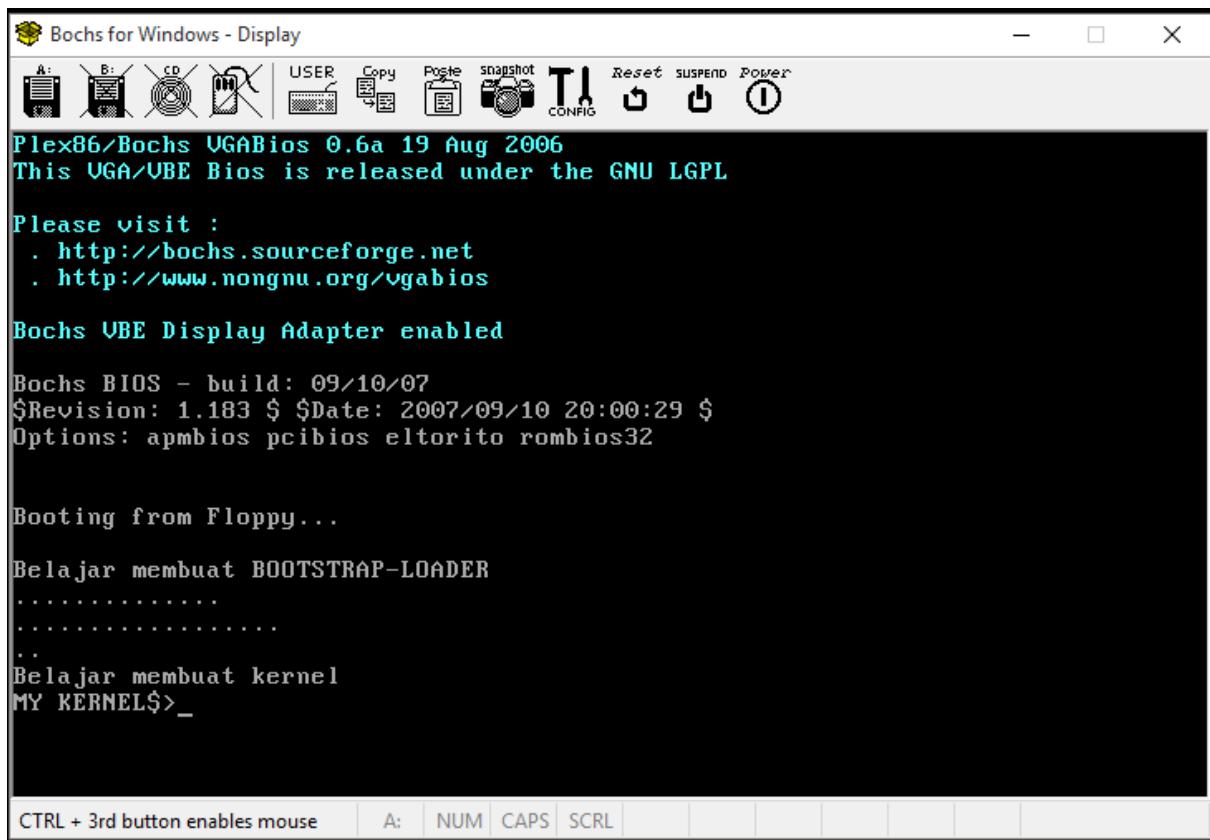
```

Activate Windows  
Go to Settings to activate Windows.

12. Dan masukkan kembali kernel yang telah diperbaharui.



13. Kemudia cek dengan mengetikkan "S"



## PRAKTIKUM 3

1. Masuk ke direktori C:/OS dan melakukan setpath, kemudia masuk ke dorektori lab/lab2. Kemudia lakukan dir untuk mengecek isi dari direktori

```
Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>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>
```

```
Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>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>
```

```
on Command Prompt
Microsoft Windows [Version 10.0.10240]
(c) 2015 Microsoft Corporation. All rights reserved.

C:\Users\User>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>
```

Activate Windows  
Go to Settings to activate Windows.

2. Kemudian buat suatu file bernama “floppya.img”, dengan bantuan aplikasi bximage

```
C:\Windows\system32\cmd.exe
21/09/2018 20:53 1.474.560 floppya.img
19/09/2018 12:09 7.966 kernel.asm
08/09/2016 20:36 604 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) 87.873.486.848 bytes free

C:\OS\LAB\LAB2>del floppya.img
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

Writing: [] Done.

I wrote 1474560 bytes to floppya.img.

The following line should appear in your bochsrc:
  floppy: 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>
```

Activate Windows  
Go to Settings to activate Windows.

3. Kemudian format floppya.img dengan mengisi DOS ke dalamnya

Bochs for Windows - Console

```

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:
  floppy: 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>dosfp

C:\OS\LAB\LAB2>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

```

Bochs for Windows - Display

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

MSCDEX Version 2.23  
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.  
Drive R: = Driver DSLAB unit 0

A:> \_

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

Activate Windows Go to Settings to activate Windows.

4. Atur lokasi floppya.img yang ada dalam folder lab2. Kemudia lakukan pemformatan.

Bochs for Windows - Console

```

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:
  floppy: 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>dosfp

C:\OS\LAB\LAB2>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

```

Bochs for Windows - Display

Second floppy image/device  
CD- (C) Device Type 1.44M  
Driver Path C:\OS\LAB\LAB2\floppya.img  
Browse...  
Device Dev Path  
Transfer Transfer Mode  
Driver Driv Media Type auto  
Firmware Firmware  
Supported  
Clicking OK signals a media change for this drive.  
 Inserted  
Create Image OK Cancel

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

Activate Windows Go to Settings to activate Windows.

Disk Image Creation Tool for Bochs  
\$1d: 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

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  
0000000001[APIC?] local apic in initializing  
=====

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

0000000001[ ] reading configuration from bochsrc2.txt  
0000000001[ ] installing win32 module as the Bochs GUI  
0000000001[ ] 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\lab2"

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc  
0000000001[APIC?] local apic in initializing  
=====

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

0000000001[ ] reading configuration from bochsrc.bxrc  
0000000001[ ] installing win32 module as the Bochs GUI  
0000000001[ ] 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>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

Bochs for Windows - Display  
Drive R: = Driver OSLoB unit 0  
A:> Format B: /S  
Insert next diskette for drive B:  
and press ENTER when ready...  
=====

Checking existing disk format.  
Formatting 1.44M  
Format complete.  
System transferred

Volume label (11 characters, ENTER for none)?  
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 0C1A-1CF

Format another (Y/N)?n

A:>

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

Activate Windows  
Go to Settings to activate Windows.

5. Memasukkan source code dari boot.asm ke bootsector “floppya.img”. Kemudian jalankan perintah make fp.disk

C:\Windows\system32\cmd.exe  
C:\OS\Bochs-2.3.5\dos>..\bochs -q -f bochsrc2.txt  
0000000001[APIC?] local apic in initializing  
=====

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

0000000001[ ] reading configuration from bochsrc2.txt  
0000000001[ ] installing win32 module as the Bochs GUI  
0000000001[ ] 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\lab2"

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc  
0000000001[APIC?] local apic in initializing  
=====

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

0000000001[ ] reading configuration from bochsrc.bxrc  
0000000001[ ] installing win32 module as the Bochs GUI  
0000000001[ ] 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>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

Bochs for Windows - Display  
Drive R: = Driver OSLoB unit 0  
A:> Format B: /S  
Insert next diskette for drive B:  
and press ENTER when ready...  
=====

Checking existing disk format.  
Formatting 1.44M  
Format complete.  
System transferred

Volume label (11 characters, ENTER for none)?  
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 0C1A-1CF

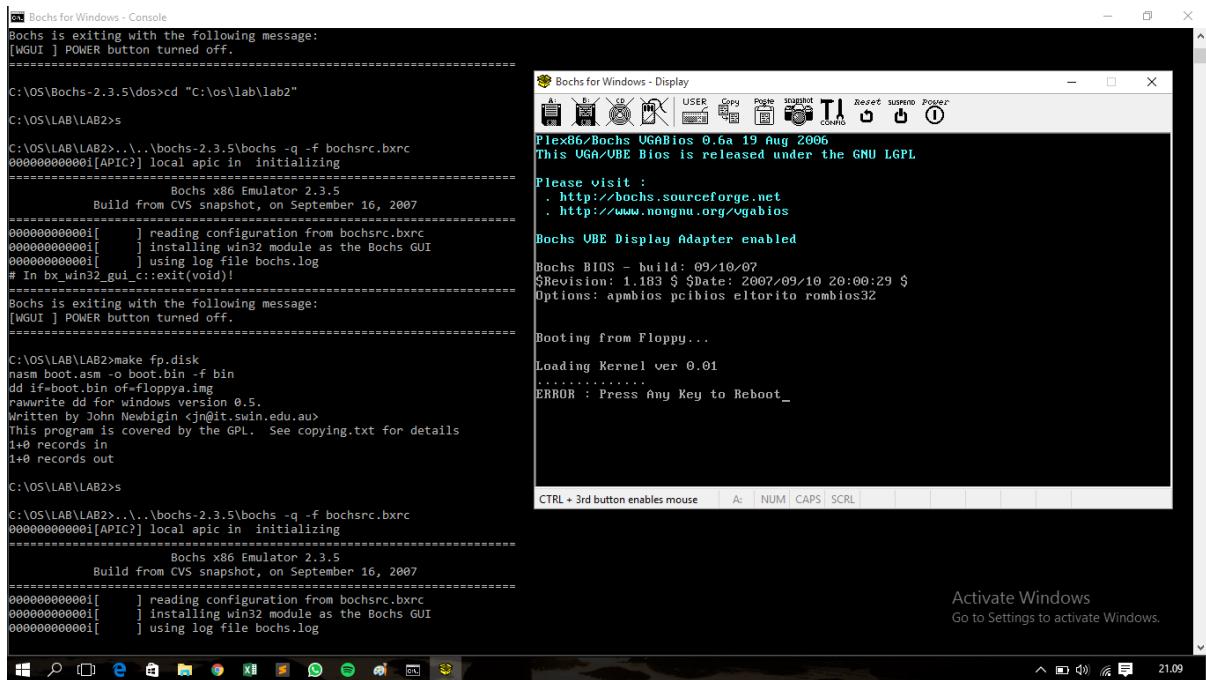
Format another (Y/N)?n

A:>

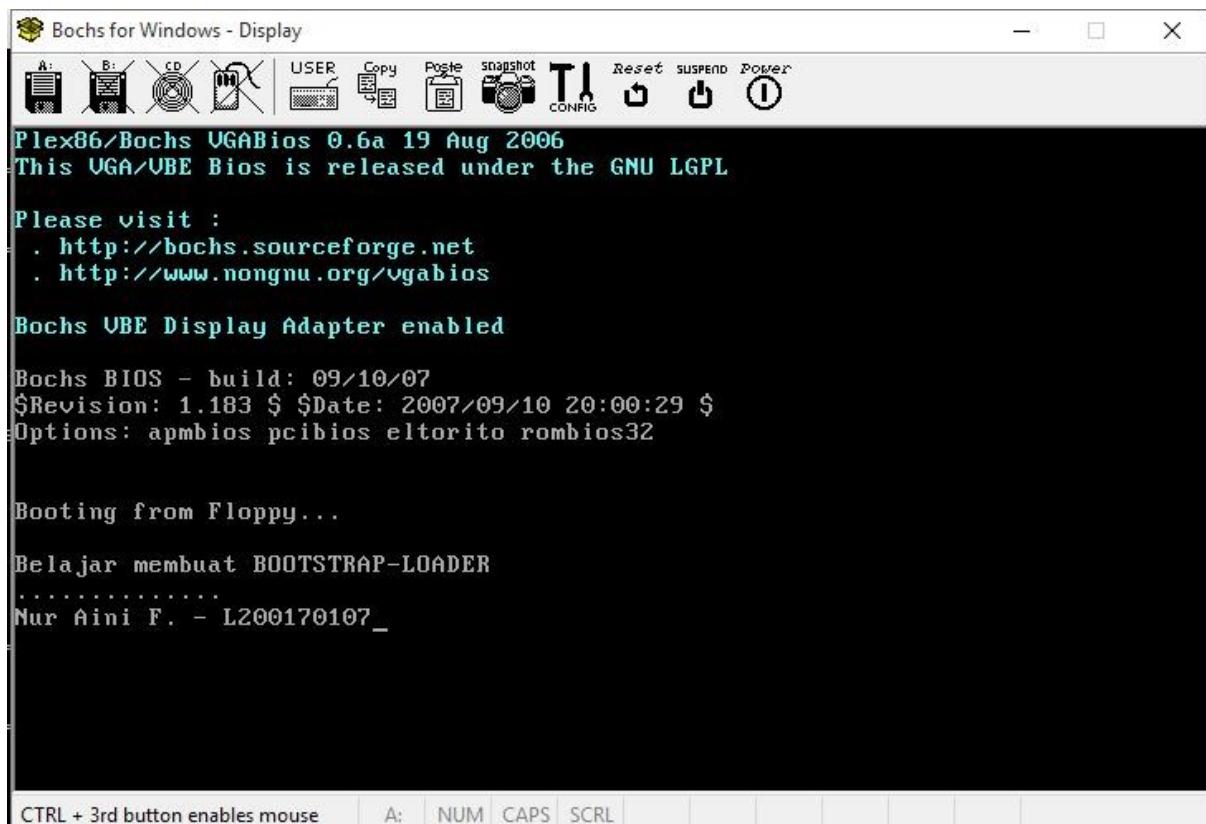
CTRL + 3rd button enables mouse A: B: HD-0-M CD-0-S NUM CAPS SCRL

Activate Windows  
Go to Settings to activate Windows.

6. Lalu ketikkan ‘S’



7. Selanjutnya suntukng boot.asm dengan mengetikkan ‘notepad boot.asm’ di mana membuka file boot.asm dengan menggunakan notepad. Kemudian ganti msgLoading sesuai perintah. Dan ganti error dengan nama dan nim.



8. Ketikkan make kernel. Kemudian cek apakah sudah ada file baru bernama “kernel.bin”

```
on C:\Windows\system32\cmd.exe
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
# In bx_win32.gui c::exit(void)

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

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

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
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
# In bx_win32.gui c::exit(void)

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

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

Activate Windows  
Go to Settings to activate Windows.

```
on C:\Windows\system32\cmd.exe
C:\OS\LAB\LAB2>

C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -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
# In bx_win32.gui c::exit(void)

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

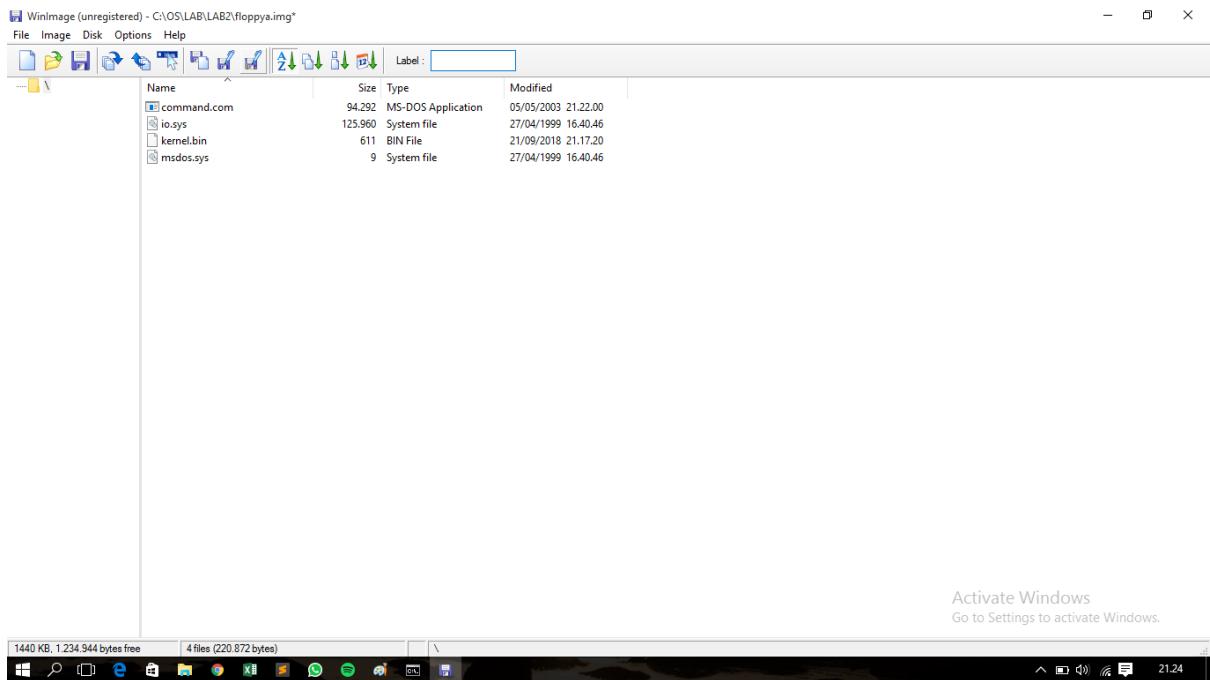
=====
C:\OS\LAB\LAB2>make kernel
nasm kernel.asm -o kernel.bin -f bin
C:\OS\LAB\LAB2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

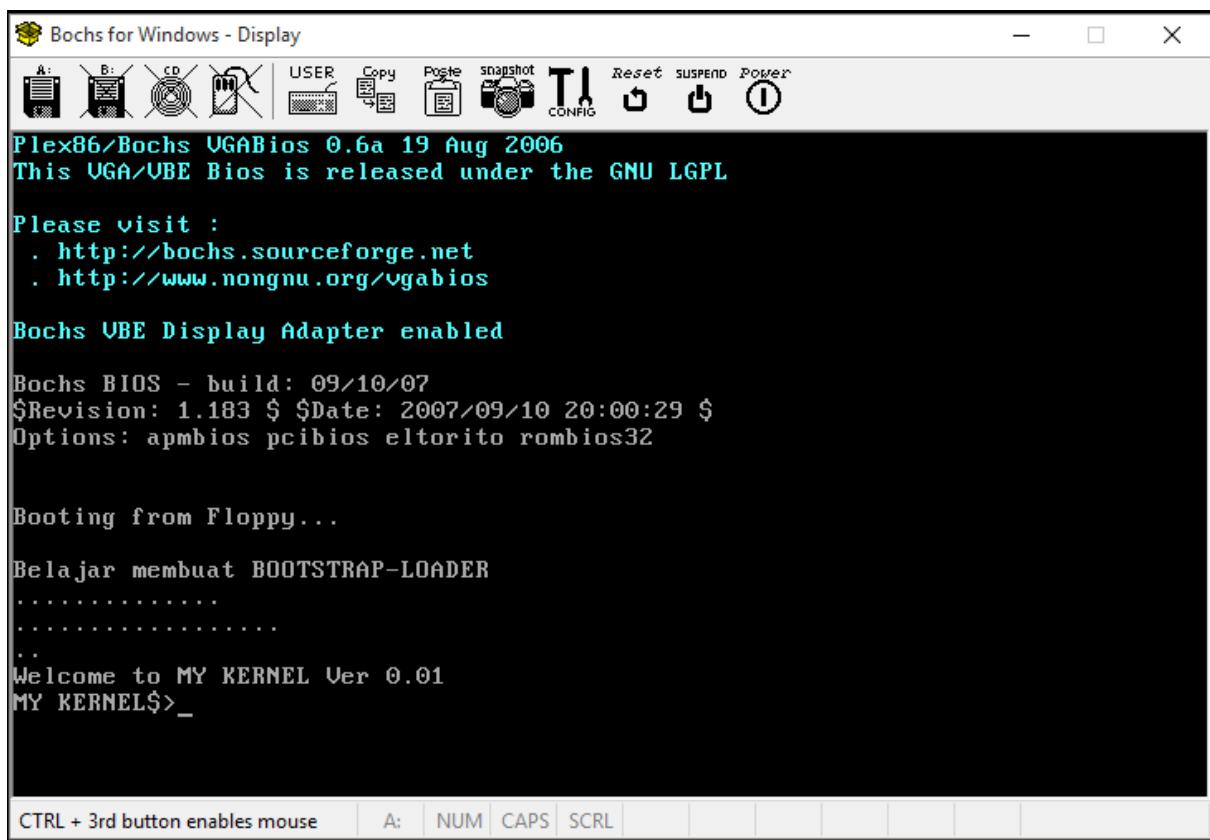
21/09/2018 20:54 <DIR> .
21/09/2018 20:54 <DIR> ..
21/09/2018 21:17 10.153 bochs.log
15/12/2008 23:18 1.625 bochsrc.bxrc
21/09/2018 21:16 15.921 boot.asm
21/09/2018 21:16 512 boot.bin
16/09/2007 23:22 18.432 bximage.exe
27/02/2007 03:50 342.016 dd.exe
15/12/2008 20:52 78 dosfp.bat
21/09/2018 21:16 1.474.560 floppya.img
10/09/2018 12:09 7.966 kernel.asm
21/09/2018 21:17 611 kernel.bin
15/12/2008 23:21 44 s.bat
15/12/2008 19:20 12 File(s) 1.872.146 bytes
2 Dir(s) 87.871.979.520 bytes free
```

Activate Windows  
Go to Settings to activate Windows.

## 9. Memasukkan file kernel.bin ke dalam file floppya.img



## 10. Cek dengan "S"



## 11. Modifikasi file kernel.asm. Ganti strWelcomeMsg sesuai perintah.

```

C:\Windows\system32\cmd.exe
C:\OS\LAB\LAB2>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

21/09/2018 20:54 <DIR> .
21/09/2018 20:54 <DIR> ..
21/09/2018 21:17 10.153 bochs.log
15/12/2008 23:18 1.625 bochsrc.bxrc
21/09/2018 21:16 15.921 boot.asm
21/09/2018 21:16 512 boot.bin
16/08/2007 23:22 18.432 bximage.exe
27/02/2007 03:50 342.016 dd.exe
15/12/2008 20:52 78 dosfp.bat
21/09/2018 21:16 1.474.560 floppya.img
19/09/2018 12:09 7.966 kernel.asm
21/09/2018 21:17 611 kernel.bin
15/12/2008 23:21 228 Makefile
15/12/2008 19:20 44 s.bat
12 File(s) 1.872.146 bytes
2 Dir(s) 87.871.979.520 bytes free

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
00000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000001[ ] reading configuration from bochsrc.bxrc
00000000001[ ] installing win32 module as the Bochs GUI
00000000001[ ] using log file bochs.log
# In bx_wln32_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000001[ ] reading configuration from bochsrc.bxrc
00000000001[ ] installing win32 module as the Bochs GUI
00000000001[ ] using log file bochs.log
# In bx_wln32_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

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

```

Activate Windows  
Go to Settings to activate Windows.

## 11. Kemudia make kernel kembali untuk merefresh.

```

C:\Windows\system32\cmd.exe
Volume Serial Number is 4A6B-68E6

Directory of C:\OS\LAB\LAB2

21/09/2018 20:54 <DIR> .
21/09/2018 20:54 <DIR> ..
21/09/2018 21:17 10.153 bochs.log
15/12/2008 23:18 1.625 bochsrc.bxrc
21/09/2018 21:16 15.921 boot.asm
21/09/2018 21:16 512 boot.bin
16/08/2007 23:22 18.432 bximage.exe
27/02/2007 03:50 342.016 dd.exe
15/12/2008 20:52 78 dosfp.bat
21/09/2018 21:16 1.474.560 floppya.img
19/09/2018 12:09 7.966 kernel.asm
21/09/2018 21:17 611 kernel.bin
15/12/2008 23:21 228 Makefile
15/12/2008 19:20 44 s.bat
12 File(s) 1.872.146 bytes
2 Dir(s) 87.871.979.520 bytes free

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\bochs-2.3.5\bochs -q -f bochsrc.bxrc
00000000001[APIC?] local apic in initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000001[ ] reading configuration from bochsrc.bxrc
00000000001[ ] installing win32 module as the Bochs GUI
00000000001[ ] using log file bochs.log
# In bx_wln32_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

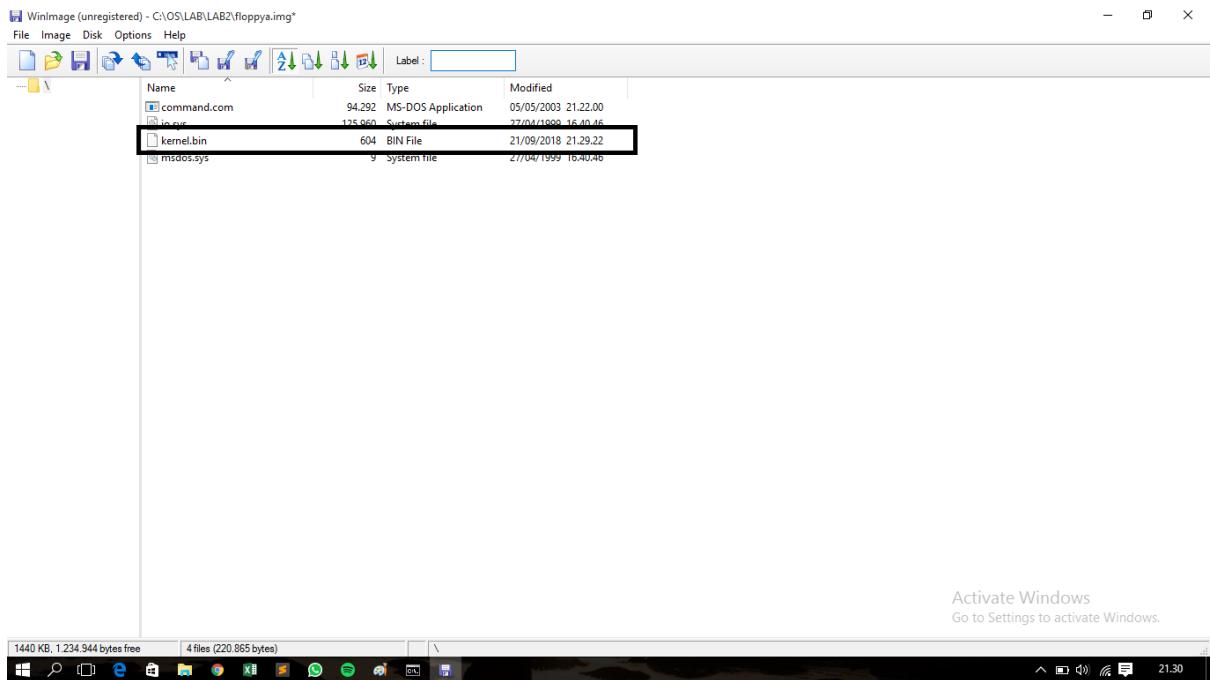
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000001[ ] reading configuration from bochsrc.bxrc
00000000001[ ] installing win32 module as the Bochs GUI
00000000001[ ] using log file bochs.log
# In bx_wln32_gui.c::exit(void)
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

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

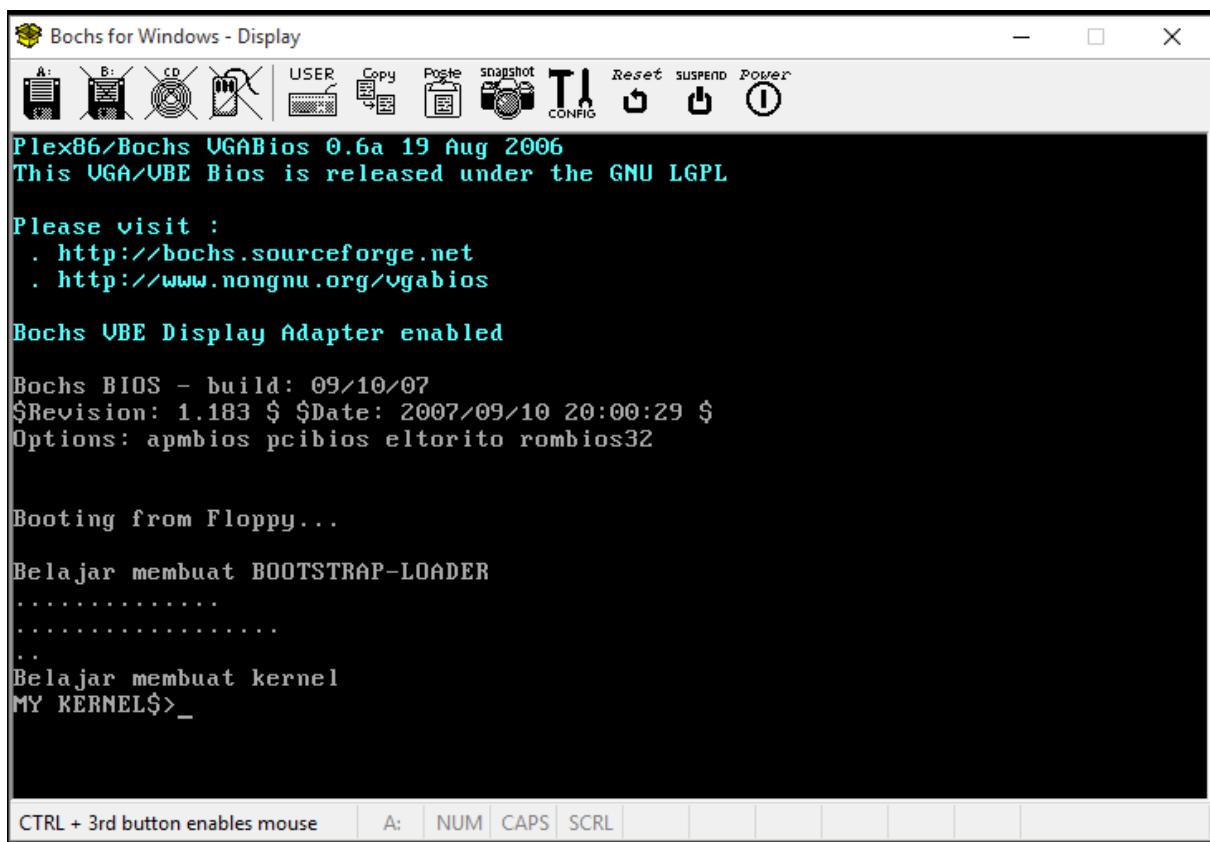
```

Activate Windows  
Go to Settings to activate Windows.

## 12. Dan masukkan kembali kernel yang telah diperbarui.



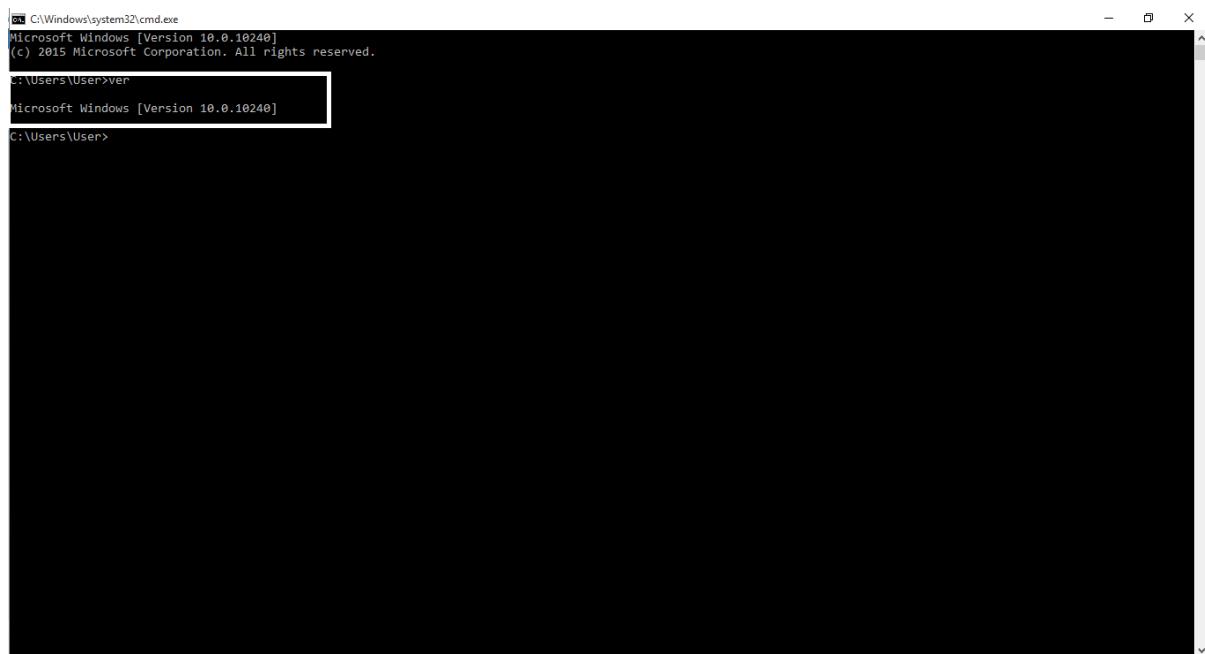
13. Kemudia cek dengan mengetikkan “S”



## PRAKTIKUM 4

### 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  05.20    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  10.30    339  gvr_stderr.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 free
                           22 Dir(s)  86.745.776.128 bytes free

C:\Users\User>
```

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

```
on 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 .gvnngrc
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 10.30 339 gvr_stderr.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>cd..
C:\Users\User>cd..
C:\>
```

### 3. Melihat isi direktori C: dengan mengetikkan dir

```
on 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 10.30 339 gvr_stderr.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>cd..
C:\Users\User>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

```
on 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:\>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.

```
on 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
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:\> 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:\

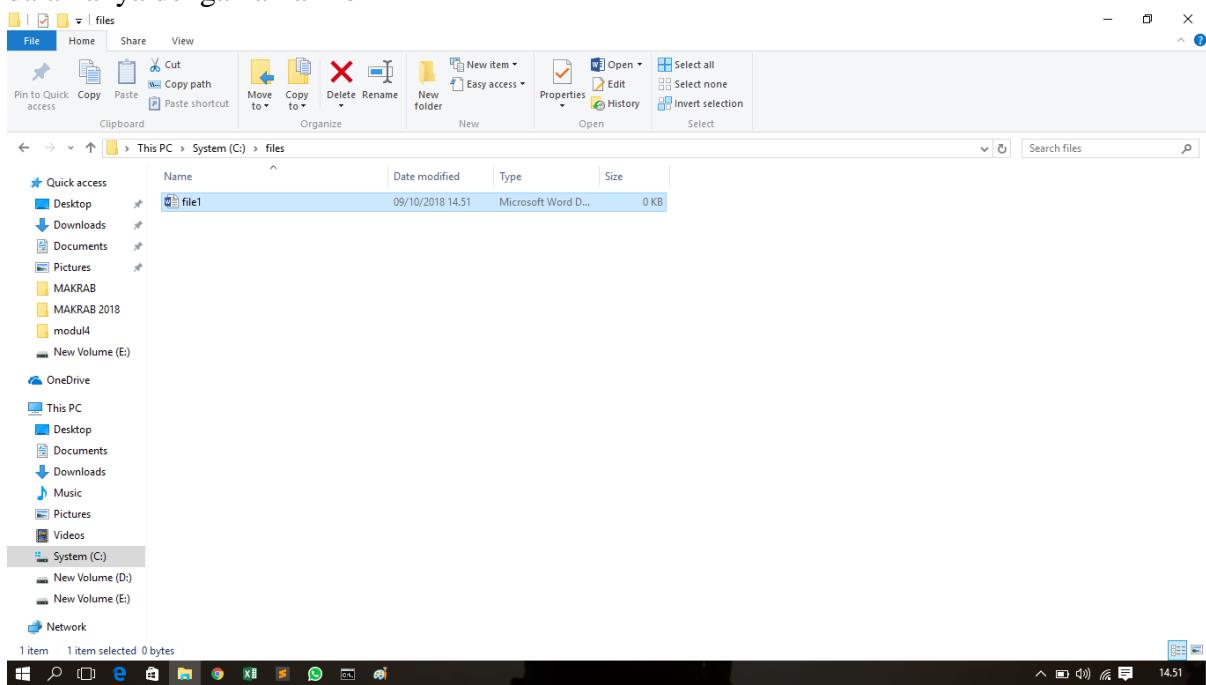
27/07/2017 13.22 <DIR> $Recycle.Bin
10/07/2015 18.00 395.268 bootmgr
10/07/2015 18.00 1 BOOTNXT
01/10/2018 14.08 <DIR> Config.Msi
10/07/2015 19.21 <JUNCTION> Documents and Settings [C:\Users]
09/10/2018 14.09 1.662.713.856 hiberfil.sys
27/07/2017 13.26 <DIR> Intel
11/10/2016 11.36 <DIR> MSOCache
14/09/2018 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 13.50 <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 free
     16 Dir(s) 86.746.828.880 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.

```
on 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 06.00 <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>
```

### 3. Ubah nama file dengan perintah ren nama\_file\_awal.ekstensi nama\_file\_baru.ekstensi

```
on 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 06.00 <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

```
on 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 06.00 <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>rename file.docx file2.docx
C:\files>
```

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

```
on C:\Windows\system32\cmd.exe
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

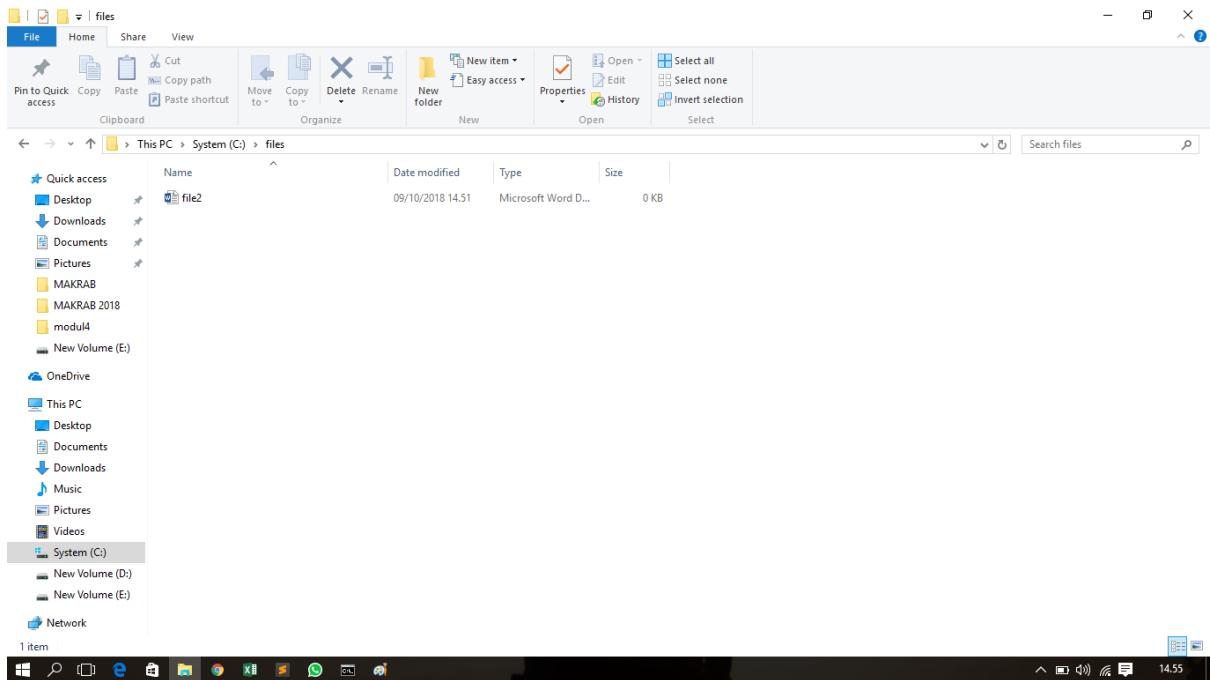
C:\files>ren file1.docx file.docx
C:\files>rename file.docx file2.docx
C:\files>dir
Volume in drive C is System
Volume Serial Number is 4A6B-68E6

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.



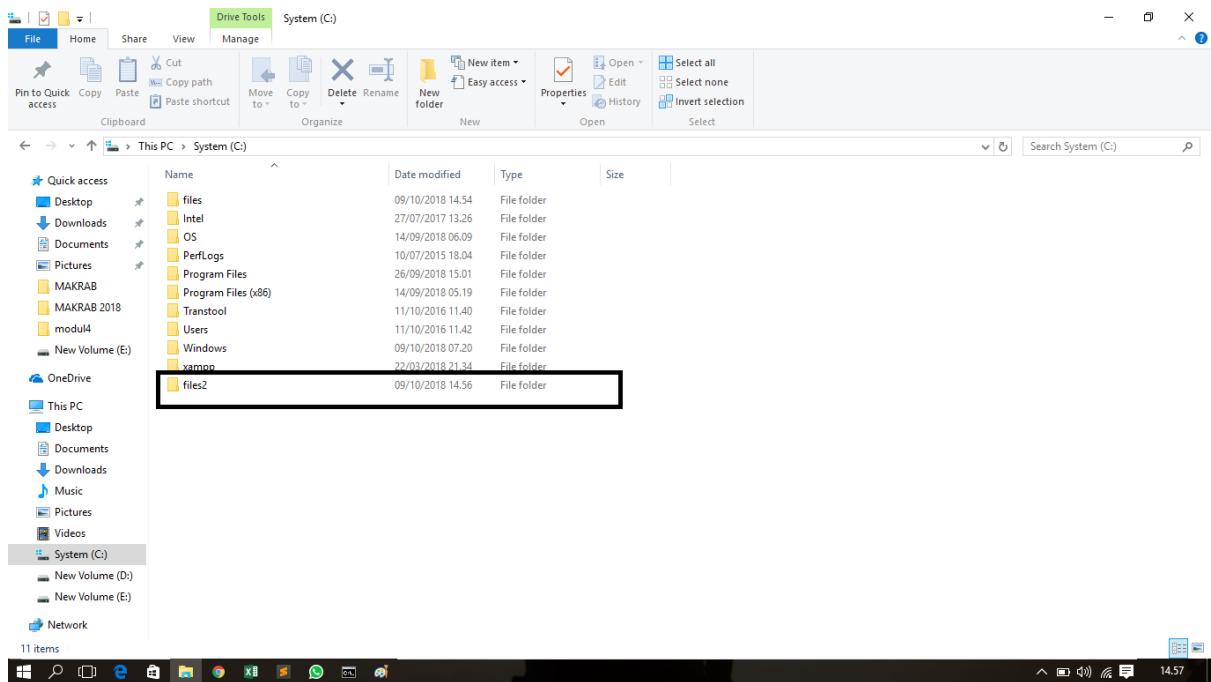
## Percobaan keempat: Copy file dan menghapus file

1. Keluar dari direktori files dengan mengetikkan cd..

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

A screenshot of a Windows Command Prompt window. The title bar says 'cmd.exe'. The prompt is 'C:\Windows\system32\cmd.exe'. The user has typed 'cd..' and is pressing enter. The window has a black background and white text.

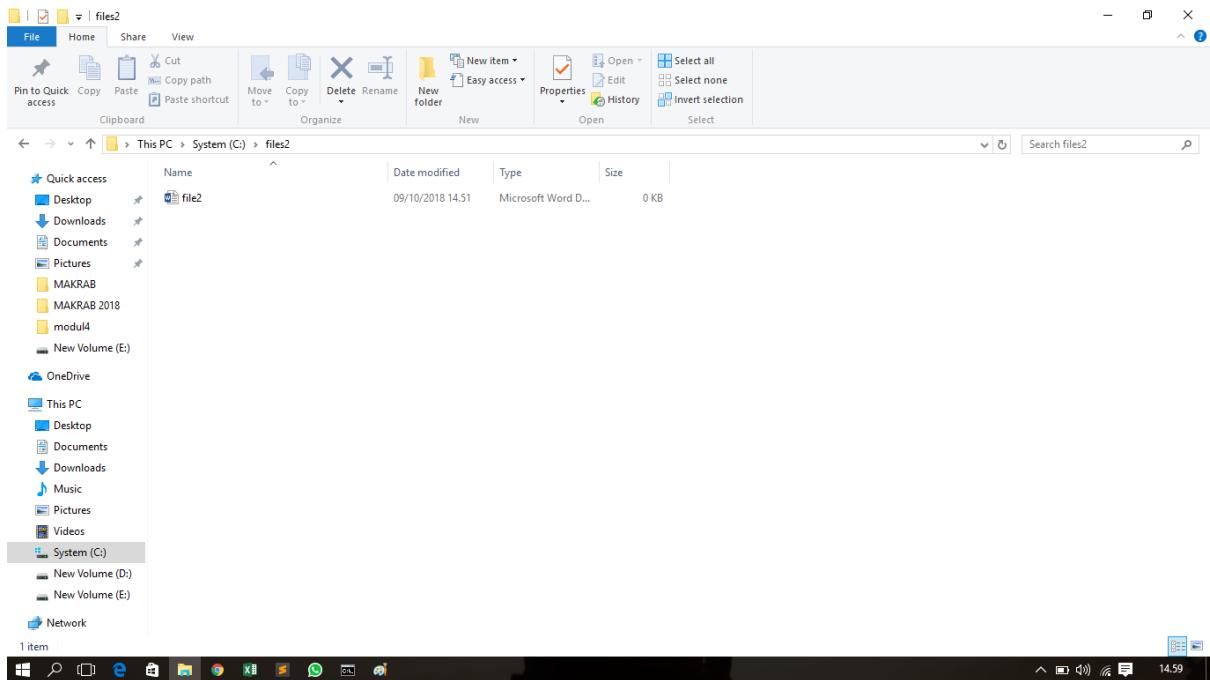
2. Buatlah sebuah folder baru bernama files2 di direktori C:



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:\
1 file(s) copied.
C:\files>
```

A screenshot of a Windows Command Prompt window. The command history shows the user navigating to the root directory ('cd..'), copying a file ('copy C:\files C:\files2'), changing back to the 'files' directory ('cd files'), and then copying the same file again ('copy C:\files\file2.docx D:\'). The last command is highlighted with a white rectangle. The prompt ends with 'C:\files>'.

```
on 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:\files
C:\files>cd..
C:\>D:
D:\>
```

```
on 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:\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    0 file2.docx
01/09/2018  10.39    <DIR>      foto
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  16.22    <DIR>      TUTORIAL
18/05/2018  20.07    <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

```
on C:\Windows\system32\cmd.exe
28/04/2018 15.17 <DIR>      CETAK
16/04/2018 18.21 <DIR>      DESAINKU
25/06/2018 12.06 <DIR>      FFOutput
09/10/2018 14.51          0 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)           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. Kemudian kembali menuju direktori yang terdapat folder dekstop. Kemudian copy semua isi folder dan pindah pada suatu folder di mana folder baru dibuat saat mengcopy. Dengan cara mengetikkan xcopy Dekstop D:nama\_folder\ /s/e

```
on C:\Windows\system32\cmd.exe
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnvfbc.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnfbcc64.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnidiasmi.sm1.pd_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnidiasmi.ex_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnifr.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnifr64.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnifropengl32.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnifropengl64.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vninfo.pb_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vninit.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vninix.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnlddmkm.sy_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnnumd.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnml.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnoglsim32.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnoglsim64.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnoglvs32.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnoglvs64.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnopenc132.dl_
Desktop\ES-475GVGA NEW Core I5\nVidia NVIDIA VGA N165-GT1\MOD01D00X60061000M\Display.Driver\vnopenc164.dl_

C:\Users\User>xcopy Desktop D:baru\ /s/e
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\LTNE.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.

```
on 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\LTNE.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> barv
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 <DIR> 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
16/08/2018 09.22 <DIR> MUSIC
10/08/2018 10.22 <DIR> TUTORIAL
13/05/2018 20.07 <DIR> Wallpaper
31/07/2018 16.36 <DIR> zia
1 File(s) 0 bytes
14 Dir(s) 392.181.448.704 bytes free

D:\>
```

## Percobaan Kelima: Membuat dan menghapus direktori

### 1. Masuk ke direktori C:

```
on 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, kemudian lihat apakah sudah terbuat dengan melihat isi direktori C:

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

```
on 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.

```
on 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 06.00 <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 06.00 <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.

```
on 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 06.00 <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 06.00 <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.

```
on 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 06.00 <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
                           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

```
on 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 06.00 <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.

```
on 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>      xamp
          0 File(s)    0 bytes
        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
        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.

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

C:\>*
```

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

2. Kemudian cek pada direktori files2.

```
on 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 hierarki pada suatu folder, seperti folder files dan windows.

```
on C:\Windows\system32\cmd.exe
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:\>xcd files2

C:\files2>dir
Volume in drive C is System
Volume Serial Number is A46B-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 A46B-68E6
C:\FILES
    |---baru
        |---film
```

```
on C:\Windows\system32\cmd.exe
--x86 system.enterpriseservices b03f5f7f11d50a3a 4.0.10240.16384 none d2294c34bec1feeb
--x86 system.printing 31bf3856ad364e35 4.0.10240.16384 none 21d099246a470cecd
--x86 system.transactions b7a5c561934e089 4.0.10240.16384 none 6b0d66dd79337619
--x86 system.web b03f5f7f11d50a3a 4.0.10240.16384 none 4ea5924272e38ba
--x86 taskschedulersettings.resources 31bf3856ad364e35 10.0.10240.16384 en-us 9f4ee13110079c7f
--x86 wcf-m smsschost.exe cnf 31bf3856ad364e35 10.0.10240.16384 none a095d427fb5dc169
--x86 wcf-m smsschost.perf_c_reg 31bf3856ad364e35 10.0.10240.16384 none dc2f7971f100d395
--x86 wcf-m smsschost.perf_c_vrg 31bf3856ad364e35 10.0.10240.16384 none e1f2fba7ed4c74f4
--x86 wcf-m sm cfg ins.exe 31bf3856ad364e35 10.0.10240.16384 none ac03323af75c3d9
--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 74delb82c147c94
--x86 wcf-m sm mod_end.perf_c_reg 31bf3856ad364e35 10.0.10240.16384 none 72b67288722f6b0e
--x86 wcf-m svc_mod_end.perf_c_vrg 31bf3856ad364e35 10.0.10240.16384 none 7879f4b66e7b0c6d
--x86 wcf-m svc_mod_op_perfc_c_reg 31bf3856ad364e35 10.0.10240.16384 none 73a15f9e0e0d0dd1c
--x86 wcf-m svc_mod_op_perfc_c_vrg 31bf3856ad364e35 10.0.10240.16384 none 74daed5a0e165475
--x86 wcf-m svc_mod_svcp_perfc_c_reg 31bf3856ad364e35 10.0.10240.16384 none 229ce83d718524d1
--x86 wcf-m svc_mod_svc_perfc_c_vrg 31bf3856ad364e35 10.0.10240.16384 none 286067a36ddc630
--x86 wcf-m svc_mon_sup.dll 31bf3856ad364e35 10.0.10240.16384 none 51bf7b782deee44b
--x86 wcf-m tx_bridge.perf_c_reg 31bf3856ad364e35 10.0.10240.16384 none 2878312613158ffd
--x86 wcf-m tx_bridge.perf_c_vrg 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 a87549103031aa64
--x86 wcf-system.runtime_serialization.b03f5f7f11d50a3a 10.0.10240.16384 none d5485b0495c85ab6
--x86 wcf-system.servicemodel.b03f5f7f11d50a3a 10.0.10240.16384 none e3006af060881868
--x86 windows-id-connecte_r-wlidsnp.resources 31bf3856ad364e35 10.0.10240.16384 en-us 13ed3a5c46fcbb567
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 de_de 670354ef881501c3
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 en_gb 088b6ffca7bcac59c3
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 en-us 0ff42ae876f3d088
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 es-es 0ffbf87cc7719ff2d
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 es-mx 11f67572275ade2d8
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 fr-ca_aed48156e4c47bb5
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 fr-fr b276fdch69ec158f
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 it-it 9ce0fa12411dfb0d
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 ja-jp 3ec4731f34390c0e8
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 ko-kr e22e4fd4d26a9d3fe
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 pt-br 1190616ce3a70b27
--x86 windows-media-speech-winxrt.resources 31bf3856ad364e35 10.0.10240.16384 zh-cn_6f7a95565e14e79a
--x86 windowssearchcomponent_31bf3856ad364e35 10.0.10240.16384 none 859fde061590e1f1d
--x86 wpf-presentationhost.exe 31bf3856ad364e35 10.0.10240.16384 none 56754738860b73b
--x86 wpf-presentationhostproxy_31bf3856ad364e35 10.0.10240.16384 none d66cec75c1ef6d7a
```

# TUGAS

## 1. Buat file multimedia pada drive D:

```
C:\>cd C:\Windows\system32\cmd.exe
x86 Windows-media-speech-winrt.resources_31bf3856ad364e35_10.0.10240.16384_es-es_0fbf87cc7719ff2d
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_aaed48156ec47bb5
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_9c9ef412411fb0d
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_e22e4fd4269a3dfe
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_6f7a95565e14e79a
x86 wordbreakerstemmer-neutral-legacy_31bf3856ad364e35_7.0.10240.16384_none_859fde0e61590e1fd
x86 wpf-presentationhostexe_31bf3856ad364e35_10.0.10240.16384_none_1bd6097c926db7a7
x86 wpf-presentationhostproxy_31bf3856ad364e35_10.0.10240.16384_none_d66cec75c1ef6d9

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> haru
28/04/2018 15.17 <DIR> CETAK
16/08/2018 18.21 <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
15/08/2018 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:\>
```

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

```
C:\>cd C:\Windows\system32\cmd.exe
16/08/2018 18.21 <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 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:\

17/05/2018 14.30 <DIR> ADOBE
22/05/2018 11.26 382.315 alun.jpg
09/01/2018 05.14 3.951.020 bahagia.mp3
09/05/2018 12.26 <DIR> bare
28/04/2018 15.17 <DIR> CETAK
16/08/2018 18.21 <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
10/06/2018 09.22 <DIR> MUSIC
09/10/2018 15.47 0 teks.txt
10/06/2018 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:\>
```

### 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 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
09/10/2018 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:\>
```

```
cmd 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  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
09/10/2018  15.47    0 teks.txt
10/08/2018  16.22    <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:\>
```

```
cmd 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  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
09/10/2018  15.47    0 teks.txt
10/08/2018  16.22    <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.

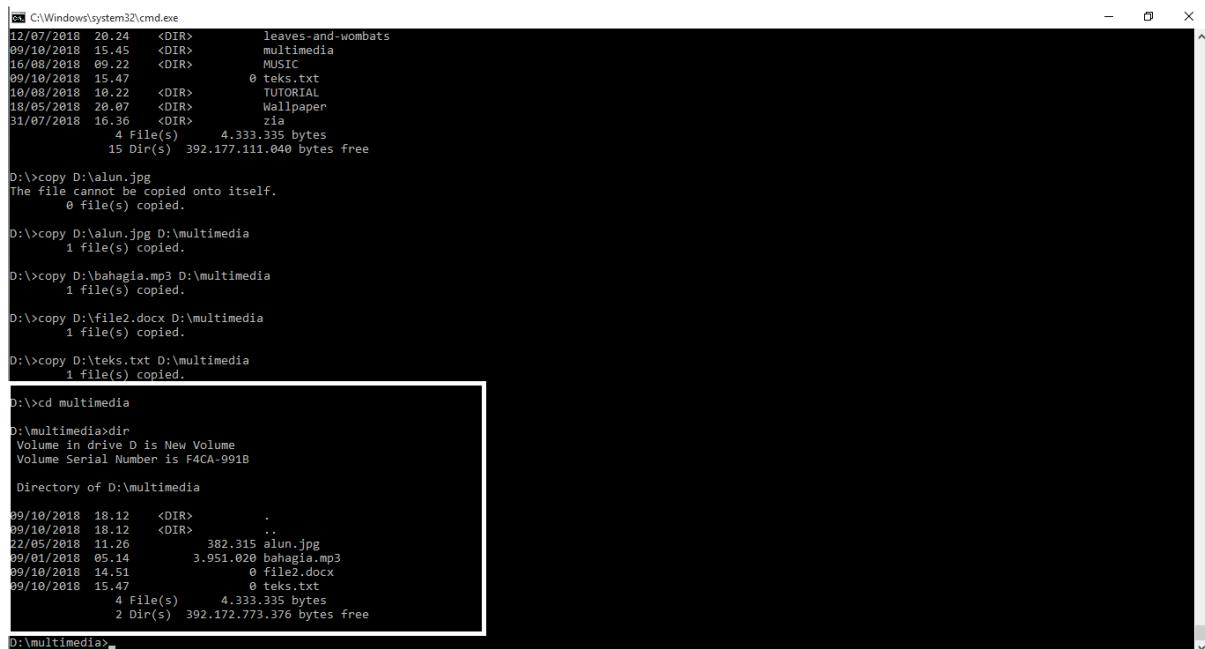
D:\>copy D:\bahagia.mp3 D:\multimedia
      1 file(s) copied.

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 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:>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>
```

## PRAKTIKUM 5

### 1. 5 Distro Linux

- **Linux Mint**

Salah satu distro linux terbaik untuk tahun 2018 adalah Linux Mint. Distro ini cocok bagi pengguna Linux baru. Linux Mint dilengkapi dengan banyak perangkat lunak untuk memenuhi kebutuhan produktivitas pengguna saat beralih dari Mac atau Windows, seperti LibreOffice, dll. Mint juga memiliki dukungan yang lebih baik untuk format media proprietary. Hal ini memungkinkan pengguna untuk memutar video, DVD dan file musik MP3 tanpa harus repot-repot menginstall codex-nya terlebih dahulu.

- **Ubuntu**

Ubuntu merupakan salah satu distro Linux yang paling populer. Sama dengan Linux Mint, distro ini sangat direkomendasikan untuk pemula yang baru mencoba Linux, karena distro ini sangat mudah diakses dengan komunitas yang besar. Versi baru Ubuntu dirilis setiap enam bulan sekali. Pada saat artikel ini ditulis, Ubuntu telah dirilis sampai versi Ubuntu 17.10. Setiap tahun, Canonical, yang merupakan pengembang Ubuntu, merilis versi Ubuntu LTS (long-term service). Versi ini menjamin pengguna lima tahun security dan general maintenance update. Jadi, pengguna dapat terus menggunakan Ubuntu tanpa perlu melakukan upgrade penuh setiap beberapa bulan sekali. Untuk versi non-LTS, security dan maintenance update-nya hanya diberikan selama satu tahun sejak tanggal rilis.

- **Kali Linux**

Kali Linux, yang dulunya dikenal dengan nama BackTrack, adalah salah satu distro Linux yang dirancang khusus untuk Penetration Testing dan Security Auditing. Kali Linux dikembangkan, didanai dan dikelola oleh Offensive Security, sebuah perusahaan pelatihan keamanan informasi terkemuka. Berbasis Debian, Kali Linux mempunyai ratusan pre-install tool di dalamnya untuk kebutuhan penetration testing. Distro ini juga telah dipakai oleh banyak security professional, yang juga merupakan spesialis di bidang penetration testing, forensik, reverse engineering, dan vulnerability assessment.

- **CentOS 7**

CentOS 7 adalah salah satu distro Linux terbaik untuk tahun 2018, yang merupakan distro cabang dari versi Enterprise Red Hat Linux dan difokuskan untuk stability (stabilitas). Layaknya Red Hat, security dan maintenance update untuk CentOS didukung sampai 10 tahun dari awal rilis. CentOS khusus dirancang untuk menjadi

distro atau OS yang super-reliable. Oleh karena itu, distro ini sangat cocok digunakan untuk server. CentOS sendiri sangat jarang digunakan untuk pemakaian sehari-hari di PC desktop atau laptop pengguna.

- **openSUSE**

Sebelumnya dikenal sebagai SUSE Linux dan kemudian SuSE Linux Professional, openSUSE ditujukan untuk para pengembang dan administrator sistem. Untuk alasan itu, distro ini mempunyai protokol keamanan yang sangat ketat. OpenSUSE ini mempunyai dua varian distro utama: openSUSE Leap dan openSUSE Tumbleweed. Pengembangan Leap menggunakan source code dari SUSE Linux Enterprise, yang membuatnya jauh lebih stabil dari Tumbleweed. Versi baru dari openSUSE Leap ini dirilis kira-kira setahun sekali dan didukung selama tiga tahun.

Berbeda dari Leap, pengembangan Tumbleweed didasarkan pada Factory, base development dari openSUSE sendiri. Tumbleweed menggunakan model peluncuran rolling. Dengan kata lain, suatu package aplikasi akan tersedia untuk didownload setelah diuji. Artinya, Tumbleweed berisi aplikasi terbaru yang stabil dan bagus untuk penggunaan sehari-hari.

## 2. 20 Perintah Dasar Linux

- ls = melihat isi direktori
- mkdir = menciptakan direktori
- cd = mengubah direktori
- rmdir = menghapus direktori
- cat = Menampilkan isi file dan menciptakan file
- cp = Menyalin file
- rm = menghapus file
- mv = mengganti nama file/direktori dan memindahkan file ke direktori lain
- ln = link ke file lain
- lp = Mencetak isi file
- find = mencari file
- chmod = untuk mengubah model akses terhadap file atau direktori
- chgrp = mengubah grup file
- chown = mengubah kepemilikan dari file
- echo = Menampilkan tulisan yang dibuat setelah perintah echo dan itu tidak disimpan.
- sort = Mengurutkan suatu file teks menurut abjad.
- cut = Mengambil kolom tertentu dari baris-baris masukannya yang ditentukan pada option -c.
- uniq = Menghilangkan baris – baris berurutan yang mengalami duplikasi.

- locate = Mencari suatu file pada direktori lain yang sedang tidak dikunjungi.
- finger = Melihat informasi user yang telah ditambahkan oleh perintah chfn.

### **3. Pengertian Init 0, Init 1, Init 2, Init 3, Init 4, Init 5, Init 6**

1. Init 0 => Digunakan utk maintenance, diagnostic hardware, booting selain dari disk misal dari cdrom.

command : init 0, shutdown -i0

2. Init 1 => Single user mode, digunakan utk menambahkan patches, backup/restore system. di level ini kita bisa menjalankan/access semua file tapi user lain tidak bisa login ke dalam sytem kita.

command: init 1, shutdown -i1

3. Init 2 => multiuser mode, biasanya utk digunakan dalam network. tapi disini tidak ada resources yang di share.

command: init2, shutdown -i2

4. Init 3 ==> memperluas multiuser mode,kita bisa membuat local resources share pada network kita. sehingga kita bisa berbagi data dilevel ini dalam network.

command: init 3, shutdown -i3

5. Init 4 ==> utk alternative multiuser mode tetapi saat ini belum bisa digunakan.

command: init4, shutdown -i4

6. Init 5 ==> utk shutdown/ power off.

command: init5, shutdown -i5

7. Init 6 ==> men stop operating system kemudian reboot dan kembali ke initdefault nya yang ada di /etc/inittab

command: init 6, shutdown -i6

### **4. Pengertian Quota**

Quota adalah nilai batas yang ditetapkan untuk mengelola akses ke sumber daya sistem dan jaringan atau jumlah penyimpanan yang digunakan oleh User atau Group tertentu. Disk quota bisa diterapkan per user atau per group.

Jika diterapkan per user maka quota yang diterapkan mutlak milik user tersebut. misal : user Ical memiliki disk quota 5 MB, maka total 5MB tersebut adalah mutlak milik user Ical.

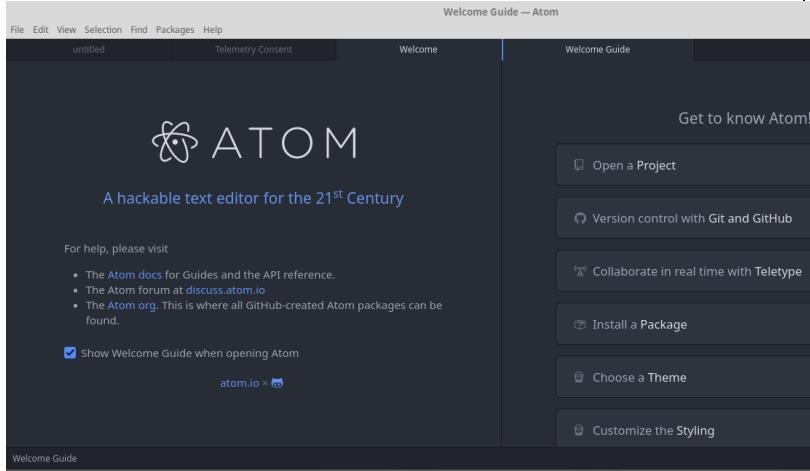
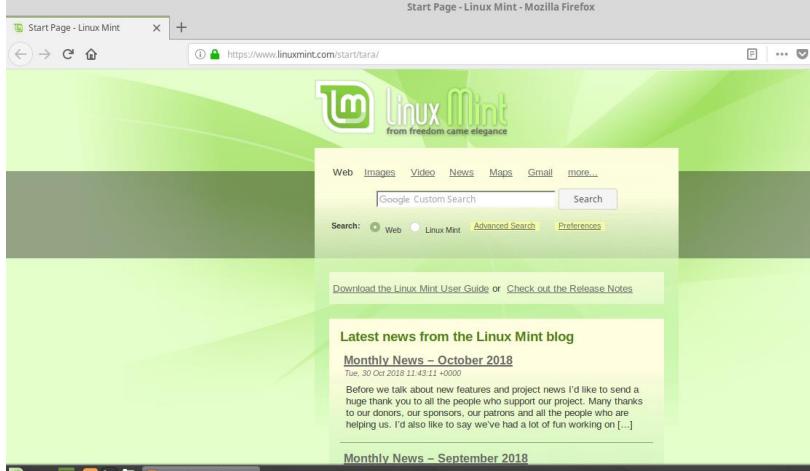
Jika disk quota diterapkan per group maka kapasitas yang ditetapkan adalah milik bersama group tersebut. misal : user Ical dan RedHat adalah anggota group Linux's. Jika group Linux's diberi quota sebesar 10 MB maka kapasitas tersebut adalah milik user Ical dan RedHat. Jadi misalkan user Ical menggunakan sebanyak 6MB maka masih terdapat 4MB untuk digunakan oleh user RedHat.

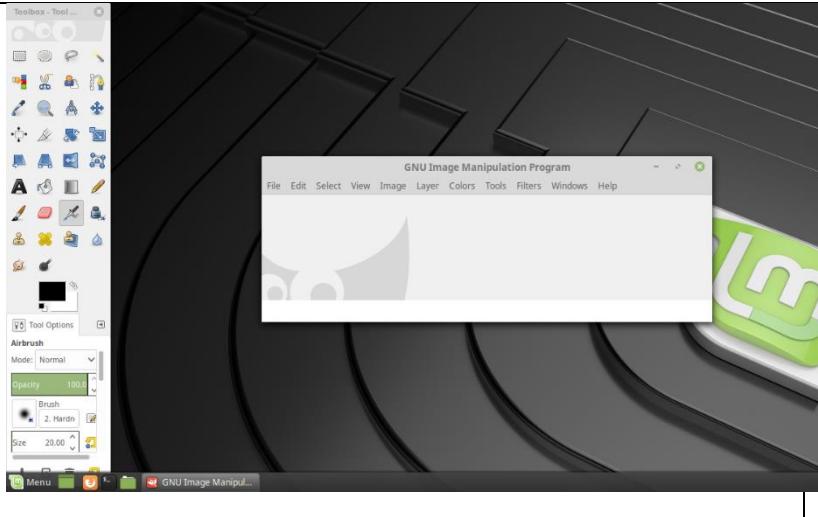
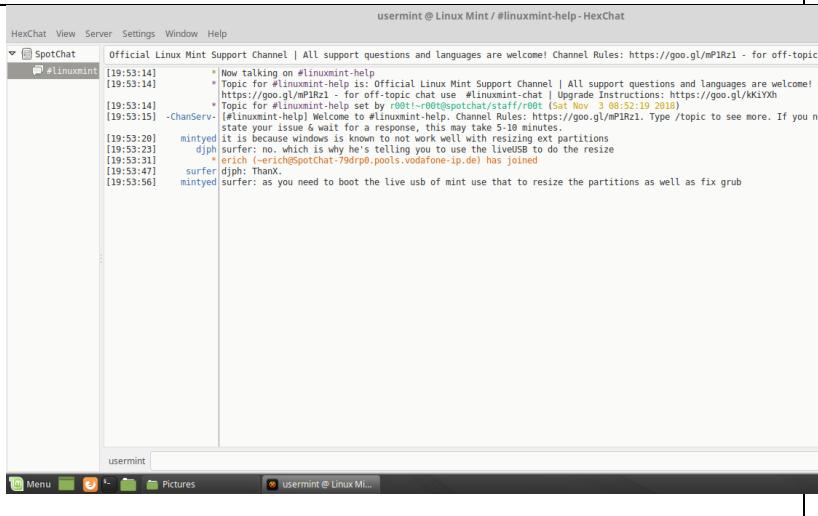
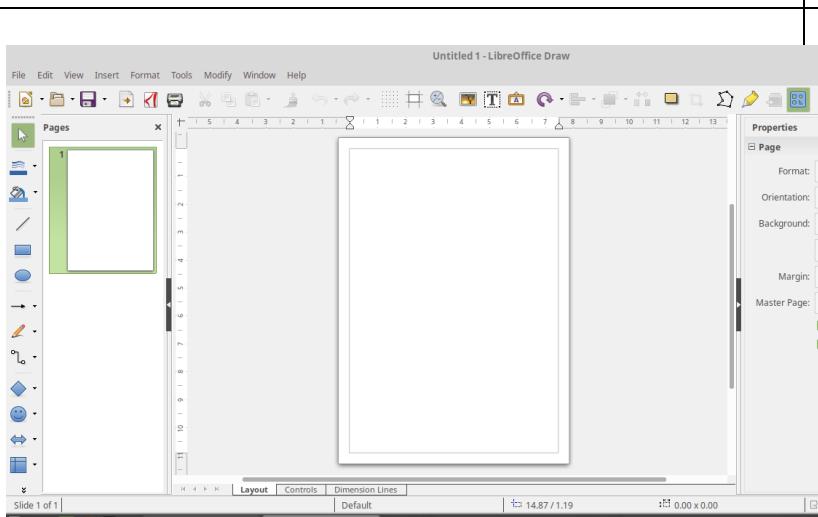
Pembatasan disk quota ditentukan oleh dua kategori yaitu hard limit dan soft limit.

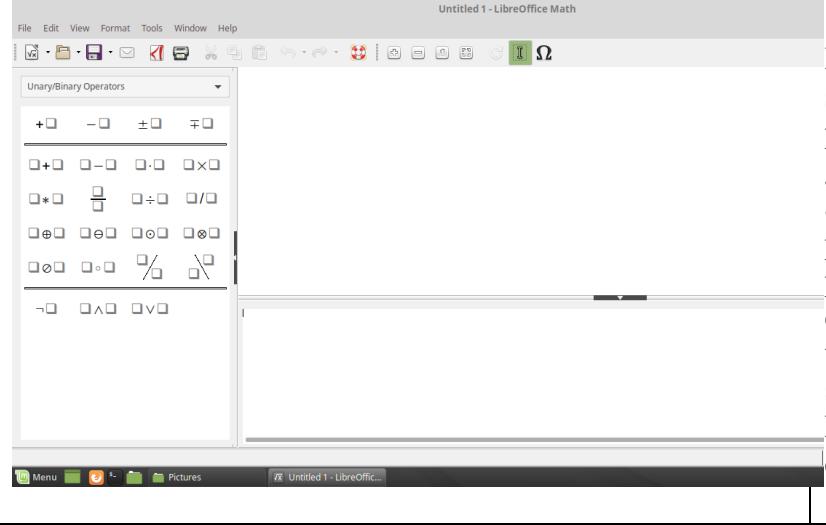
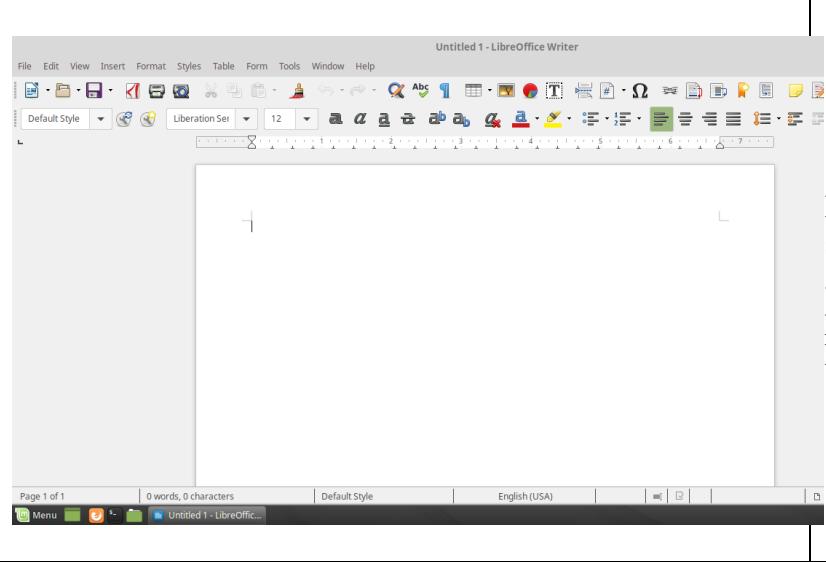
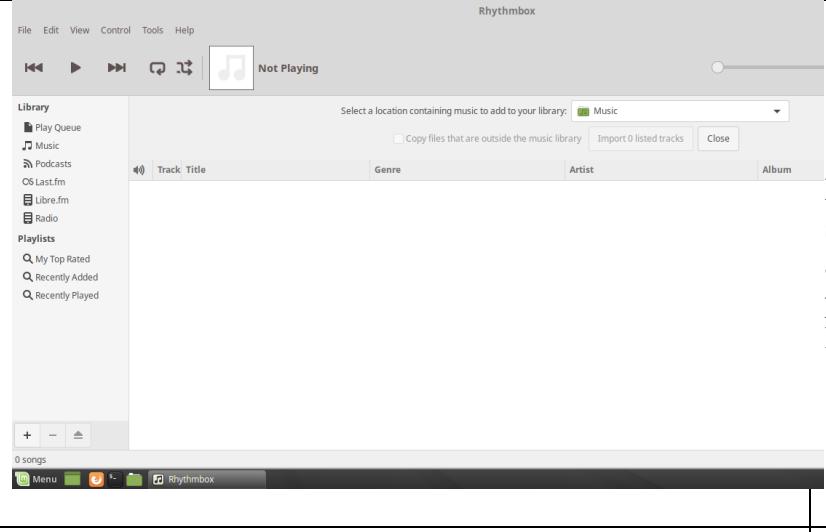
Hard Limit adalah batas yang tidak dapat dilewati. jika user telah mencapai batas hard limit maka user tersebut tidak dapat memasukkan data lagi ke hard disk. Contoh jika user Ical memiliki quota 5 MB dan sudah digunakan 4.9 MB dengan demikian sisanya tinggal 0.1 MB jika kemudian dia mencoba untuk menyimpan file sebesar 0.4MB maka sistem akan menolaknya.

Soft Limit adalah batas yang bisa dilewati. Namun hanya dalam periode tertentu, periode tersebut disebut dengan grace period. Default nilai grace period adalah 7 hari. Umumnya nilai hard limit lebih besar dari soft limit. Untuk lebih jelas perhatikan contoh berikut, misalkan user Ical diberikan soft limit sebesar 10 MB, hard limit 15 MB, serta grace period 3 hari. Jika user optimus sudah menggunakan kapasitas hard disk sebesar 12 MB maka nilai soft limitnya sudah terlewati, dengan demikian perhitungan grace period dimulai, jika dalam waktu 3 hari user optimus belum mengurangi penggunaan disknya sampai di bawah soft limit, maka dia tidak dapat menggunakan disk lagi walaupun nilai hard limitnya belum di capai, jika user optimus mengurangi batas penggunaan disknya sampai di bawah 10 MB maka nilai grace period kembali di reset ke 3 hari.

## PRAKTIKUM 6

N o	Applikasi	Tampilan	Fungsi
1	Atom	 <p>The screenshot shows the Atom text editor's welcome guide. It features a dark theme with a central logo and text. On the right side, there is a sidebar titled "Get to know Atom!" containing several buttons with icons and text: "Open a Project", "Version control with Git and GitHub", "Collaborate in real time with Teletype", "Install a Package", "Choose a Theme", and "Customize the Styling". At the bottom of the main window, there is a link to "atom.io" and a small icon.</p>	Berfungsi sebagai teks editor.
2	Firefox Web Browser	 <p>The screenshot shows a Mozilla Firefox window displaying the "Start Page - Linux Mint" from "https://www.linuxmint.com/start Tara/". The page has a green header with the Linux Mint logo and navigation links for "Web", "Images", "Video", "News", "Maps", "Gmail", and "more...". Below the header, there is a search bar with "Google Custom Search" and a "Search" button. The main content area shows "Latest news from the Linux Mint blog" with sections for "Monthly News – October 2018" and "Monthly News – September 2018".</p>	Sebagai web-browser atau penjelajah web.
3	Gimp		Berfungsi sebagai aplikasi pengolah gambar.

		
4	HexChat	 <p>usermint @ Linux Mint 7 #linuxmint-help - HexChat</p> <p>HexChat View Server Settings Window Help</p> <p>Official Linux Mint Support Channel   All support questions and languages are welcome! Channel Rules: <a href="https://goo.gl/mPIRz1">https://goo.gl/mPIRz1</a> - for off-topic</p> <p>[19:53:14] * Now talking on #linuxmint-help</p> <p>[19:53:14] * Topic for #linuxmint-help is: Official Linux Mint Support Channel   All support questions and languages are welcome!</p> <p>[19:53:14] * Topic for #linuxmint-help set by <a href="#">#001-r00t@sp0tchat/staff/r00t</a> (Sat Nov 3 08:52:19 2018)</p> <p>[19:53:14] * Topic for #linuxmint-help set by <a href="#">#001-r00t@sp0tchat/staff/r00t</a> (Sat Nov 3 08:52:19 2018)</p> <p>[19:53:15] -ChanServ :Topic for #linuxmint-help is: Official Linux Mint Support Channel   All support questions and languages are welcome!</p> <p>[19:53:15] * Topic for #linuxmint-help set by <a href="#">#001-r00t@sp0tchat/staff/r00t</a> (Sat Nov 3 08:52:19 2018)</p> <p>[19:53:20] mintyed it is because windows is known to not work well with resizing ext partitions</p> <p>[19:53:23] diph surfer: no, which is why he's telling you to use the liveUSB to do the resize</p> <p>[19:53:31] surfer: erichgerichsp0tchat-79drp0.pools.vodafone-ip.de has joined</p> <p>[19:53:32] surfer: There is a bug</p> <p>[19:53:56] mintyed surfer: as you need to boot the live usb of mint use that to resize the partitions as well as fix grub</p>
5	LibreOffice Draw	 <p>Untitled 1 - LibreOffice Draw</p> <p>File Edit View Insert Format Tools Modify Window Help</p> <p>Pages X</p> <p>Layout Controls Dimension Lines</p> <p>Properties</p> <p>Page</p> <p>Format:</p> <p>Orientation:</p> <p>Background:</p> <p>Margins:</p> <p>Master Page:</p>

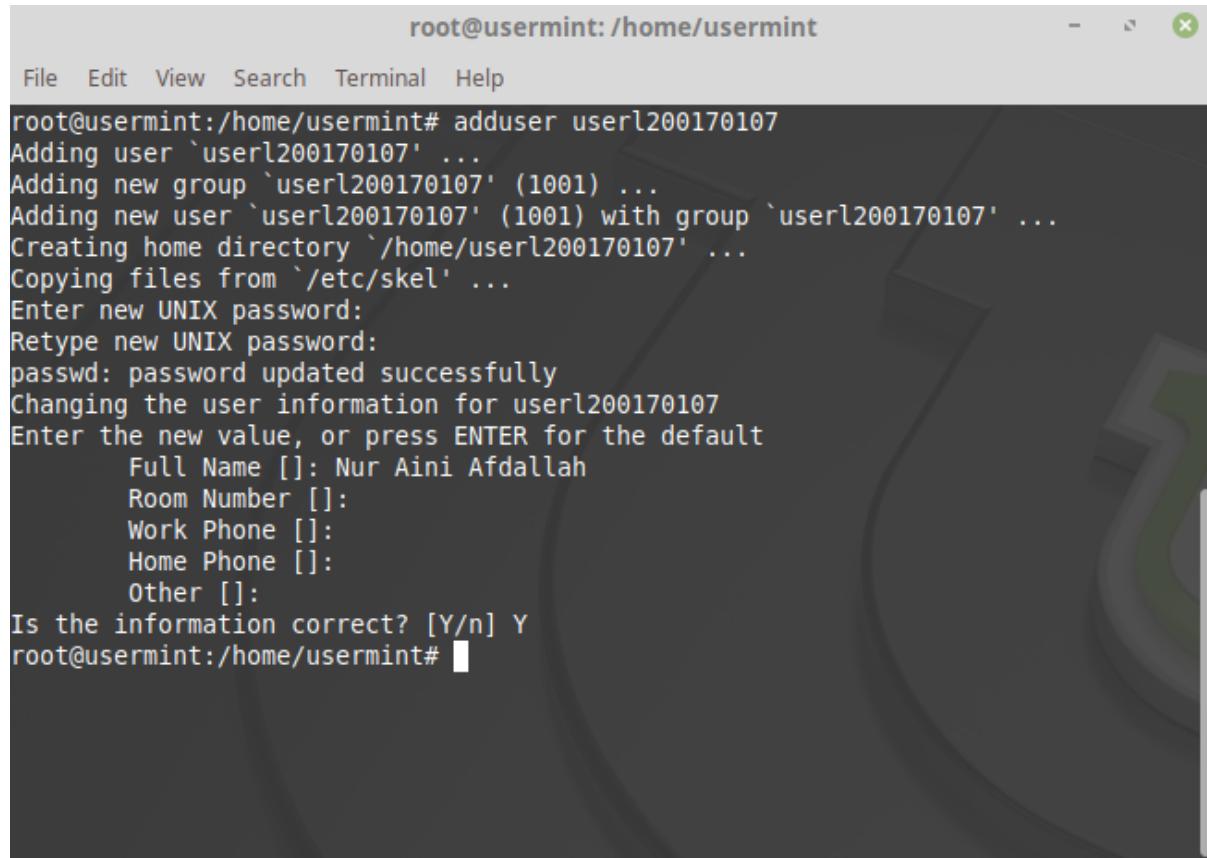
6	LibreOffice Math		<p>Berfungsi sebagai penyunting rumus atau persamaan pada dokumen teks seperti LibreOffice Writer.</p>
7	LibreOffice Writer		<p>Berfungsi sebagai aplikasi pengolah kata.</p>
8	Rhythmbox		<p>Berfungsi sebagai aplikasi pemutar lagu.</p>
9	Thunderbird		<p>Berfungsi sebagai aplikasi klien surat elektronik.</p>

10	VLC Media Player	<p>Berfungsi sebagai aplikasi pemutar berkas multimedia.</p>

## PRAKTIKUM 7

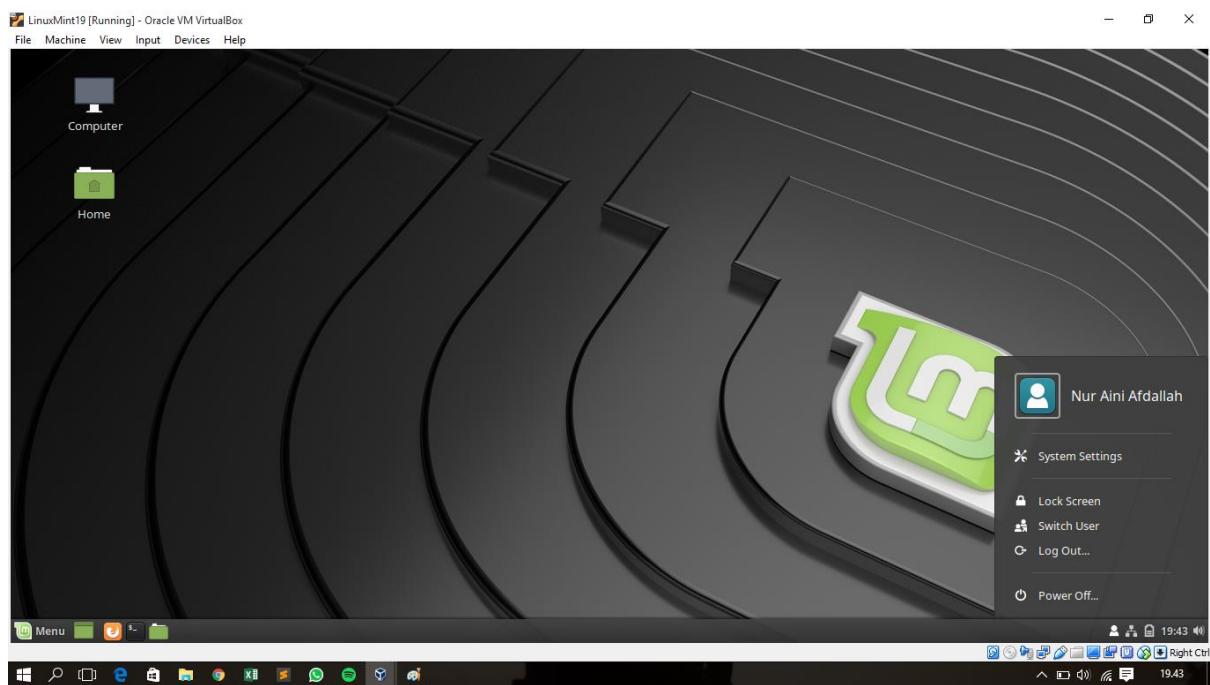
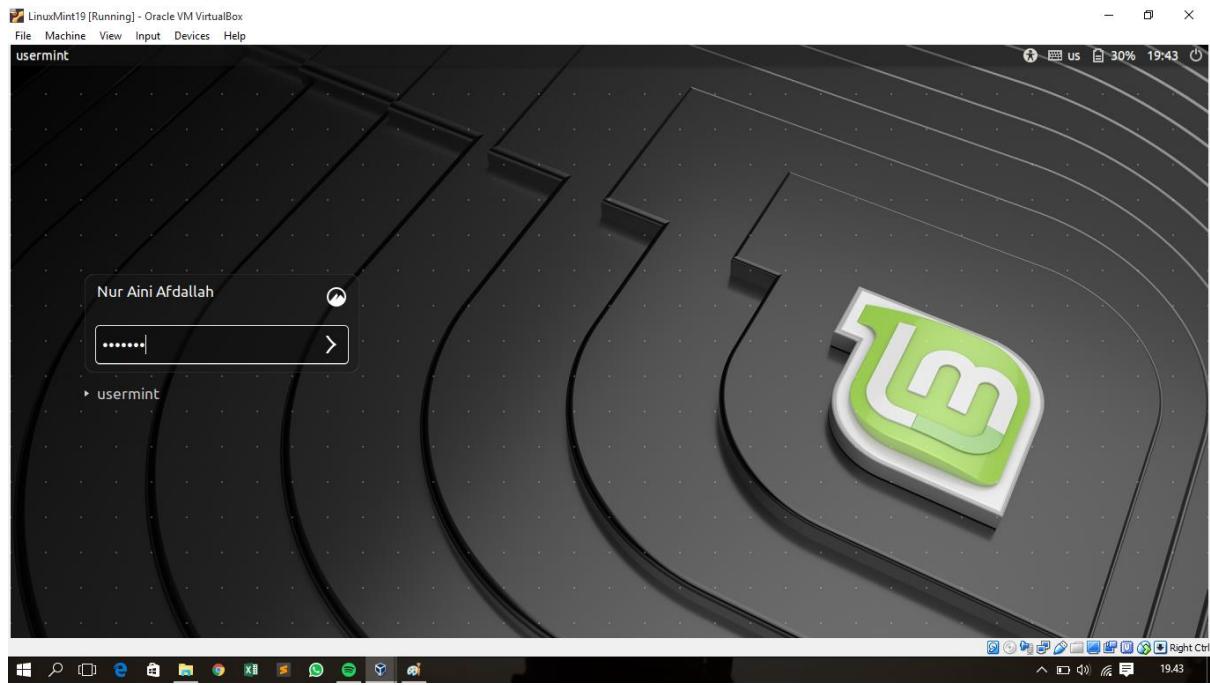
### Praktikum 1:

#### 1. Membuat user baru



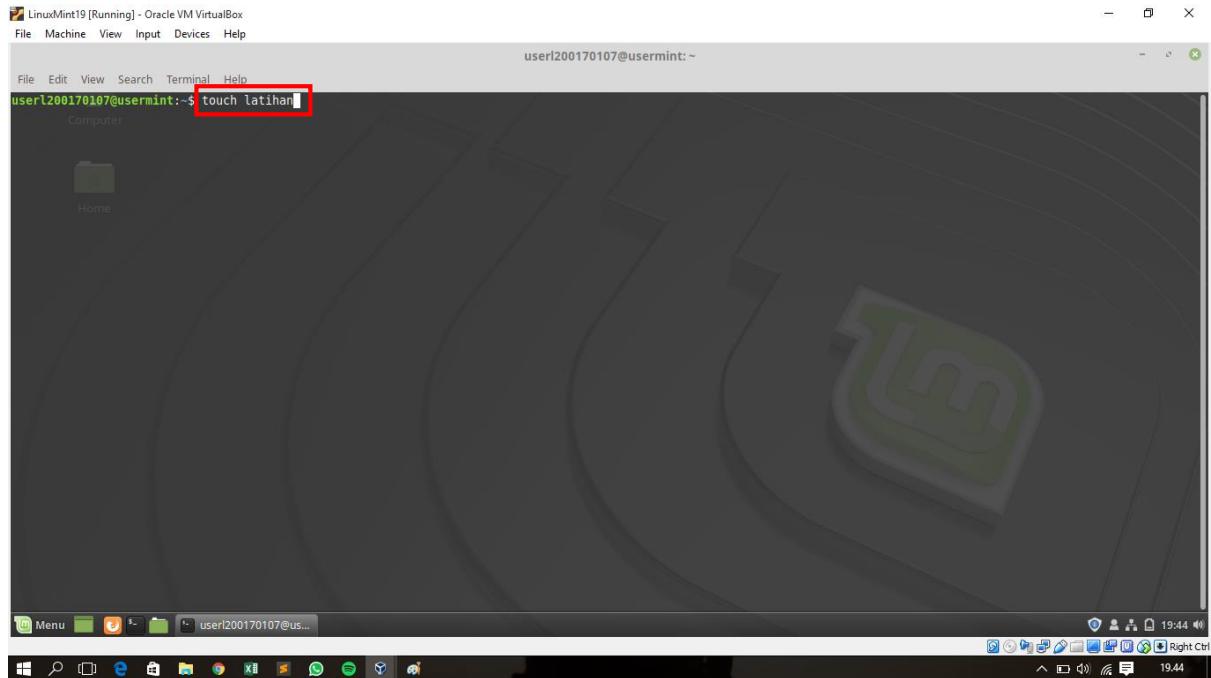
```
root@usermint:/home/usermint
File Edit View Search Terminal Help
root@usermint:/home/usermint# adduser userl200170107
Adding user `userl200170107' ...
Adding new group `userl200170107' (1001) ...
Adding new user `userl200170107' (1001) with group `userl200170107' ...
Creating home directory `/home/userl200170107' ...
Copying files from `/etc/skel' ...
Enter new UNIX password:
Retype new UNIX password:
passwd: password updated successfully
Changing the user information for userl200170107
Enter the new value, or press ENTER for the default
    Full Name []: Nur Aini Afdallah
    Room Number []:
    Work Phone []:
    Home Phone []:
    Other []
Is the information correct? [Y/n] Y
root@usermint:/home/usermint#
```

## 2. Login ke user baru



## Praktikum 2:

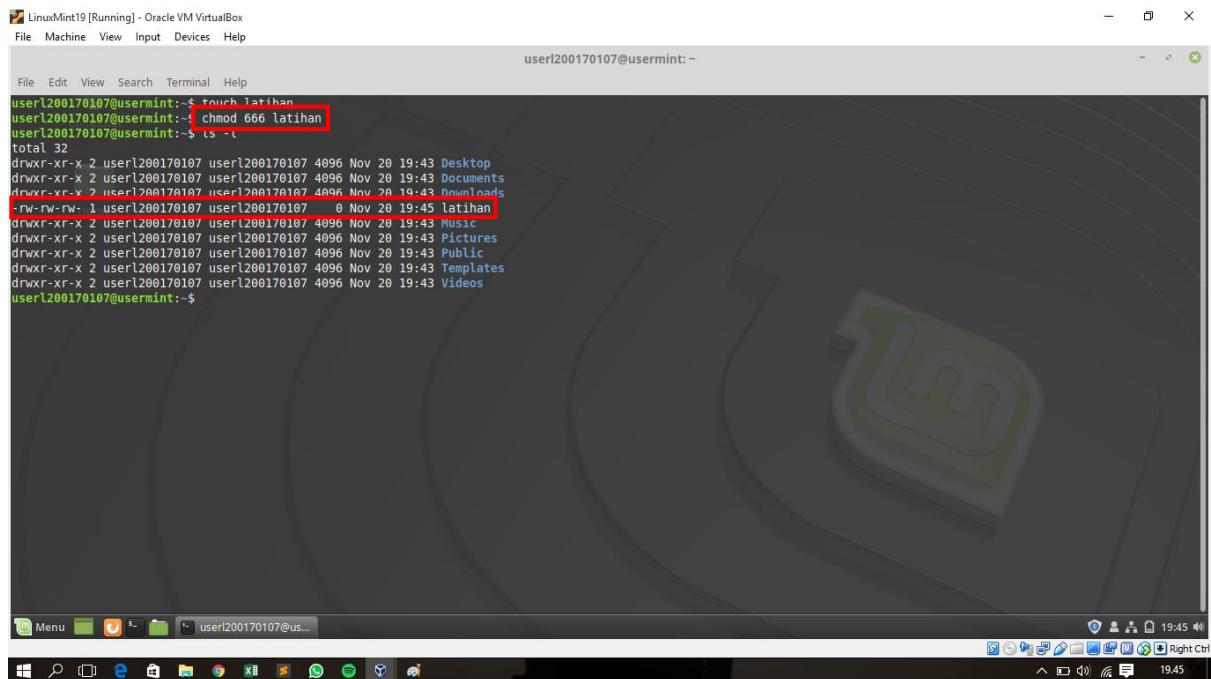
### 1. Membuat file baru



```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
File Edit View Search Terminal Help
userl200170107@usermint:~ touch latihan
```

The screenshot shows a terminal window on a Linux Mint 19 desktop. The terminal command `touch latihan` is being typed into the terminal window. The window title is "LinuxMint19 [Running] - Oracle VM VirtualBox". The desktop background features the Linux Mint logo. The taskbar at the bottom shows various application icons.

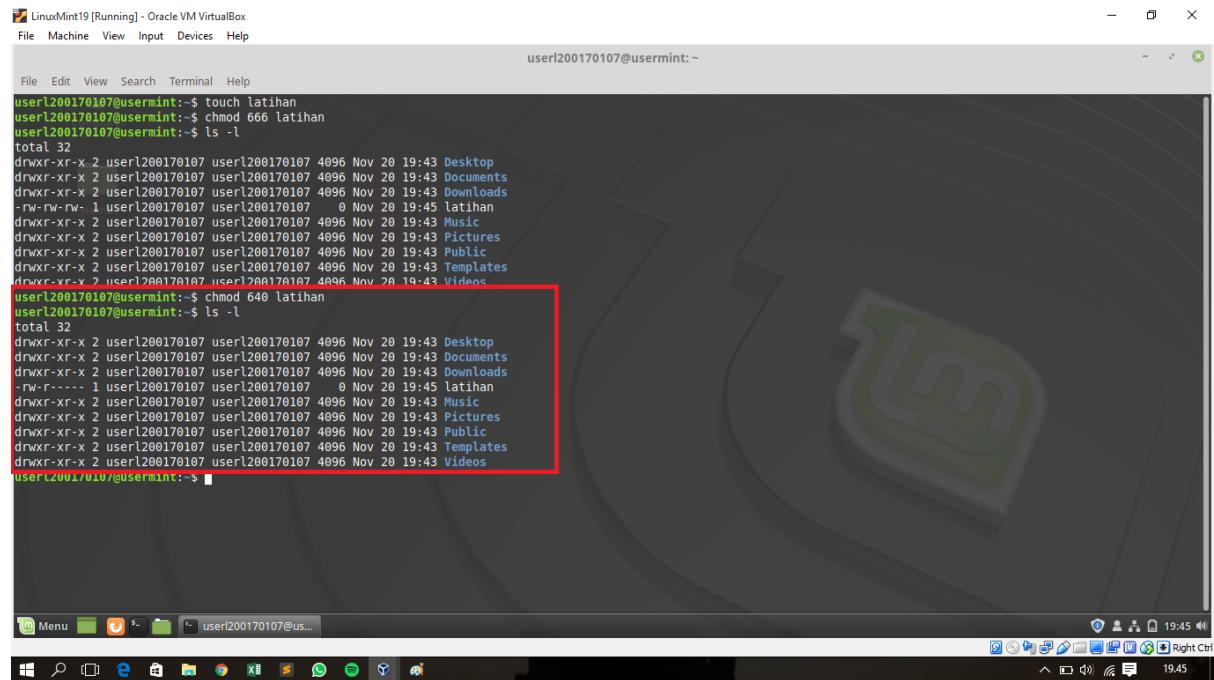
### 2. Membuat izin akses menjadi read dan write untuk semua pengguna



```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
File Edit View Search Terminal Help
userl200170107@usermint:~ touch latihan
userl200170107@usermint:~ chmod 666 latihan
userl200170107@usermint:~ ls -l
total 32
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Downloads
-rw-rw-rw- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Videos
userl200170107@usermint:~$
```

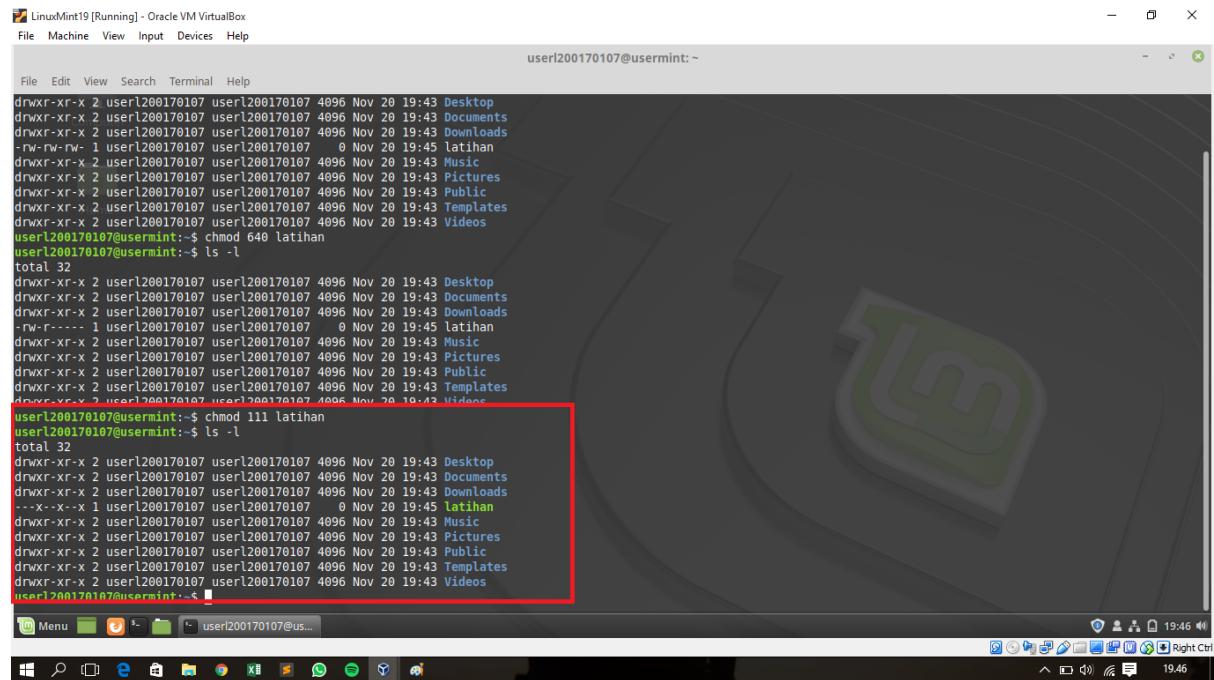
The screenshot shows a terminal window on a Linux Mint 19 desktop. The terminal command `chmod 666 latihan` is being typed into the terminal window. Below it, the command `ls -l` is run to list the contents of the current directory, showing the newly created file "latihan" with permissions set to 666. The window title is "LinuxMint19 [Running] - Oracle VM VirtualBox". The desktop background features the Linux Mint logo. The taskbar at the bottom shows various application icons.

### 3. Membuat izin akses menjadi read, write untuk user dan read untuk group



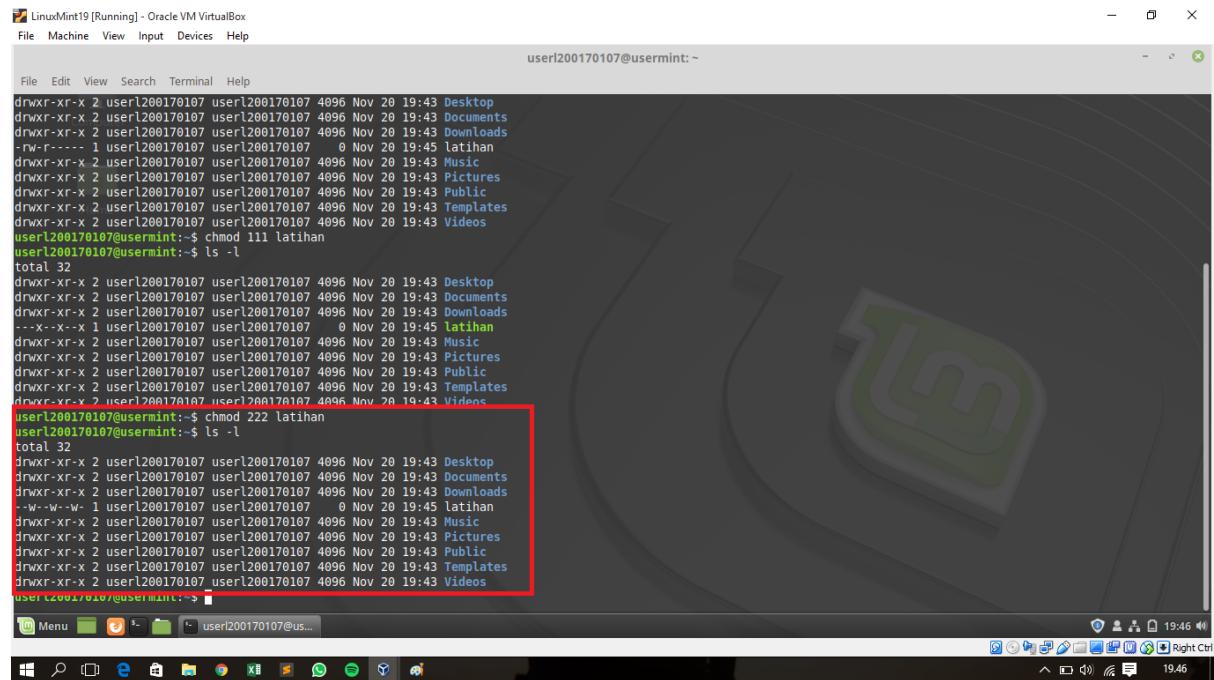
```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
user1200170107@usermint:~$ touch latihan
user1200170107@usermint:~$ chmod 666 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
-rw-rw-r-- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$ chmod 640 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
-rw-r----- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$
```

### 4. Membuat izin akses menjadi execute untuk semua pengguna



```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
user1200170107@usermint:~$ touch latihan
user1200170107@usermint:~$ chmod 640 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
-rw-rw-r-- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$ chmod 777 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$
```

## 5. Membuat izin akses menjadi write untuk semua pengguna

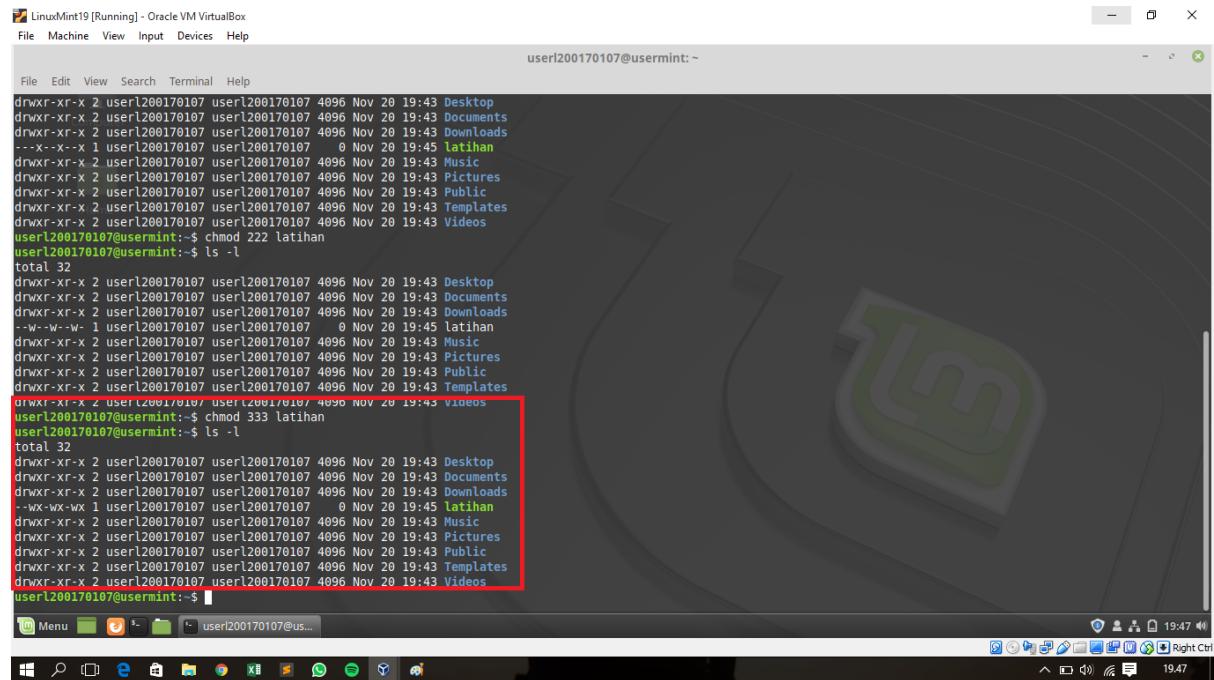


```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
user1200170107@usermint:~
```

```
File Edit View Search Terminal Help
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
-rw-r----- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$ chmod 111 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
--w--w--w- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$
```

The terminal window shows the execution of the command `chmod 111 latihan`. The output shows the directory structure and the file `latihan` with permissions `--w--w--w-`.

## 6. Membuat izin akses menjadi write dan execute untuk semua pengguna



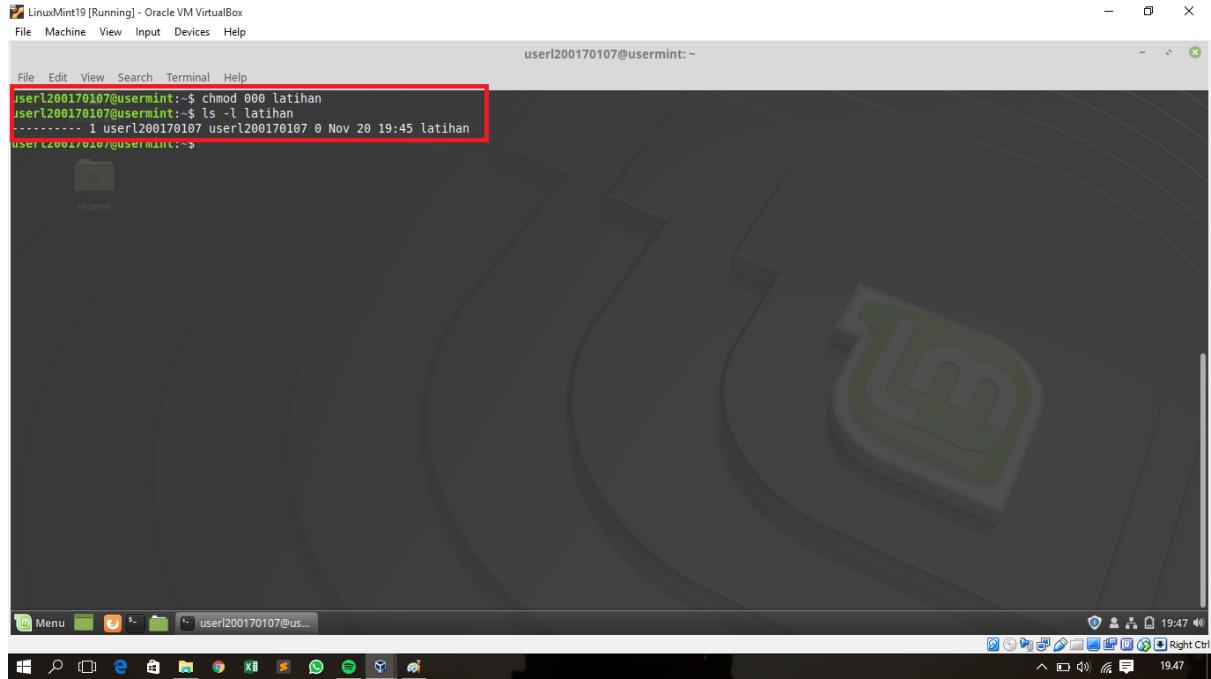
```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
user1200170107@usermint:~
```

```
File Edit View Search Terminal Help
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
--x--x--x- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$ chmod 222 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
--w--w--w- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$ chmod 333 latihan
user1200170107@usermint:~$ ls -l
total 32
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Desktop
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Documents
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Downloads
--wx--wx-- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Music
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Pictures
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Public
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Templates
drwxr-xr-x 2 user1200170107 user1200170107 4096 Nov 20 19:43 Videos
user1200170107@usermint:~$
```

The terminal window shows the execution of the command `chmod 222 latihan` followed by `chmod 333 latihan`. The output shows the directory structure and the file `latihan` with permissions `--wx--wx--`.

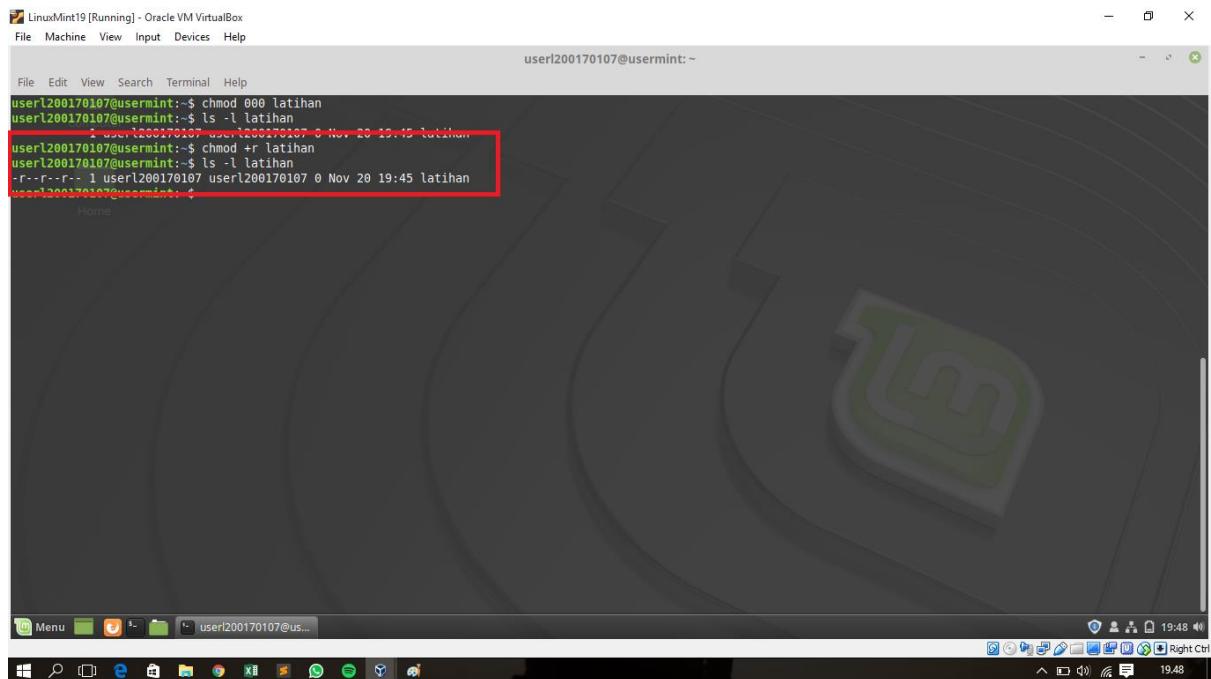
## Praktikum 3

### 1. Tidak memberikan hak akses



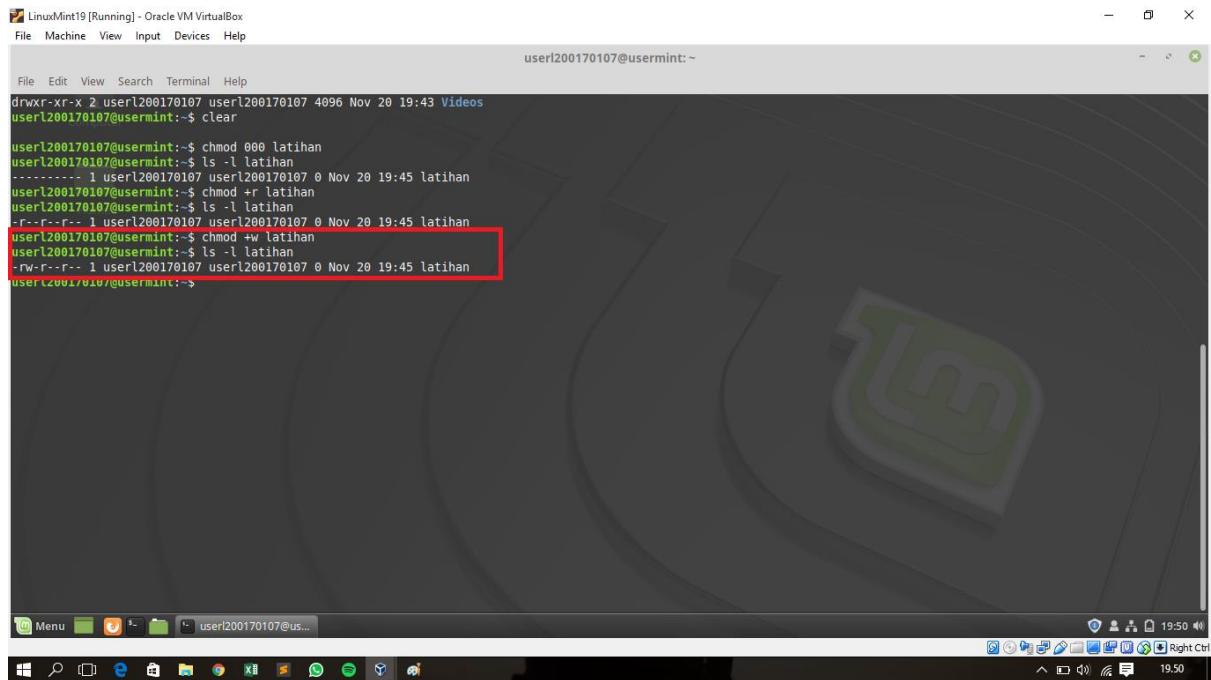
```
user1200170107@usermint:~$ chmod 000 latihan
user1200170107@usermint:~$ ls -l latihan
----- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
user1200170107@usermint:~$
```

### 2. Menambah hak akses read



```
user1200170107@usermint:~$ chmod 000 latihan
user1200170107@usermint:~$ ls -l latihan
----- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
user1200170107@usermint:~$ chmod +r latihan
user1200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 user1200170107 user1200170107 0 Nov 20 19:45 latihan
user1200170107@usermint:~$
```

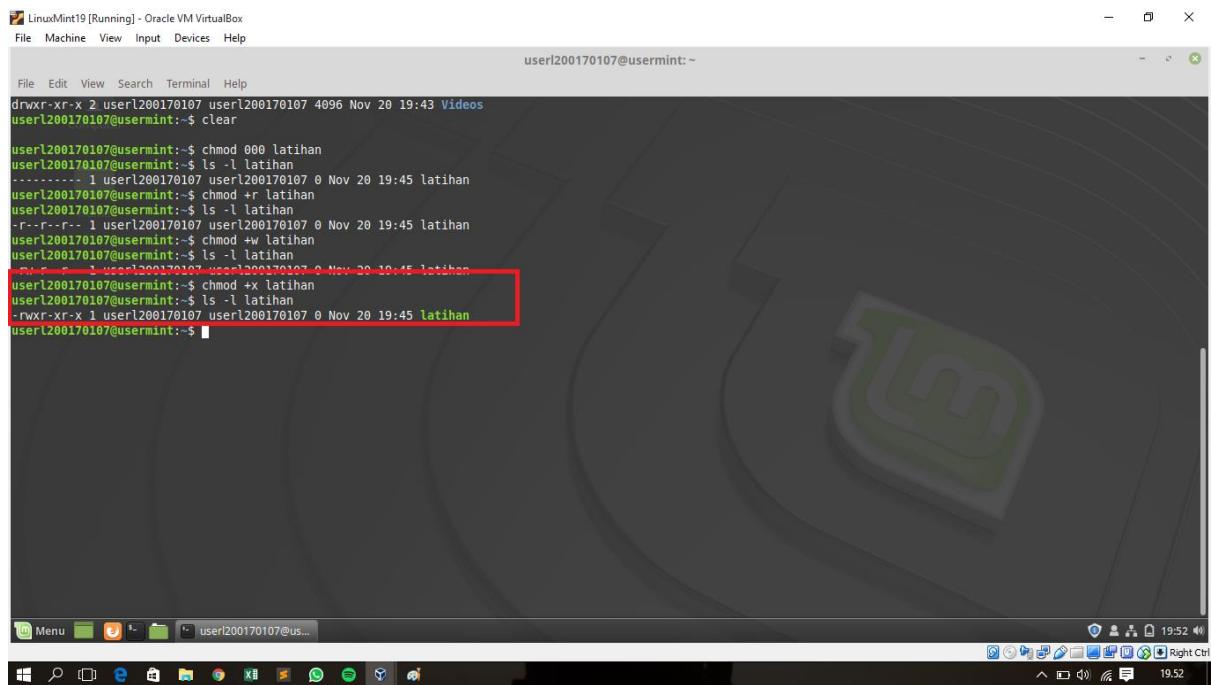
### 3. Menambahkan hak akses write



A screenshot of a Linux Mint terminal window titled "LinuxMint19 [Running] - Oracle VM VirtualBox". The terminal shows a user session with the prompt "userl200170107@usermint:~". The user runs several commands to change file permissions:

```
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Videos
userl200170107@usermint:~$ clear
userl200170107@usermint:~$ chmod 000 latihan
userl200170107@usermint:~$ ls -l latihan
----- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +r latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +w latihan
userl200170107@usermint:~$ ls -l latihan
-rw-r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$
```

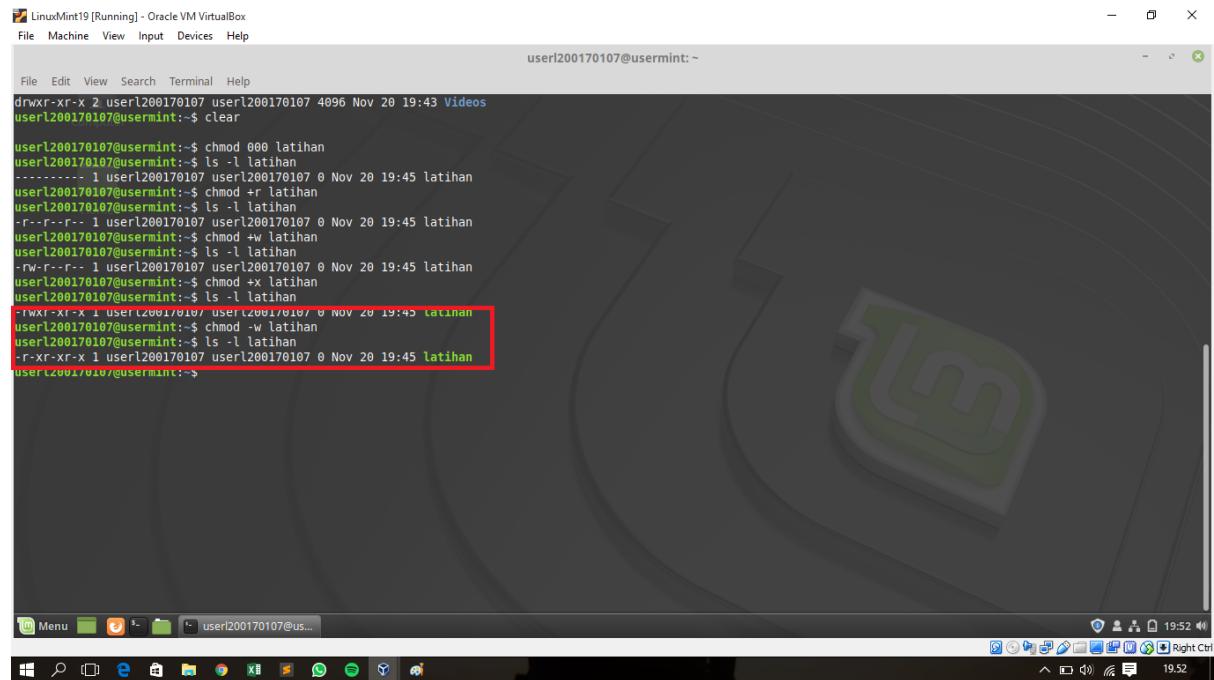
### 4. Menambahkan hak akses execute



A screenshot of a Linux Mint terminal window titled "LinuxMint19 [Running] - Oracle VM VirtualBox". The terminal shows a user session with the prompt "userl200170107@usermint:~". The user runs several commands to change file permissions:

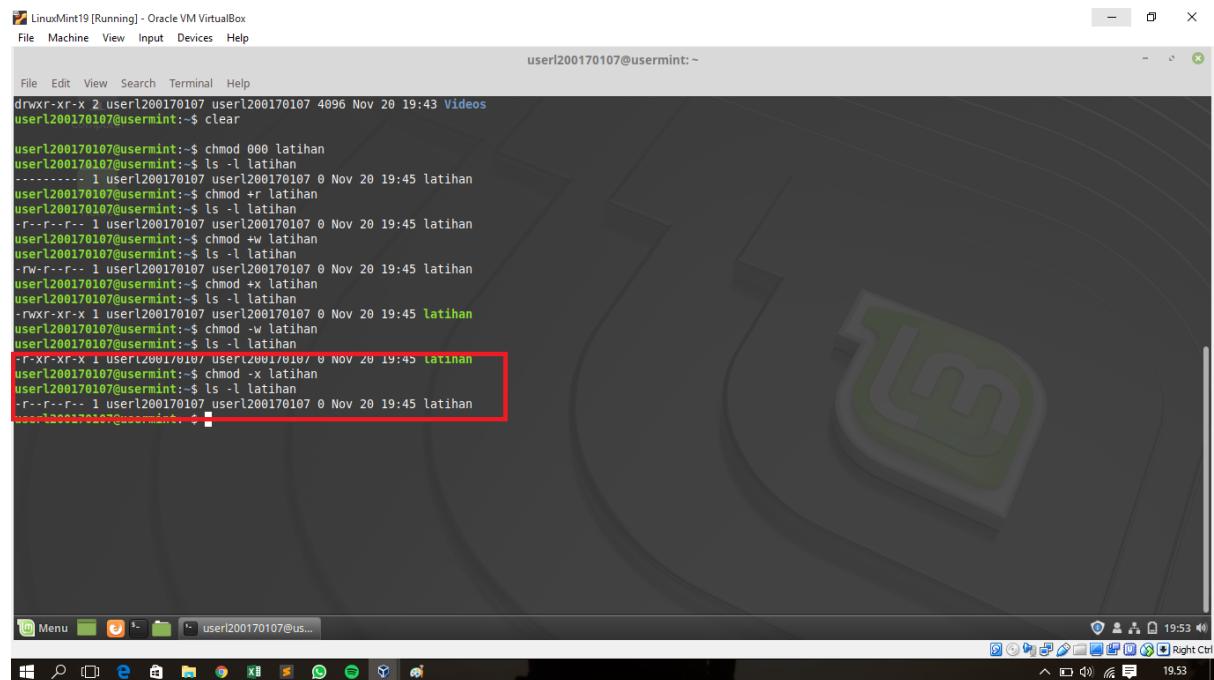
```
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Videos
userl200170107@usermint:~$ clear
userl200170107@usermint:~$ chmod 000 latihan
userl200170107@usermint:~$ ls -l latihan
----- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +r latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +w latihan
userl200170107@usermint:~$ ls -l latihan
-rw-r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +x latihan
userl200170107@usermint:~$ ls -l latihan
-rwxr-xr-x 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$
```

## 5. Menghilangkan hak akses execute



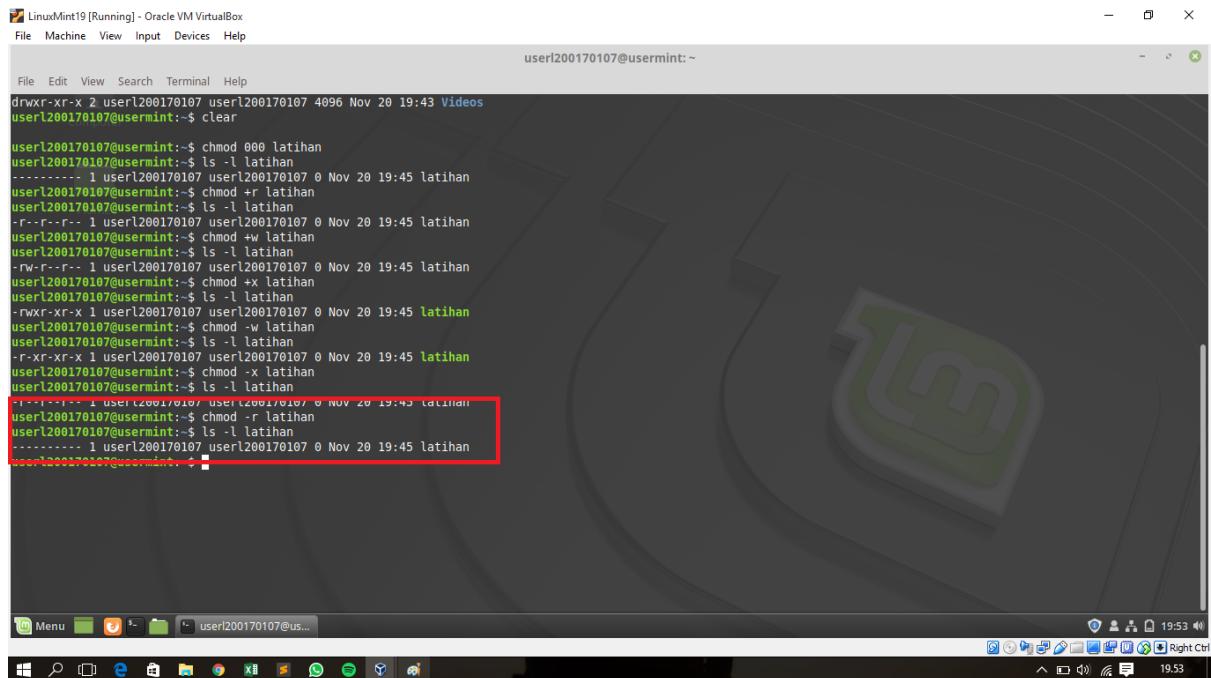
```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
user200170107@usermint:~ user200170107@usermint:~ clear
File Edit View Search Terminal Help
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Videos
userl200170107@usermint:~$ clear
userl200170107@usermint:~$ chmod 000 latihan
userl200170107@usermint:~$ ls -l latihan
----- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +r latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +w latihan
userl200170107@usermint:~$ ls -l latihan
-rw-r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +x latihan
userl200170107@usermint:~$ ls -l latihan
-rwxr--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod -x latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$
```

## 6. Menghilangkan hak akses write



```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
user200170107@usermint:~ user200170107@usermint:~ clear
File Edit View Search Terminal Help
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Videos
userl200170107@usermint:~$ clear
userl200170107@usermint:~$ chmod 000 latihan
userl200170107@usermint:~$ ls -l latihan
----- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +r latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +w latihan
userl200170107@usermint:~$ ls -l latihan
-rw-r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +x latihan
userl200170107@usermint:~$ ls -l latihan
-rwxr--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod -w latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod -x latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$
```

## 7. Menghilangkan hak akses read

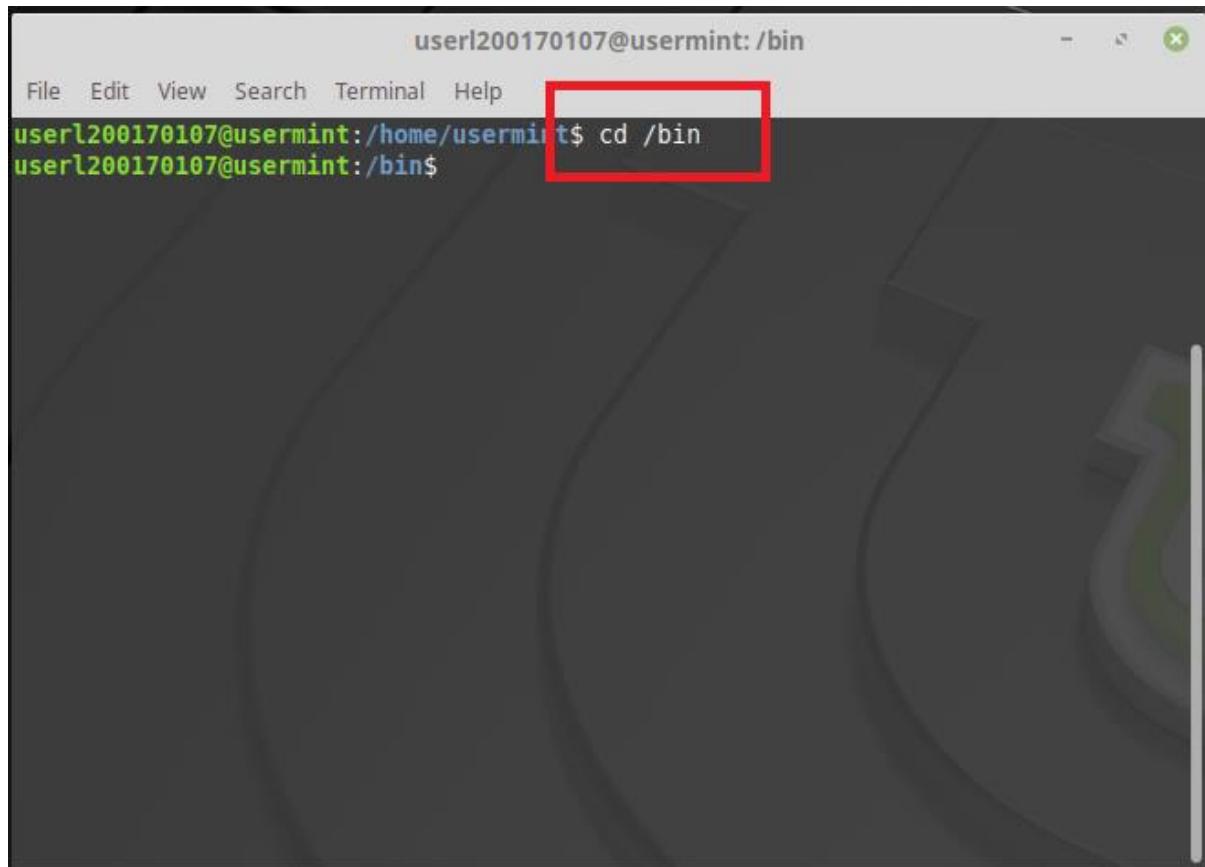


The screenshot shows a terminal window titled "LinuxMint19 [Running] - Oracle VM VirtualBox". The terminal session is for user "userl200170107" on "usermint". The user runs several commands to change file permissions:

```
drwxr-xr-x 2 userl200170107 userl200170107 4096 Nov 20 19:43 Videos
userl200170107@usermint:~$ clear
userl200170107@usermint:~$ chmod 000 latihan
userl200170107@usermint:~$ ls -l latihan
----- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +r latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +w latihan
userl200170107@usermint:~$ ls -l latihan
-rw-r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod +x latihan
userl200170107@usermint:~$ ls -l latihan
-rwxr--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod -w latihan
userl200170107@usermint:~$ ls -l latihan
-r--r--r-- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$ chmod -x latihan
userl200170107@usermint:~$ ls -l latihan
----- 1 userl200170107 userl200170107 0 Nov 20 19:45 latihan
userl200170107@usermint:~$
```

## Praktikum 4

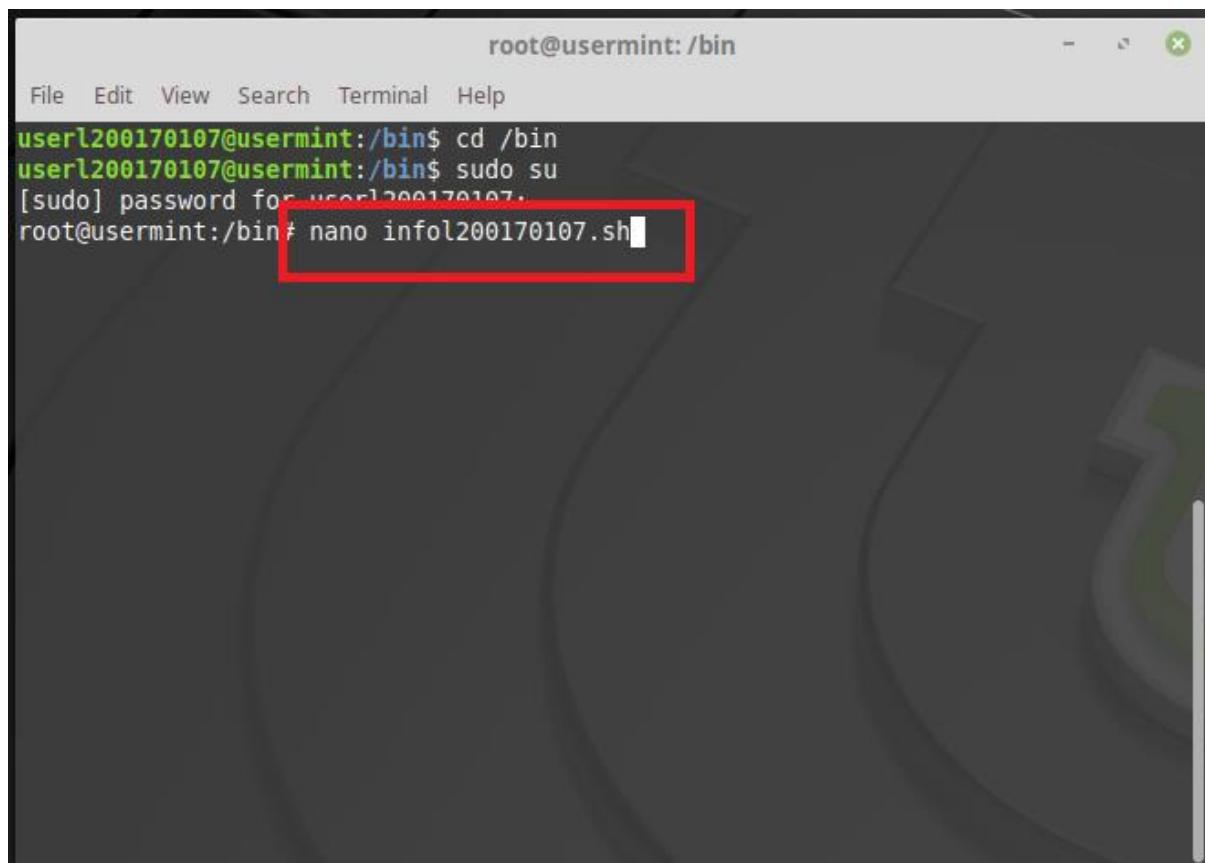
### 1. Masuk ke bin



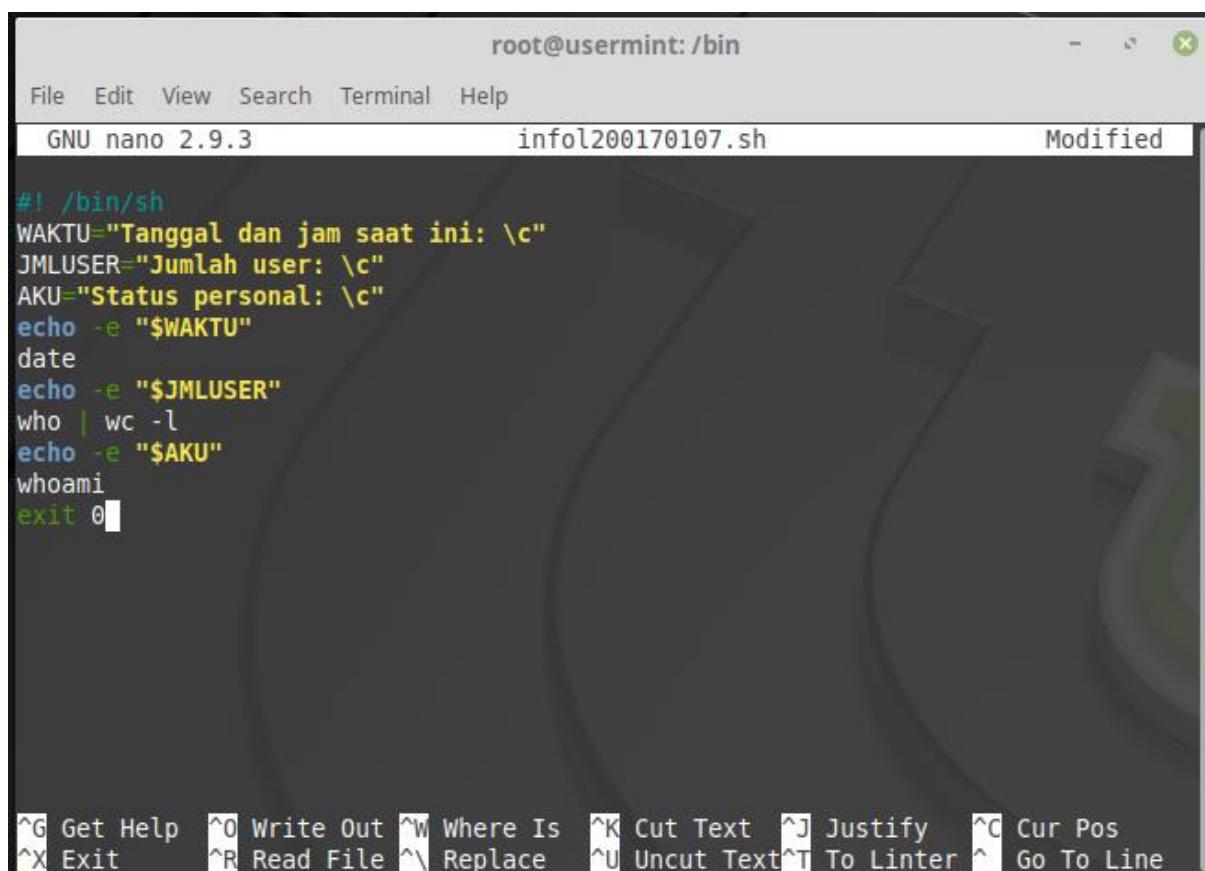
```
userl200170107@usermint: /bin
File Edit View Search Terminal Help
userl200170107@usermint:/home/usermint$ cd /bin
userl200170107@usermint:/bin$
```

A screenshot of a terminal window titled "userl200170107@usermint: /bin". The window has a standard Linux-style interface with a menu bar at the top. The main area contains a command-line interface. A red rectangular box highlights the command "cd /bin" which is being typed by the user. The terminal prompt "userl200170107@usermint:/bin\$" is visible at the bottom right.

2. Membuat file dan sekaligus ketik isi



```
root@usermint:/bin
File Edit View Search Terminal Help
userl200170107@usermint:/bin$ cd /bin
userl200170107@usermint:/bin$ sudo su
[sudo] password for userl200170107:
root@usermint:/bin# nano infol200170107.sh
```



```
root@usermint:/bin
File Edit View Search Terminal Help
GNU nano 2.9.3           infol200170107.sh          Modified
#! /bin/sh
WAKTU="Tanggal dan jam saat ini: \c"
JMLUSER="Jumlah user: \c"
AKU="Status personal: \c"
echo -e "$WAKTU"
date
echo -e "$JMLUSER"
who | wc -l
echo -e "$AKU"
whoami
exit 0
```

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos  
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Linter ^\_ Go To Line

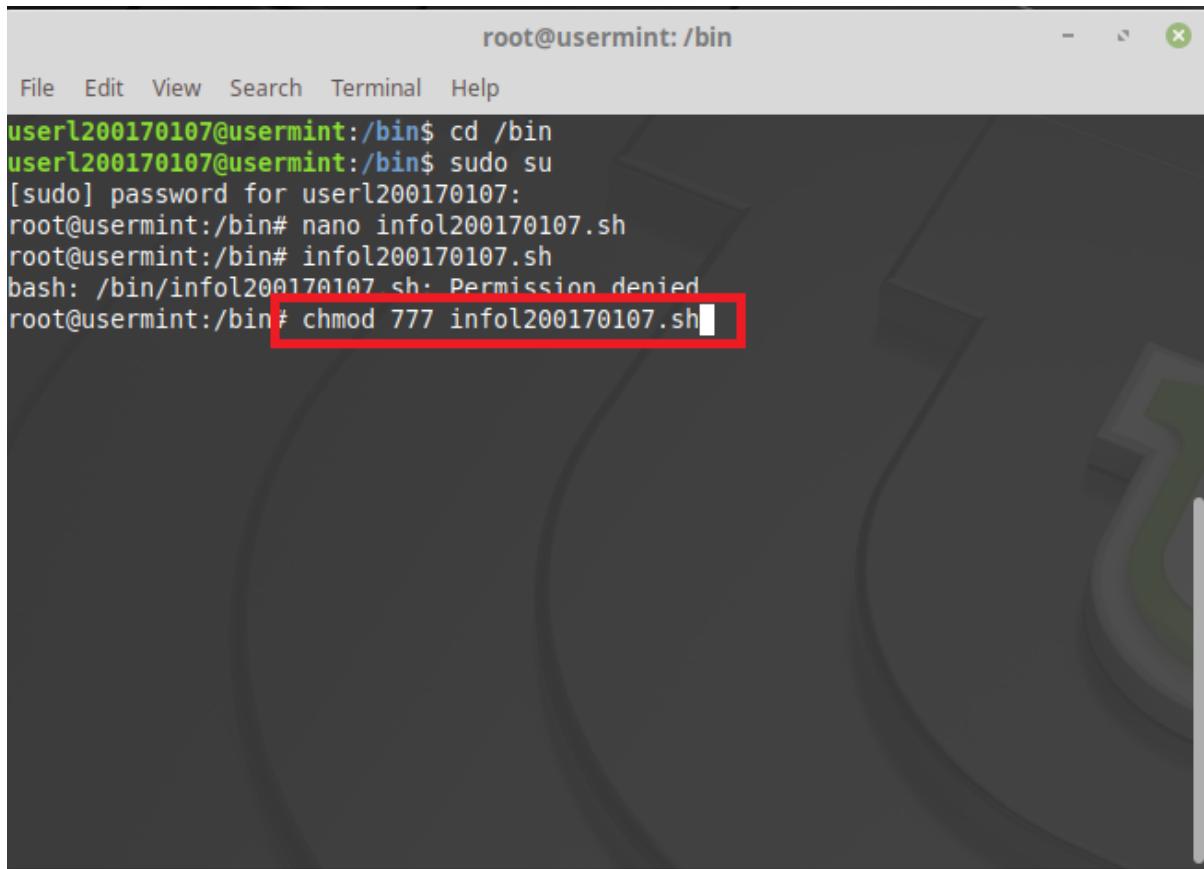
3. Masukkan perintah logininfo.sh

The screenshot shows a terminal window titled "root@usermint:/bin". The window has a standard Linux-style title bar with icons for minimize, maximize, and close. The terminal menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The command-line interface shows the following session:

```
userl200170107@usermint:/bin$ cd /bin
userl200170107@usermint:/bin$ sudo su
[sudo] password for userl200170107:
root@usermint:/bin# nano infol200170107.sh
root@usermint:/bin# infol200170107.sh
bash: /bin/infol200170107.sh: Permission denied
root@usermint:/bin#
```

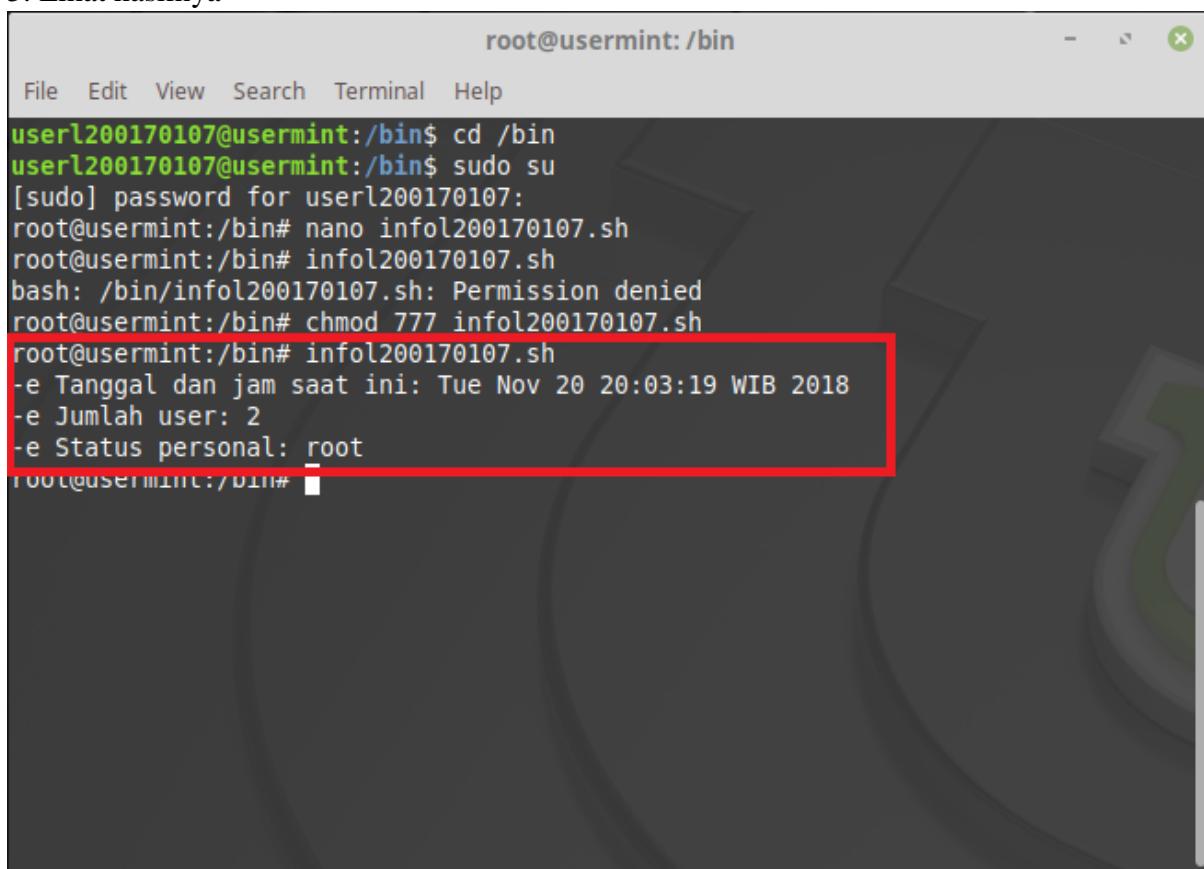
The last three lines of the command history are highlighted with a red rectangular box, specifically the command "infol200170107.sh" and its resulting error message "Permission denied".

#### 4. Ubah hak akses



```
root@usermint: /bin
File Edit View Search Terminal Help
userl200170107@usermint:/bin$ cd /bin
userl200170107@usermint:/bin$ sudo su
[sudo] password for userl200170107:
root@usermint:/bin# nano infol200170107.sh
root@usermint:/bin# infol200170107.sh
bash: /bin/infol200170107.sh: Permission denied
root@usermint:/bin# chmod 777 infol200170107.sh
```

#### 5. Lihat hasilnya



```
root@usermint: /bin
File Edit View Search Terminal Help
userl200170107@usermint:/bin$ cd /bin
userl200170107@usermint:/bin$ sudo su
[sudo] password for userl200170107:
root@usermint:/bin# nano infol200170107.sh
root@usermint:/bin# infol200170107.sh
bash: /bin/infol200170107.sh: Permission denied
root@usermint:/bin# chmod 777 infol200170107.sh
root@usermint:/bin# infol200170107.sh
-e Tanggal dan jam saat ini: Tue Nov 20 20:03:19 WIB 2018
-e Jumlah user: 2
-e Status personal: root
root@usermint:/bin#
```

# PRAKTIKUM 8

## Fork.c

The screenshot shows a terminal window titled "fork.c" in the "nano" editor. The code is a C program that demonstrates process creation and identification. It includes headers for stdio.h, stdlib.h, unistd.h, and sys/types.h. The main function initializes a pid\_t variable to 0, increments it, and then checks if the value is less than or equal to 0. If true, it prints an error message and exits. Otherwise, it prints the current process ID, the value of x, and the process ID of the parent process.

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

int main(){
    pid_t pid;
    int x = 5;
    x++;
    if(pid <= 0){
        printf("Process creation error");exit(-1);
    }
    else if(pid == 0){
        printf("Child 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("Parent process:");
        printf("\nProcess id is %d", getpid());
        printf("\nValue of x is %d", x);
        printf("\nProcess id of parent is %d\n", getppid());
    }
}
```

The terminal window also displays various keyboard shortcuts for nano editor commands like Get Help, Write Out, Where Is, Cut Text, Justify, Cur Pos, Undo, Redo, Copy Text, To Bracket, Previous, Next, etc. The desktop environment at the bottom includes icons for file manager, browser, and system tools.

The screenshot shows a terminal window with the command "root@usermint:/home/usermint# nano fork.c" followed by "Use \"fg\" to return to nano.". The user then runs "gcc fork.c -o fork". The command "gcc fork.c -o fork" is highlighted with a red rectangle.

```
root@usermint:/home/usermint# nano fork.c
Use "fg" to return to nano.
[1]+  Stopped                  nano fork.c
root@usermint:/home/usermint# nano fork.c
root@usermint:/home/usermint# gcc fork.c -o fork
root@usermint:/home/usermint# ./fork.c
root@usermint:/home/usermint# # gcc fork.c -o fork
root@usermint:/home/usermint#
```

The terminal window is part of the Linux Mint 19 desktop environment, showing the desktop bar with various application icons at the bottom.

LinuxMint19 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

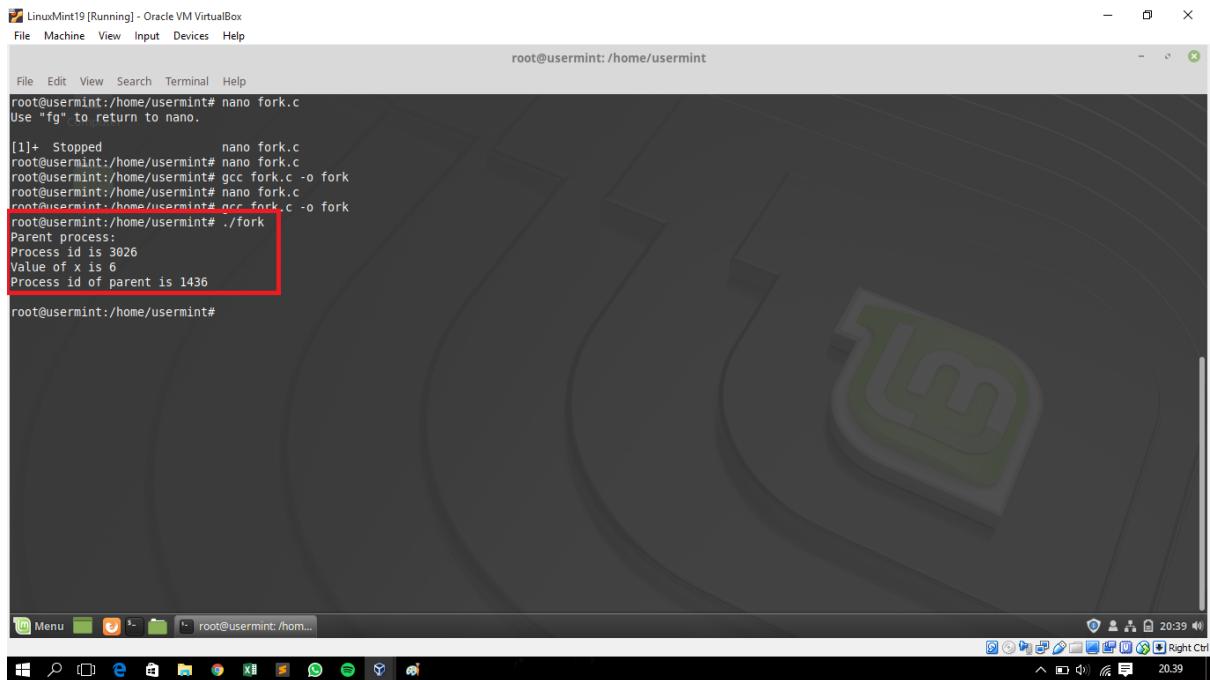
root@usermint:/home/usermint

```
File Edit View Search Terminal Help
root@usermint:/home/usermint# nano fork.c
Use "fg" to return to nano.

[1]+  Stopped                  nano fork.c
root@usermint:/home/usermint# nano fork.c
root@usermint:/home/usermint# gcc fork.c -o fork
root@usermint:/home/usermint# nano fork.c
root@usermint:/home/usermint# gcc fork.c -o fork
root@usermint:/home/usermint# ./fork
Parent process:
Process id is 3026
Value of x is 6
Process id of parent is 1436

root@usermint:/home/usermint#
```

root@usermint:/home/usermint#



## Wait.c

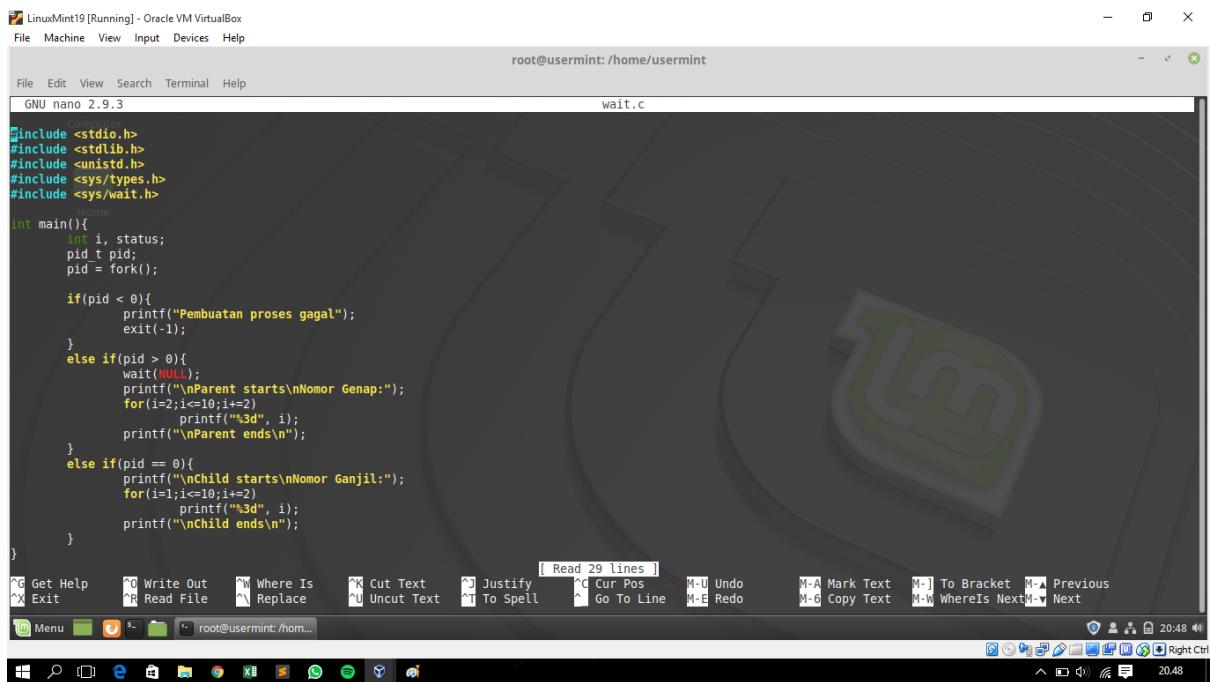
LinuxMint19 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

root@usermint:/home/usermint

```
File Edit View Search Terminal Help
root@usermint:/home/usermint# nano 2.9.3
GNU nano 2.9.3
wait.c
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <sys/types.h>
#include <sys/wait.h>
Home
int main(){
    int i, status;
    pid_t pid;
    pid=fork();

    if(pid < 0){
        printf("Pembuatan proses gagal");
        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("\nChild starts\nNomor Ganjil:");
        for(i=1;i<=10;i+=2)
            printf("%d", i);
        printf("\nChild ends\n");
    }
}
^G Get Help      ^O Write Out   ^W Where Is   ^K Cut Text   ^J Justify   [ Read 29 lines ]   ^C Cur Pos   M-U Undo   M-A Mark Text   M-J To Bracket   M-P Previous
^X Exit         ^R Read File   ^Y Replace   ^U Uncut Text  ^T To Spell   ^A Go To Line   M-B Redo   M-D Copy Text   M-W WhereIs Next   M-N Next
root@usermint:/home/usermint#
```



```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@usermint:/home/usermint
root@usermint: /home/usermint

File Edit View Search Terminal Help
root@usermint:/home/usermint# nano fork.c
Use "fg" to return to nano.

[1]+ Stopped nano fork.c
root@usermint:/home/usermint# nano fork.c
root@usermint:/home/usermint# gcc fork.c -o fork
root@usermint:/home/usermint# nano fork.c
root@usermint:/home/usermint# gcc fork.c -o fork
root@usermint:/home/usermint# ./fork
Parent process:
Process id is 3026
Value of x is 6
Process id of parent is 1436

root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# gcc wait.c -o wait
wait.c:3:10: fatal error: unistd.h: No such file or directory
 #include <unistd.h>
 ^~~~~~
compilation terminated.
root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# gcc wait.c -o wait
wait.c: In function 'main':
wait.c:16:10: error: 'p' undeclared (first use in this function)
 else if(p > 0){

wait.c:16:10: note: each undeclared identifier is reported only once for each function it appears in
root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# gcc wait.c -o wait
root@usermint:/home/usermint# ./wait
root@usermint:/home/usermint# gcc wait.c -o wait
root@usermint:/home/usermint# ./wait

root@usermint:/home/usermint#
```

```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@usermint:/home/usermint
root@usermint: /home/usermint

File Edit View Search Terminal Help
root@usermint:/home/usermint# ./fork
Parent process:
Process id is 3026
Value of x is 6
Process id of parent is 1436

root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# gcc wait.c -o wait
wait.c:3:10: fatal error: unistd.h: No such file or directory
 #include <unistd.h>
 ^~~~~~
compilation terminated.
root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# gcc wait.c -o wait
wait.c: In function 'main':
wait.c:16:10: error: 'p' undeclared (first use in this function)
 else if(p > 0){

wait.c:16:10: note: each undeclared identifier is reported only once for each function it appears in
root@usermint:/home/usermint# nano wait.c
root@usermint:/home/usermint# gcc wait.c -o wait
root@usermint:/home/usermint# ./wait
root@usermint:/home/usermint# ./wait

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

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

root@usermint:/home/usermint#
```

Exec.c

LinuxMint19 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

root@usermint: /home/usermint

File Edit View Search Terminal Help

GNU nano 2.9.3

```
#include <Computer.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 = exec(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);
    }
}
```

Get Help Write Out Where Is Cut Text Justify Cur Pos Undo Mark Text To Bracket Previous

Exit Read File Replace Uncut Text To Spell Go To Line Undo Copy Text WhereIs Next Next

Menu root@usermint:/home...

21:47 40

LinuxMint19 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

root@usermint: /home/usermint

File Edit View Search Terminal Help

GNU nano 2.9.3 exec.c

```
Computer

switch(pid = fork())
{
    case -1:
        printf("Fork failed");
        exit(-1);
    case 0:
        printf("Child process\n");
        i = exec(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);
}
}
```

Get Help Write Out Where Is Cut Text Justify Cur Pos Undo Mark Text To Bracket Previous

Exit Read File Replace Uncut Text To Spell Go To Line Redo Copy Text WhereIs Next Next

Menu root@usermint: /hom...

21:50 40

The screenshot shows a Linux Mint 19 desktop environment. A terminal window titled 'root@usermint: /home/usermint' is open, displaying the following command sequence:

```
usermint@usermint:~$ sudo su  
[sudo] password for usermint:  
root@usermint:/home/usermint# nano exec.c  
root@usermint:/home/usermint# gcc exec.c  
root@usermint:/home/usermint# gcc exec.c -o exec  
root@usermint:/home/usermint#
```

The command 'gcc exec.c -o exec' is highlighted with a red box.

The screenshot shows a Linux Mint 19 desktop environment with an Oracle VM VirtualBox window running. The terminal window title is "root@usermint:/home/usermint". The user has performed the following steps:

- Entered "sudo su" to become root.
- Used "nano exec.c" to edit a C program.
- Compiled the program with "gcc exec.c -o exec".
- Ran the compiled program with "./exec".
- Used "ls" to list files in the current directory.

The output of the "ls" command is highlighted with a red box:

```
a.out Desktop dirlist.c Downloads exec.c fork.c Music Public stat.c Videos wait.c  
cba.c dirlist Documents exec fork fork.c.save Pictures stat Templates wait  
Child Terminated
```

The terminal window also shows the prompt "root@usermint:/home/usermint#".

Stat.c

LinuxMint19 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

root@usermint: /home/usermint

File Edit View Search Terminal Help

GNU nano 2.9.3 stat.c

```
#include <Computer.h>
#include <sys/stat.h>
#include <stdlib.h>
#include <time.h>

int main(int argc, char*argv[]){
    struct stat
    file; 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 Access: %s", ctime(&(file.st_atime)));
    printf("Last Modified: %s", ctime(&(file.st_mtime)));
    printf("File Size: %d bytes\n", file.st_size);
    printf("No. of links: %d\n", file.st_nlink);
    printf("Permission");
    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" : "-");
}
```

[ Read 43 lines ]

^G Get Help ^O Write Out ^W Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo  
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^A Go To Line M-E Redo  
M-A Mark Text M-J To Bracket M-^ Previous  
M-6 Copy Text M-W WhereIs Next M-` Next

Ubuntu 21.52 %

LinuxMint19 [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

File Edit View Search Terminal Help

GNU nano 2.9.3

```
root@usermint: /home/usermint
```

Computer exit(-1);

}

printf("User id: %d\n", file.st\_uid);

printf("Group id: %d\n", file.st\_gid);

printf("Block size: %ld\n", file.st\_blksize);

printf("Blocks Allocated: %ld\n", file.st\_blocks);

printf("Inode no.: %ld\n", file.st\_ino);

printf("Last Access: %s", ctime(&(file.st\_atime)));

printf("Last Modified: %s", ctime(&(file.st\_mtime)));

printf("File Size: %ld bytes\n", file.st\_size);

printf("No. of links: %d\n", file.st\_nlink);

printf("Permission");

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");

}

```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@usermint:/home/usermint
File Edit View Search Terminal Help
usermint@usermint:~$ sudo su
[sudo] password for usermint:
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# gcc exec.c -o exec
root@usermint:/home/usermint# ./a.out /bin/ls ls
Child process
a.out Desktop dirlist.c Downloads exec.c fork.c Music Public stat.c Videos wait.c
cba.c dirlist Documents exec fork fork.c.save Pictures stat Templates wait
Child Terminated
root@usermint:/home/usermint# nano stat.c
root@usermint:/home/usermint# gcc stat.c -o stat
root@usermint:/home/usermint#
```

```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@usermint:/home/usermint
File Edit View Search Terminal Help
usermint@usermint:~$ sudo su
[sudo] password for usermint:
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# gcc exec.c -o exec
root@usermint:/home/usermint# ./a.out /bin/ls ls
Child process
a.out Desktop dirlist.c Downloads exec.c fork.c Music Public stat.c Videos wait.c
cba.c dirlist Documents exec fork fork.c.save Pictures stat Templates wait
Child Terminated
root@usermint:/home/usermint# nano stat.c
root@usermint:/home/usermint# gcc stat.c -o stat
root@usermint:/home/usermint# ./stat
Usage: ./a.out <filename>
root@usermint:/home/usermint# ./a.out fork.c
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./a.out fork
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./a.out wait
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./stat
Usage: ./a.out <filename>
root@usermint:/home/usermint#
```

## Dirlist.c

The screenshot shows a terminal window titled "root@usermint:/home/usermint" running on Oracle VM VirtualBox. The window contains the source code for a C program named "dirlist.c". The code includes headers for stdio.h, dirent.h, and stdlib.h. It defines a main function that checks for two command-line arguments. If there are fewer than two, it prints usage information and exits. It then opens the directory specified by the second argument using opendir. A while loop reads directory entries using readdir and prints the names. Finally, it closes the directory. The terminal window has a menu bar with File, Edit, View, Search, Terminal, Help. Below the menu is a toolbar with various text editing functions. The status bar at the bottom shows the current user (root) and the path (root@usermint:/home/usermint). The desktop background features the Linux Mint logo.

```
#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);
}
```

The screenshot shows a terminal window titled "root@usermint:/home/usermint" running on Oracle VM VirtualBox. The window displays the compilation and execution of the "dirlist.c" program. The user first runs "g++ exec.c -std=c++11 -Wformat" and "gcc exec.c -o exec". They then run "exec" and receive several warnings about missing sentinel values in function calls. The user then runs "nano exec.c", makes changes, and saves it. They then run "gcc dirlist.c -o dirlist" and "./dirlist". The command "gcc dirlist.c -o dirlist" is highlighted with a red rectangle. The terminal window has a menu bar with File, Edit, View, Search, Terminal, Help. The status bar at the bottom shows the current user (root) and the path (root@usermint:/home/usermint). The desktop background features the Linux Mint logo.

```
exec.c:23:3: warning: missing sentinel in function call [-Wformat=]
    i = exec(argv[1], argv[2], 0);
^
root@usermint:/home/usermint# g++ exec.c -std=c++11 -Wformat
root@usermint:/home/usermint# gcc exec.c -o exec
exec.c: In function 'main':
exec.c:23:3: warning: missing sentinel in function call [-Wformat=]
    i = exec(argv[1], argv[2], 0);
^
root@usermint:/home/usermint# g++ exec.c -std=c++98 -Wformat
root@usermint:/home/usermint# gcc exec.c -o exec
exec.c: In function 'main':
exec.c:23:3: warning: missing sentinel in function call [-Wformat=]
    i = exec(argv[1], argv[2], 0);
^
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# gcc exec.c -o exec
exec.c: In function 'main':
exec.c:23:3: warning: missing sentinel in function call [-Wformat=]
    i = exec(argv[1], argv[2], 0);
^
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano dirlist.c
root@usermint:/home/usermint# gcc dirlist.c -o dirlist
dirlist.c:5:16: error: expected ')' before 'char'
 int main(argc, char *argv[]){
                ^
root@usermint:/home/usermint# gcc dirlist.c -o dirlist
root@usermint:/home/usermint#
```

```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@usermint:/home/usermint

File Edit View Search Terminal Help
usermint@usermint:~$ sudo su
[sudo] password for usermint:
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# gcc exec.c -o exec
root@usermint:/home/usermint# ./a.out /bin/ls ls
Child process
a.out Desktop dirlist.c Downloads exec.c fork.c Music Public stat.c Videos wait.c
cba.c dirlist Documents exec fork fork.c.save Pictures stat Templates wait
Child Terminated
root@usermint:/home/usermint# nano stat.c
root@usermint:/home/usermint# gcc stat.c -o stat
root@usermint:/home/usermint# ./stat
Usage: ./a.out <filename>
root@usermint:/home/usermint# ./a.out fork.c

Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./a.out fork

Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./a.out wait

Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./stat
Usage: ./a.out <filename>
root@usermint:/home/usermint# gcc dirlist.c -o dirlist
root@usermint:/home/usermint#
```

```
LinuxMint19 [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help
root@usermint:/home/usermint

File Edit View Search Terminal Help
usermint@usermint:~$ sudo su
[sudo] password for usermint:
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# nano exec.c
root@usermint:/home/usermint# gcc exec.c -o exec
root@usermint:/home/usermint# ./a.out /bin/ls ls
Child process
a.out Desktop dirlist.c Downloads exec.c fork.c Music Public stat.c Videos wait.c
cba.c dirlist Documents exec fork fork.c.save Pictures stat Templates wait
Child Terminated
root@usermint:/home/usermint# nano stat.c
root@usermint:/home/usermint# gcc stat.c -o stat
root@usermint:/home/usermint# ./stat
Usage: ./a.out <filename>
root@usermint:/home/usermint# ./a.out fork.c

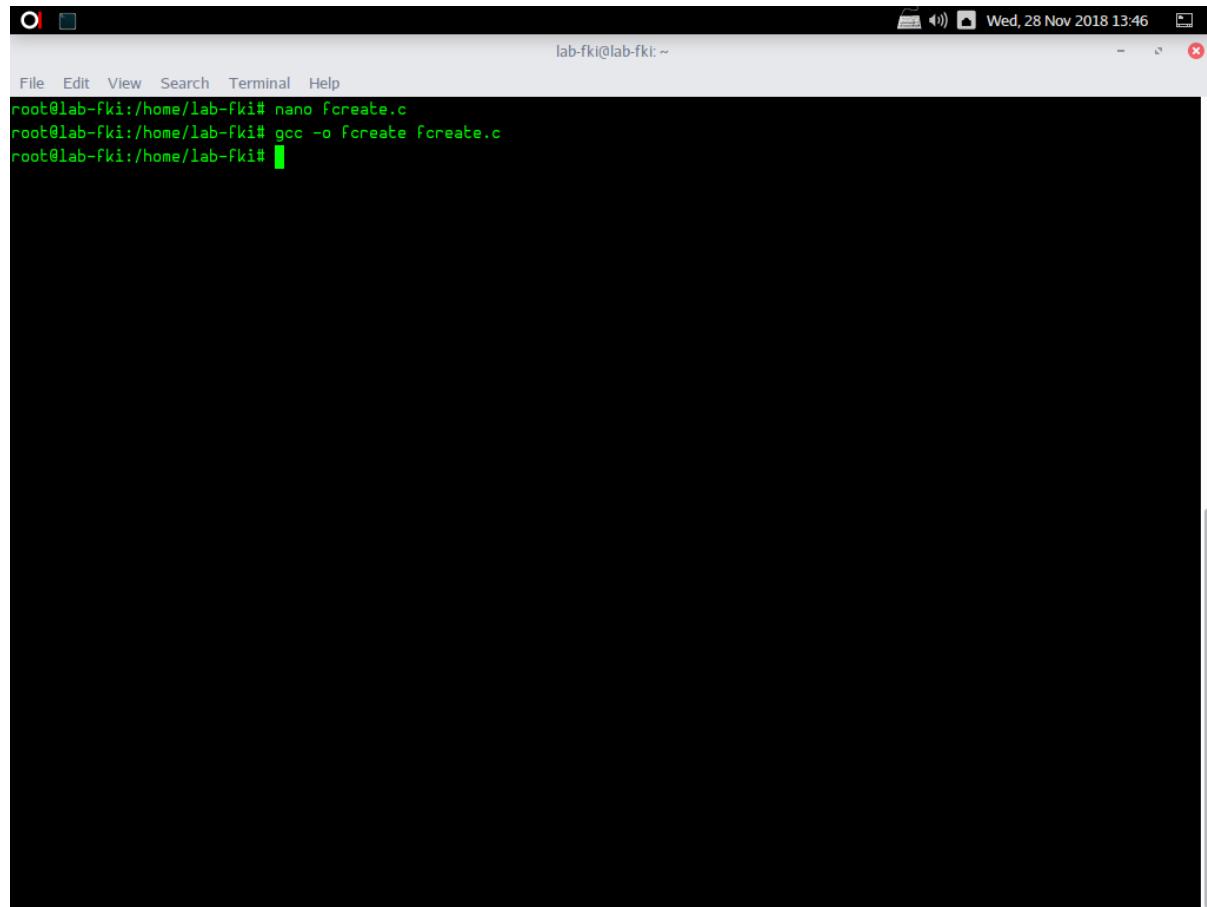
Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./a.out fork

Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./a.out wait

Insufficient arguments to load program
Usage: ./a.out <path> <cmd>
root@usermint:/home/usermint# ./stat
Usage: ./a.out <filename>
root@usermint:/home/usermint# gcc dirlist.c -o dirlist
root@usermint:/home/usermint# ./dirlist
Usage: ./a.out <dirname>
root@usermint:/home/usermint#
```

# PRAKTIKUM 9

Fcreate



A screenshot of a terminal window titled "lab-fki@lab-fki: ~". The window has a dark background and light-colored text. At the top, there is a menu bar with "File", "Edit", "View", "Search", "Terminal", and "Help". The date and time "Wed, 28 Nov 2018 13:46" are displayed in the top right corner. The terminal prompt is "root@lab-fki:/home/lab-fki#". Below the prompt, three commands are listed in green text:  
root@lab-fki:/home/lab-fki# nano Fcreate.c  
root@lab-fki:/home/lab-fki# gcc -o Fcreate Fcreate.c  
root@lab-fki:/home/lab-fki#

GNU nano 2.9.3 Fcreate.c

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

int main(int argc, char *argv[]){
    int fd, n, len;
    char buf[100];
    if(argc!=2){
        printf("Usage: ./a.out <filename>\n");
    }
    fd = open(argv[1], O_WRONLY|O_CREAT|O_TRUNC, 0664);
    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);
}
```

^C Get Help ^D Write Out ^M Where Is ^K Cut Text ^J Justify ^C Cur Pos M-U Undo  
^X Exit ^R Read File ^\ Replace ^U Uncut Text ^T To Spell ^\_ Go To Line M-E Redo  
M-A Mark Text M-B Copy Text

lab-fki@lab-fki: ~

```
File Edit View Search Terminal Help
root@lab-fki:/home/lab-fki# nano Fcreate.c
root@lab-fki:/home/lab-fki# gcc -o fcreate Fcreate.c
root@lab-fki:/home/lab-fki# ./fcreate aini.txt
Tekan CTRL+D di akhir baris:
NUR AINI AFDALLAH
L200170107
root@lab-fki:/home/lab-fki#
```

## Fread

The screenshot shows a terminal window with the following session:

```
root@lab-fki:/home/lab-fki# nano fcreate.c
root@lab-fki:/home/lab-fki# gcc -o fcreate fcreate.c
root@lab-fki:/home/lab-fki# ./fcreate aini.txt
Tekan CTRL+D di akhir baris:
NUR AINI AFDALLAH
L200170107
root@lab-fki:/home/lab-fki# nano fread.c
root@lab-fki:/home/lab-fki# gcc -o fread fread.c
root@lab-fki:/home/lab-fki#
```

The screenshot shows a terminal window with the title bar "lab-fki@lab-fki: ~". The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The title of the nano editor window is "fread.c". The code in the editor is:

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <fcntl.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);
}
```

The status bar at the bottom shows keyboard shortcuts for various nano functions, such as "Get Help" (Alt+G), "Write Out" (Alt+W), "Where Is" (Alt+M), "Cut Text" (Alt+K), "Justify" (Alt+J), "Cur Pos" (Alt+C), "Undo" (Alt+U), "Mark Text" (Alt+A), "Exit" (Alt+X), "Read File" (Alt+R), "Replace" (Alt+V), "Uncut Text" (Alt+U), "To Spell" (Alt+T), "Go To Line" (Alt+L), "Redo" (Alt+E), and "Copy Text" (Alt+G).

The screenshot shows a terminal window with the title bar "lab-fki@lab-fki: ~". The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The command line shows:

```
root@lab-fki:/home/lab-fki# nano fcreate.c
root@lab-fki:/home/lab-fki# gcc -o fcreate fcreate.c
root@lab-fki:/home/lab-fki# ./fcreate aini.txt
Tekan CTRL+D di akhir baris:
NUR AINI AFDALLAH
L200170107
root@lab-fki:/home/lab-fki# nano fread.c
root@lab-fki:/home/lab-fki# gcc -o fread fread.c
root@lab-fki:/home/lab-fki# ./fread aini.txt
Isi dari file aini.txt adalah :
NUR AINI AFDALLAH
L200170107
DALLAH
root@lab-fki:/home/lab-fki#
```

## Fappend

The screenshot shows a terminal window titled "lab-fki@lab-fki: ~" with the date "Wed, 28 Nov 2018 13:49". The terminal window has a dark background and light-colored text. It displays the following command-line session:

```
root@lab-fki:/home/lab-fki# nano fcreate.c
root@lab-fki:/home/lab-fki# gcc -o fcreate fcreate.c
root@lab-fki:/home/lab-fki# ./fcreate aini.txt
Tekan CTRL+D di akhir baris:
NUR AINI AFDALLAH
L200170107
root@lab-fki:/home/lab-fki# nano fread.c
root@lab-fki:/home/lab-fki# gcc -o fread fread.c
root@lab-fki:/home/lab-fki# ./fread aini.txt
Isi dari file aini.txt adalah :
NUR AINI AFDALLAH
L200170107
DALLAH
root@lab-fki:/home/lab-fki# nano fappend.c
root@lab-fki:/home/lab-fki# gcc -o fappend fappend.c
root@lab-fki:/home/lab-fki#
```

The screenshot shows a terminal window with the title bar "lab-fki@lab-fki: ~". The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The title of the nano editor window is "Fappend.c". The code in the editor is:

```
#include <stdio.h>
#include <stdlib.h>
#include <unistd.h>
#include <string.h>
#include <fcntl.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, 0664);
    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);
}
```

At the bottom of the editor window, there is a menu bar with various keyboard shortcuts:

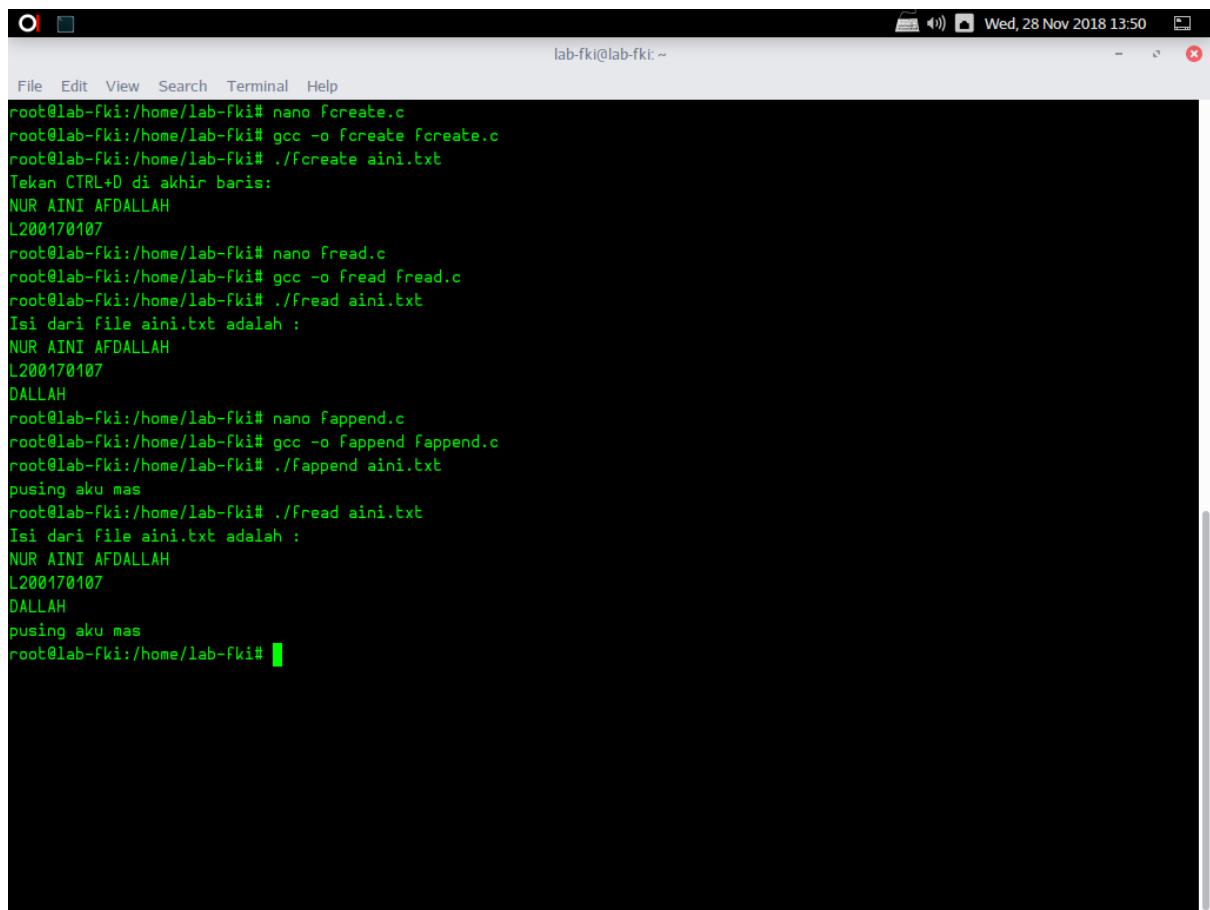
- ^C Get Help
- ^D Write Out
- ^M Where Is
- ^K Cut Text
- ^J Justify
- ^C Cur Pos
- M-U Undo
- M-A Mark Text
- ^X Exit
- ^R Read File
- ^V Replace
- ^U Uncut Text
- ^T To Spell
- ^L Go To Line
- M-E Redo
- M-B Copy Text

A status bar at the bottom indicates "[ Read 27 lines ]".

The screenshot shows a terminal window with the title bar "lab-fki@lab-fki: ~". The menu bar includes "File", "Edit", "View", "Search", "Terminal", and "Help". The command history shows:

```
root@lab-fki:/home/lab-fki# nano fcreate.c
root@lab-fki:/home/lab-fki# gcc -o fcreate fcreate.c
root@lab-fki:/home/lab-fki# ./fcreate aini.txt
Tekan CTRL+D di akhir baris:
NUR AINI AFDALLAH
L200170107
root@lab-fki:/home/lab-fki# nano fread.c
root@lab-fki:/home/lab-fki# gcc -o fread fread.c
root@lab-fki:/home/lab-fki# ./fread aini.txt
Isi dari file aini.txt adalah :
NUR AINI AFDALLAH
L200170107
DALLAH
root@lab-fki:/home/lab-fki# nano fappend.c
root@lab-fki:/home/lab-fki# gcc -o fappend fappend.c
root@lab-fki:/home/lab-fki# ./fappend aini.txt
pusing aku mas
root@lab-fki:/home/lab-fki#
```

## Fread

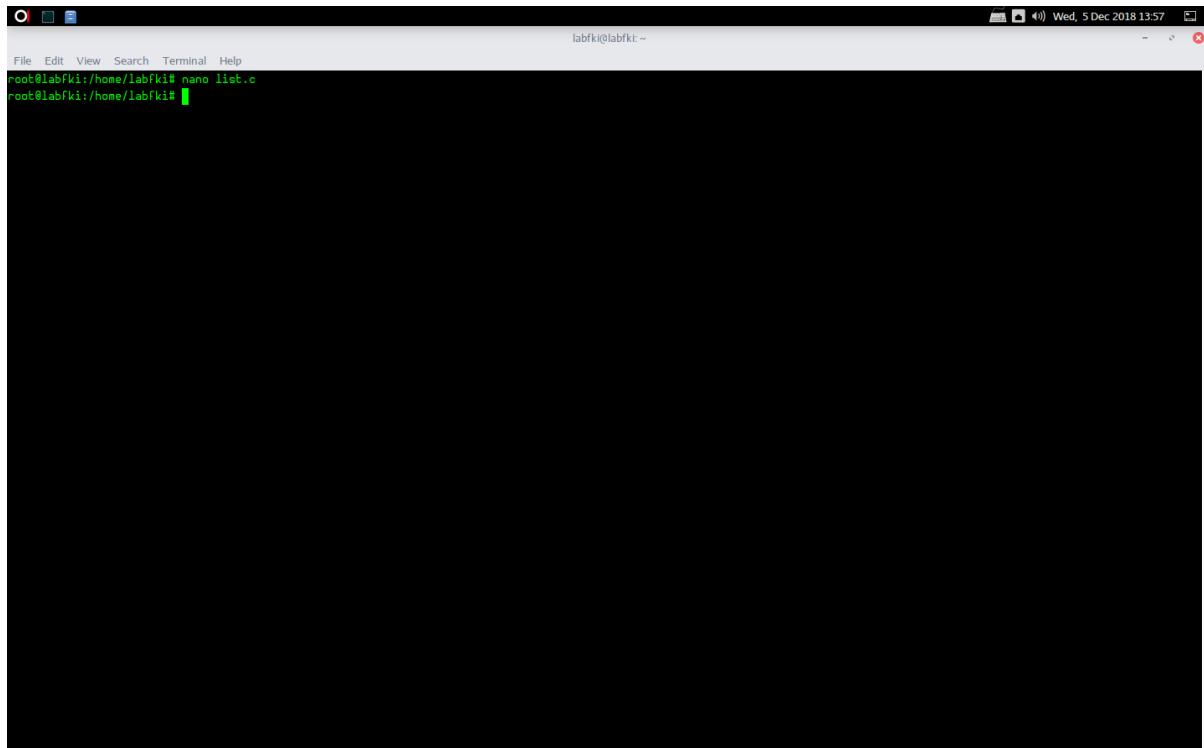


The screenshot shows a terminal window titled "lab-fki@lab-fki: ~". The terminal displays the following session:

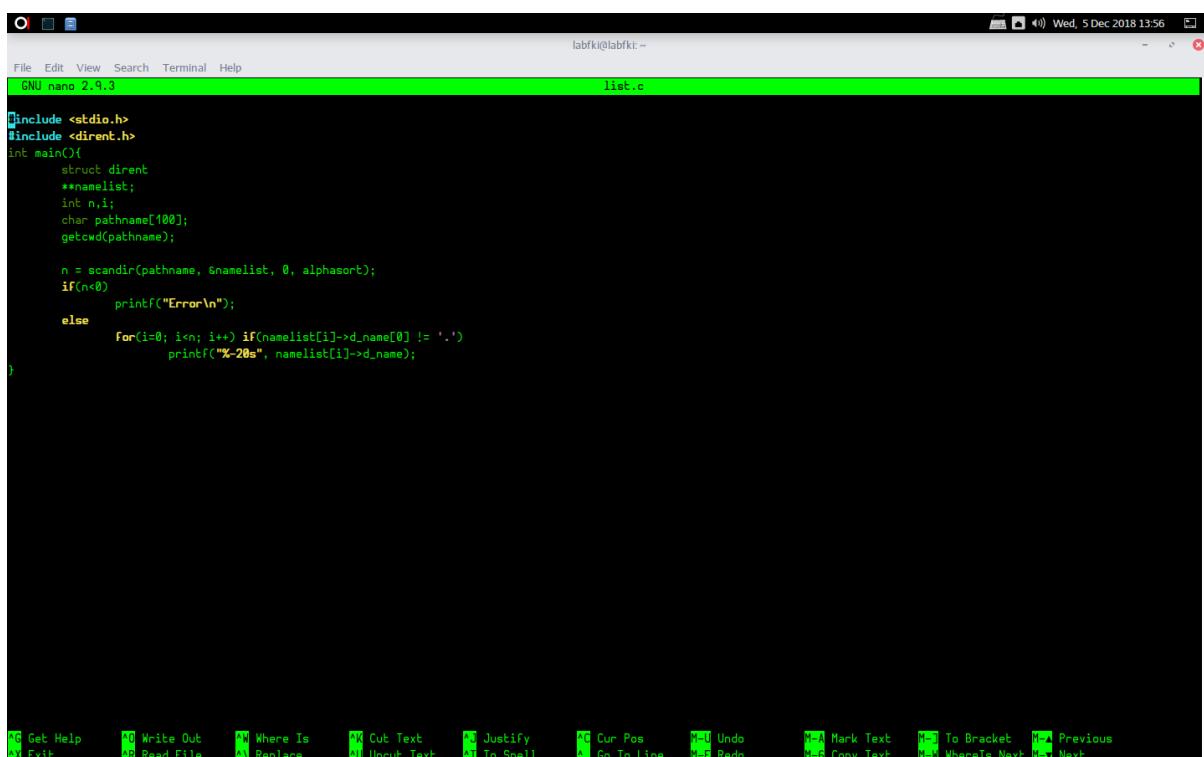
```
root@lab-fki:/home/lab-fki# nano fcreate.c
root@lab-fki:/home/lab-fki# gcc -o fcreate fcreate.c
root@lab-fki:/home/lab-fki# ./fcreate aini.txt
Tekan CTRL+D di akhir baris:
NUR AINI AFDALLAH
L200170107
root@lab-fki:/home/lab-fki# nano fread.c
root@lab-fki:/home/lab-fki# gcc -o fread fread.c
root@lab-fki:/home/lab-fki# ./fread aini.txt
Isi dari file aini.txt adalah :
NUR AINI AFDALLAH
L200170107
DALLAH
root@lab-fki:/home/lab-fki# nano fappend.c
root@lab-fki:/home/lab-fki# gcc -o fappend fappend.c
root@lab-fki:/home/lab-fki# ./fappend aini.txt
pusing aku mas
root@lab-fki:/home/lab-fki# ./fread aini.txt
Isi dari file aini.txt adalah :
NUR AINI AFDALLAH
L200170107
DALLAH
pusing aku mas
root@lab-fki:/home/lab-fki#
```

# PRAKTIKUM 10

list.c



```
root@labfki:~# nano list.c
```



```
GNU nano 2.9.3
```

```
#include <stdio.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);
}
```

File Edit View Search Terminal Help labfki@labfki: ~

Ctrl Get Help Ctrl Write Out F1 Where Is F2 Cut Text F3 Justify F4 Cur Pos F5 Undo F6 Mark Text F7 To Bracket F8 Previous  
Alt Exit Alt Read File F9 Replace F10 Uncut Text F11 To Spell F12 Go To Line F13 Redo F14 Copy Text F15 Whereis Next F16 Next

```
File Edit View Search Terminal Help
root@labfki:/home/labfki# nano list.c
root@labfki:/home/labfki# gcc list.c -o list
list.c: In function 'main':
list.c:8:2: warning: implicit declaration of function 'getcwd'; did you mean 'getw'? [-Wimplicit-function-declaration]
  getcwd(pathname);
  ^
  getw
root@labfki:/home/labfki#
```

```
File Edit View Search Terminal Help
root@labfki:/home/labfki# nano list.c
root@labfki:/home/labfki# gcc list.c -o list
list.c: In function 'main':
list.c:8:2: warning: implicit declaration of function 'getcwd'; did you mean 'getw'? [-Wimplicit-function-declaration]
  getcwd(pathname);
  ^
  getw
root@labfki:/home/labfki# ./list
Desktop          Documents        Downloads       L200170024      L200170031      L200170054      L200170054.sh    L200170054.sh.save  L200174081
  Music           Pictures        Public         Templates      Fadel          a.out          aini.txt      ainipunya.txt   copy
copy.c          del             del.c          inimodul9.txt  l200170150     fcreate        fork.c        fork.c.save   fork.c.save.1
  fread          fread.c        fread.c        nano.save.1   nano.save.2   fcreate.c      fork.c        fork.c.save   fork.c.save.1
mygrep.c        nano.save      nano.save     nano.save.1   nano.save.2   list           list.c        main.c        mygrep
  wait.c.save    y              root@labfki:/home/labfki#
```

## mygrep.c

```
root@labfki:~/home/labfki# nano list.c
root@labfki:~/home/labfki# gcc list.c -o list
list.c: In function 'main':
list.c:8:2: warning: implicit declaration of function 'getcwd'; did you mean 'getw'? [-Wimplicit-function-declaration]
    getcwd(pathname);
^_____
getw
root@labfki:~/home/labfki# ./list
Desktop      Documents      Downloads      L200170024      L200170031      L200170054      L200170054.sh      L200170054.sh.save  L200174081
Music       Pictures       Public        Templates      Videos       a.out      aini.txt      ainipunya.txt      copy
copy.c      del.c          del.c        Fadel        Create      Create.c      fork.c      fork.c.save      Fork.c.save.f
    fread     fread.c      inimodul9.txt  1200170150    latihan.txt    list       list.c      main.c      mygrep
    mygrep.c  nano.save    nano.save.1   nano.save.2   nano.save.3   read       test.txt    wait       wait.c
    wait.c.save  Y          root@labfki:~/home/labfki#
root@labfki:~/home/labfki# nano mygrep.c
```

```
GNU nano 2.4.3                                     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.c -o mygrep\n");
        printf("Usage: ./mygrep <search_text> <filename>/n");
        exit(-1);
    }
    fd = fopen(argv[2], "r");
    if(fd == NULL)
    {
        printf("%s is not exist\n", argv[2]);
        exit(-1);
    }
    while(!feof(fd))
    {
        i = 0;
        while(1)
        {
            c=fgetc(fd);
            if(feof(fd))
            {
                str[i+1] = '\0'; break;
            }
            if(c == '\n')
            {
                str[i+1] = '\0'; break;
            }
            str[i+1] = c;
            i++;
        }
        if(strstr(str, argv[1]) != NULL)
        {
            if(flag == 0)
            {
                printf("%s", str);
                flag = 1;
            }
            else
            {
                printf("\n");
                printf("%s", str);
            }
        }
    }
}
```

GNOME Terminal window showing the source code of `mygrep.c` in the nano editor. The code implements a grep-like functionality using file descriptors and character arrays.

```
if(fd == NULL)
{
    printf("%s is not exist\n", argv[2]);
    exit(-1);
}
while(!feof(fd))
{
    i = 0;
    while(i)
    {
        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)
        {
            printf("%s\n", str);
            break;
        }
    }
}

```

GNOME Terminal window showing the source code of `mygrep.c` in the nano editor. The code implements a grep-like functionality using file descriptors and character arrays.

GNOME Terminal window showing the compilation and execution of `mygrep.c`. The user runs `gcc list.c -o list`, which generates a warning about the implicit declaration of `getcwd`. The user then executes `./list` and provides a file name to search for.

```
root@labfki:~/home/labfki# nano list.c
root@labfki:~/home/labfki# gcc list.c -o list
list.c: In function 'main':
list.c:8:2: warning: implicit declaration of function 'getcwd'; did you mean 'getw'? [-Wimplicit-function-declaration]
    getcwd(pathname);
    ^
    getw
root@labfki:~/home/labfki# ./list
Desktop      Documents      Downloads      L200170024      L200170031      L200170054      L200170054.sh      L200170054.sh.save  L200174081
Music       Pictures      Public      Templates      Videos      a.out      aini.txt      ainipunya.txt      copy
copy.c       del      del.c      Fadel      Fcreate      fcreate.c      fork.c      fork.c.save      fork.c.save.1
    fread      fread.c      inimodul9.txt      1200170150      latihan.txt      list      list.c      main.c      mygrep
    mygrep.c      nano.save      nano.save.1      nano.save.2      nano.save.3      read      test.txt      wait      wait.c
    wait.c.save      y      root@labfki:~/home/labfki#
root@labfki:~/home/labfki# nano mygrep.c
root@labfki:~/home/labfki# gcc mygrep.c -o mygrep
root@labfki:~/home/labfki# ./mygrep NUR aini.txt
NUR AINI AFDALLAH
root@labfki:~/home/labfki# ./mygrep 0 aini.txt
L200170107
root@labfki:~/home/labfki#
```

## copy.c

```
root@labfki:~/home/labfki# nano list.c
root@labfki:~/home/labfki# gcc list.c -o list
list.c: In function 'main':
list.c:8:2: warning: implicit declaration of function 'getcwd'; did you mean 'getw'? [-Wimplicit-function-declaration]
    getcwd(pathname);
    ^~~~~~
    getw
root@labfki:~/home/labfki# ./list
Desktop      Documents      Downloads      L200170024      L200170031      L200170054      L200170054.sh      L200170054.sh.save  L200174081
Music       Pictures       Public        Templates      Videos       a.out        aini.txt      ainipunya.txt  copy
copy.c       del           del.c        Fadel         Create      Create.c     fork.c       fork.c.save   Fork.c.save
            fread.c       inimodul9.txt  1200170150    latihan.txt  list        list.c       main.c       mygrep
mygrep.c     nano.save     nano.save.1   nano.save.2   nano.save.3  read        test.txt    wait        wait.c
wait.c.save  y             root@labfki:~/home/labfki#
root@labfki:~/home/labfki# nano mygrep.c
root@labfki:~/home/labfki# gcc mygrep.c -o mygrep
root@labfki:~/home/labfki# ./mygrep NUR aini.txt
NUR AINI AFDALAH
root@labfki:~/home/labfki# ./mygrep @ aini.txt
L200179107
root@labfki:~/home/labfki# nano copy.c
root@labfki:~/home/labfki#
```

```
GNU nano 2.4.3
copy.c

#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);
    }
    if((src = open(argv[1], O_RDONLY)) == -1){
        perror(argv[1]);
        exit(-1);
    }
    if((dst=creat(argv[2], 0644)) == -1){
        perror(argv[2]);
        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 Edit View Search Terminal Help

copy.c

[ Read 31 lines ]

Get Help Write Out Where Is Cut Text Justify Cur Pos Undo Mark Text To Bracket Previous
Exit Read File Replace Uncut Text To Spell Go To Line Redo Copy Text Where Is Next Next

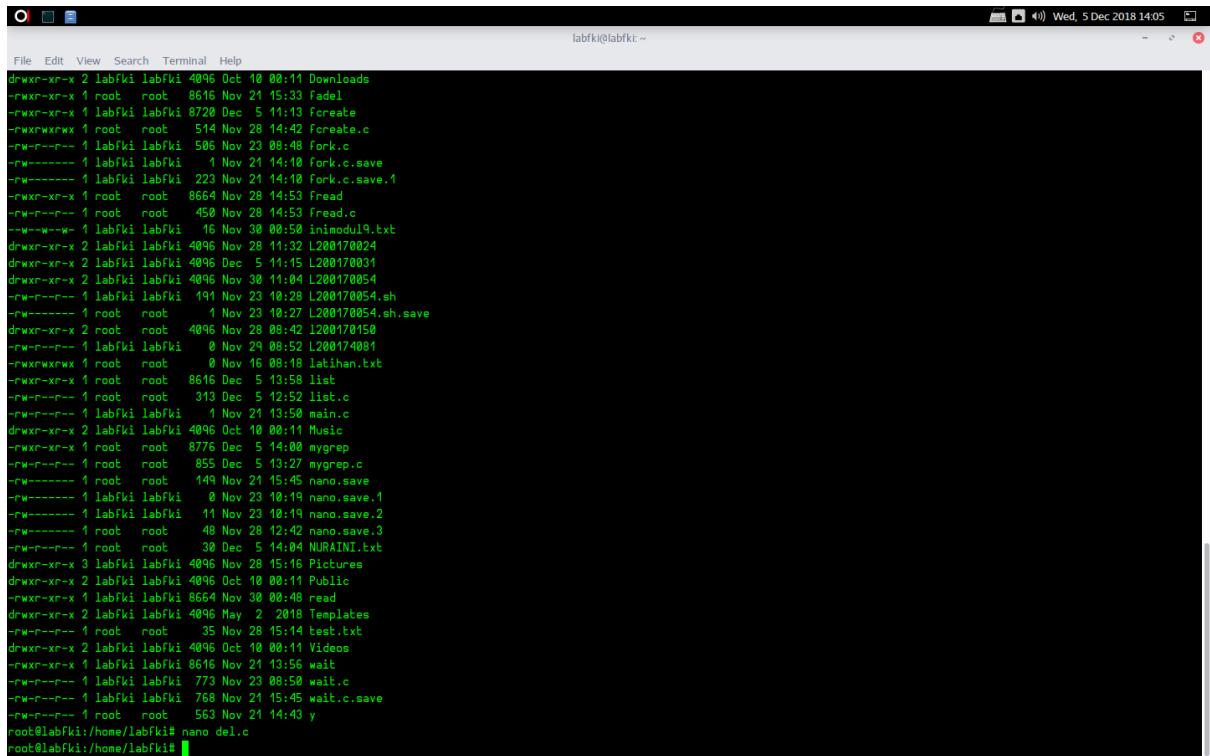
```
labfki@labfki: ~
```

```
File Edit View Search Terminal Help
root@labfki:/home/labfki# ./mygrep NUR aini.txt
NUR AINI AFDALLAH
root@labfki:/home/labfki# ./mygrep 0 aini.txt
L200170107
root@labfki:/home/labfki# nano copy.c
root@labfki:/home/labfki# gcc copy.c -o copy
copy.c: In function 'main':
copy.c:23:7: warning: implicit declaration of function 'read'; did you mean 'fread'? [-Wimplicit-function-declaration]
  while((nread = read(src, buf, SIZE))>0){
      ^
      fread
copy.c:24:6: warning: implicit declaration of function 'write'; did you mean 'fwrite'? [-Wimplicit-function-declaration]
  if(write(dst, buf, nread) == -1){
      ^
      fwrite
copy.c:29:2: warning: implicit declaration of function 'close'; did you mean 'pclose'? [-Wimplicit-function-declaration]
  close(src);
  ^
  pclose
root@labfki:/home/labfki# ./copy aini.txt NURAINI.txt
root@labfki:/home/labfki# ls -l
total 260
-rw-r--r-- 1 root  root  46 Dec  5 13:48 ainipunya.txt
-rw-r--r-- 1 labfki labfki 38 Dec  5 13:56 aini.txt
-rwxr-xr-x 1 root  root  8616 Dec  5 13:01 a.out
-rwxr--r-- 1 root  root  8768 Dec  5 14:02 copy
-rw-r--r-- 1 root  root  598 Dec  5 13:47 copy.c
-rwxr-xr-x 1 root  root  8664 Dec  5 13:53 del
-rw-r--r-- 1 root  root  273 Dec  5 13:53 del.c
drwxr-xr-x 2 labfki labfki 4096 Nov 29 08:55 Documents
drwxr-xr-x 3 labfki labfki 4096 Oct 18 00:11 Downloads
-rwxr-xr-x 1 root  root  8616 Nov 21 15:33 Fadel
-rwxr-xr-x 1 labfki labfki 8728 Dec  5 11:13 Fcreate
-rwxrwxrwx 1 root  root  514 Nov 28 14:42 Fcreate.c
-rw-r----- 1 labfki labfki 506 Nov 23 08:48 Fork.c
-rw----- 1 labfki labfki  1 Nov 21 14:10 Fork.c.save
-rw----- 1 labfki labfki 223 Nov 21 14:10 Fork.c.save.1
-rwxr--r-x 1 root  root  8664 Nov 28 14:53 fread
-rw-r--r-- 1 root  root  458 Nov 28 14:53 fread.c
---w--w--w- 1 labfki labfki  16 Nov 30 00:50 inimodul9.txt
```

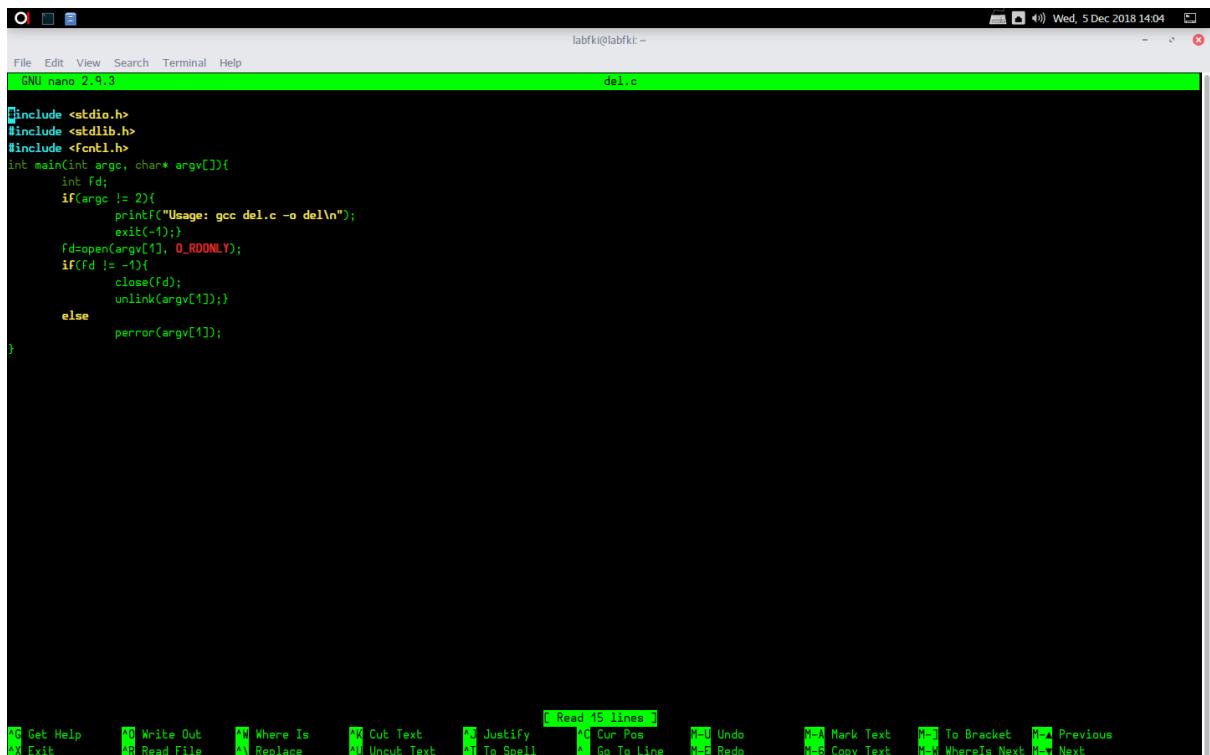
```
labfki@labfki: ~
```

```
File Edit View Search Terminal Help
drwxr-xr-x 3 labfki labfki 4096 Nov 29 08:55 Documents
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Downloads
-rwxr-xr-x 1 root  root  8616 Nov 24 15:33 Fadel
-rwxr-xr-x 1 labfki labfki 8728 Dec  5 11:13 Fcreate
-rwxrwxrwx 1 root  root  514 Nov 28 14:42 Fcreate.c
-rw-r--r-- 1 labfki labfki 506 Nov 23 08:48 Fork.c
-rw----- 1 labfki labfki  1 Nov 21 14:10 Fork.c.save
-rw----- 1 labfki labfki 223 Nov 21 14:10 Fork.c.save.1
-rwxr-xr-x 1 root  root  8664 Nov 28 14:53 fread
-rw-r--r-- 1 root  root  458 Nov 28 14:53 fread.c
---w--w--w- 1 labfki labfki  16 Nov 30 00:50 inimodul9.txt
drwxr-xr-x 2 labfki labfki 4096 Nov 28 11:32 L200170024
drwxr-xr-x 2 labfki labfki 4096 Dec  5 11:15 L200170031
drwxr-xr-x 2 labfki labfki 4096 Nov 30 11:04 L200170054
-rw-r----- 1 labfki labfki 191 Nov 23 10:28 L200170054.sh
-rw----- 1 root  root  1 Nov 23 10:27 L200170054.sh.save
drwxr-xr-x 2 root  root  4096 Nov 28 00:42 L200170150
-rw-r--r-- 1 labfki labfki  0 Nov 29 08:52 L200174081
-rwxrwxrwx 1 root  root  0 Nov 16 08:18 latihan.txt
-rwxr-xr-x 1 root  root  8616 Dec  5 13:58 list
-rw-r--r-- 1 root  root  313 Dec  5 12:52 list.c
-rw-----r-- 1 labfki labfki  1 Nov 24 13:50 main.c
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Music
-rwxr-xr-x 1 root  root  8776 Dec  5 14:08 mygrep
-rw-r--r-- 1 root  root  855 Dec  5 13:27 mygrep.c
-rw----- 1 root  root  149 Nov 24 15:45 nano.save
-rw----- 1 labfki labfki  8 Nov 23 10:19 nano.save.1
-rw----- 1 labfki labfki 11 Nov 23 10:19 nano.save.2
-rw----- 1 root  root  48 Nov 28 12:42 nano.save.3
-rw-r--r-- 1 root  root  38 Dec  5 14:04 NURAINI.txt
drwxr-xr-x 3 labfki labfki 4096 Nov 28 15:16 Pictures
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Public
-rwxr-xr-x 1 labfki labfki 8654 Nov 30 00:48 read
drwxr-xr-x 2 labfki labfki 4096 May  2 2018 Templates
-rw-r--r-- 1 root  root  35 Nov 28 15:14 test.txt
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Videos
-rwxr-xr-x 1 labfki labfki 8616 Nov 29 13:56 wait
-rw-r--r-- 1 labfki labfki 773 Nov 23 08:58 wait.c
-rw-----r-- 1 labfki labfki 768 Nov 24 15:45 wait.c.save
-rw-r--r-- 1 root  root  563 Nov 24 14:43 y
root@labfki:/home/labfki#
```

## del.c



```
drwxr-xr-x 2 labfki labfki 4096 Oct 10 00:11 Downloads
-rwxr-xr-x 1 root root 8616 Nov 24 15:33 fadel
-rwxr-xr-x 1 labfki labfki 8728 Dec 5 11:13 fcreate
-rwxrwxrwx 1 root root 514 Nov 28 14:42 fcreate.c
-rw-r--r-- 1 labfki labfki 506 Nov 23 08:48 Fork.c
-rw----- 1 labfki labfki 1 Nov 24 14:10 Fork.c.save
-rw----- 1 labfki labfki 223 Nov 24 14:10 Fork.c.save.1
-rwxr-xr-x 1 root root 8664 Nov 28 14:53 fread
-rw-r--r-- 1 root root 458 Nov 28 14:53 fread.c
--w-w--w- 1 labfki labfki 16 Nov 30 00:58 inimodul9.txt
drwxr-xr-x 2 labfki labfki 4096 Nov 28 11:32 L200170024
drwxr-xr-x 2 labfki labfki 4096 Dec 5 11:15 L200170031
drwxr-xr-x 2 labfki labfki 4096 Nov 30 11:04 L200170054
-rw-r--r-- 1 labfki labfki 194 Nov 23 10:28 L200170054.sh
-rw----- 1 root root 1 Nov 23 10:27 L200170054.sh.save
drwxr-xr-x 2 root root 4096 Nov 28 08:42 L200170150
-rw-r--r-- 1 labfki labfki 0 Nov 29 08:52 L200170081
-rwxrwxrwx 1 root root 0 Nov 18 08:18 latihan.txt
-rwxr-xr-x 1 root root 8616 Dec 5 10:58 list
-rw-r--r-- 1 root root 313 Dec 5 12:52 list.c
-rw-r--r-- 1 labfki labfki 1 Nov 24 13:50 main.c
drwxr-xr-x 2 labfki labfki 4096 Oct 10 00:11 Music
-rwxr-xr-x 1 root root 8776 Dec 5 14:00 mygrep
-rw-r--r-- 1 root root 855 Dec 5 13:27 mygrep.c
-rw----- 1 root root 149 Nov 21 15:45 nano.save
-rw----- 1 labfki labfki 8 Nov 23 10:19 nano.save.1
-rw----- 1 labfki labfki 11 Nov 23 10:19 nano.save.2
-rw----- 1 root root 48 Nov 28 12:42 nano.save.3
-rw-r--r-- 1 root root 38 Dec 5 14:04 NURAINI.txt
drwxr-xr-x 3 labfki labfki 4096 Nov 28 15:16 Pictures
drwxr-xr-x 2 labfki labfki 4096 Oct 10 00:11 Public
-rwxr-xr-x 1 labfki labfki 8664 Nov 30 08:48 read
drwxr-xr-x 2 labfki labfki 4096 May 2 2018 Templates
-rw-r--r-- 1 root root 35 Nov 28 15:14 test.txt
drwxr-xr-x 2 labfki labfki 4096 Oct 10 00:11 Videos
-rwxr-xr-x 1 labfki labfki 8616 Nov 24 13:56 wait
-rw-r--r-- 1 labfki labfki 773 Nov 23 08:58 wait.c
-rw-r--r-- 1 root root 563 Nov 24 14:43 y
root@labfki:~/home/labfki# nano del.c
root@labfki:~/home/labfki#
```



```
GNU nano 2.4.3
#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");
        exit(1);
    }
    fd=open(argv[1], O_RDONLY);
    if(fd != -1){
        close(fd);
        unlink(argv[1]);
    }
    else
        perror(argv[1]);
}
```

File Edit View Search Terminal Help

Read 45 lines ] C Read 5 lines ] C Cur Pos M-U Undo M-D Redo

Get Help F0 Write Out F1 Where Is F2 Cut Text F3 Justify F4 Go To Line F5 Undo F6 Redo

Exit F2 Read File F3 Replace F4 Uncut Text F5 To Spell F6 Go To Line F7 Mark Text F8 To Bracket F9 Previous

F3 Copy Text F4 Where Is Next F5 Next

```
labfki@labfki: ~
```

```
File Edit View Search Terminal Help
drwxr-xr-x 2 labfki labfki 4096 Dec 5 11:15 L200170031
drwxr-xr-x 2 labfki labfki 4096 Nov 30 11:04 L200170054
-rw-r--r-- 1 labfki labfki 191 Nov 23 10:28 L200170054.sh.save
-rw-r--r-- 1 root root 1 Nov 23 10:27 L200170054.sh
drwxr-xr-x 2 root root 4096 Nov 28 08:42 L200170150
-rw-r--r-- 1 labfki labfki 8 Nov 29 08:52 L200174081
-rwxrwxrwx 1 root root 8 Nov 16 08:18 latihan.txt
-rwxr-xr-x 1 root root 8616 Dec 5 13:58 list
-rw-r--r-- 1 root root 313 Dec 5 12:52 list.c
-rw-r--r-- 1 labfki labfki 1 Nov 24 13:58 main.c
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Music
-rwxr-xr-x 1 root root 8776 Dec 5 14:00 mygrep
-rw-r--r-- 1 root root 855 Dec 5 13:27 mygrep.c
-rw-r--r-- 1 root root 149 Nov 24 15:45 nano.save
-rw-r--r-- 1 labfki labfki 8 Nov 23 10:19 nano.save.1
-rw-r--r-- 1 labfki labfki 11 Nov 23 10:19 nano.save.2
-rw-r--r-- 1 root root 48 Nov 28 12:42 nano.save.3
-rw-r--r-- 1 root root 38 Dec 5 14:04 NURAINI.txt
drwxr-xr-x 3 labfki labfki 4096 Nov 28 15:16 Pictures
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Public
-rwxr-xr-x 1 labfki labfki 8664 Nov 30 00:48 read
drwxr-xr-x 2 labfki labfki 4096 May 2 2018 Templates
-rw-r--r-- 1 root root 35 Nov 28 15:14 test.txt
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Videos
-rwxr-xr-x 1 labfki labfki 8616 Nov 24 13:56 wait
-rw-r--r-- 1 labfki labfki 773 Nov 23 08:58 wait.c
-rw-r--r-- 1 labfki labfki 768 Nov 24 15:45 wait.c.save
-rw-r--r-- 1 root root 563 Nov 24 14:43 y
root@labfki:~/home/labfki# nano del.c
root@labfki:~/home/labfki# gcc del.c -o del
del.c: In function `main':
del.c:11:3: warning: implicit declaration of function `close'; did you mean `pclose'? [-Wimplicit-function-declaration]
    close(fd);
    ^
    pclose
del.c:42:3: warning: implicit declaration of function `unlink'; did you mean `unlink'? [-Wimplicit-function-declaration]
    unlink(argv[1]);
    ^
    unix
root@labfki:~/home/labfki# ./del NURAINI.txt
root@labfki:~/home/labfki#
```

```
labfki@labfki: ~
```

```
File Edit View Search Terminal Help
drwxr-xr-x 2 labfki labfki 4096 Dec 5 14:06 Desktop
drwxr-xr-x 3 labfki labfki 4096 Nov 29 08:55 Documents
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Downloads
-rwxr-xr-x 1 root root 8616 Nov 24 15:33 Fadel
-rwxr-xr-x 1 labfki labfki 8728 Dec 5 11:13 Create
-rwxrwxrwx 1 root root 514 Nov 28 14:42 Fcreate.c
-rw-r--r-- 1 labfki labfki 506 Nov 23 08:48 Fork.c
-rw-r--r-- 1 labfki labfki 1 Nov 24 14:10 Fork.c.save
-rw-r--r-- 1 labfki labfki 223 Nov 24 14:10 Fork.c.save.1
-rwxr-xr-x 1 root root 8664 Nov 28 14:53 Fread
-rw-r--r-- 1 root root 450 Nov 28 14:53 Fread.c
-rw-r--w- 1 labfki labfki 16 Nov 30 00:05 iniandui9.txt
drwxr-xr-x 2 labfki labfki 4096 Nov 28 11:32 L200170024
drwxr-xr-x 2 labfki labfki 4096 Dec 5 11:15 L200170031
drwxr-xr-x 2 labfki labfki 4096 Nov 30 11:04 L200170054
-rw-r--r-- 1 labfki labfki 191 Nov 23 10:28 L200170054.sh
-rw-r--r-- 1 root root 1 Nov 23 10:27 L200170054.sh.save
drwxr-xr-x 2 root root 4096 Nov 28 08:42 L200170150
-rw-r--r-- 1 labfki labfki 8 Nov 29 08:52 L200174081
-rwxrwxrwx 1 root root 8 Nov 16 08:18 latihan.txt
-rwxr-xr-x 1 root root 8616 Dec 5 13:58 list
-rw-r--r-- 1 root root 313 Dec 5 12:52 list.c
-rw-r--r-- 1 labfki labfki 1 Nov 24 13:58 main.c
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Music
-rwxr-xr-x 1 root root 8776 Dec 5 14:00 mygrep
-rw-r--r-- 1 root root 855 Dec 5 13:27 mygrep.c
-rw-r--r-- 1 root root 149 Nov 24 15:45 nano.save
-rw-r--r-- 1 labfki labfki 8 Nov 23 10:19 nano.save.1
-rw-r--r-- 1 labfki labfki 11 Nov 23 10:19 nano.save.2
-rw-r--r-- 1 root root 48 Nov 28 12:42 nano.save.3
drwxr-xr-x 3 labfki labfki 4096 Nov 28 15:16 Pictures
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Public
-rwxr-xr-x 1 labfki labfki 8664 Nov 30 00:48 read
drwxr-xr-x 2 labfki labfki 4096 May 2 2018 Templates
-rw-r--r-- 1 root root 35 Nov 28 15:14 test.txt
drwxr-xr-x 2 labfki labfki 4096 Oct 18 00:11 Videos
-rwxr-xr-x 1 labfki labfki 8616 Nov 24 13:56 wait
-rw-r--r-- 1 labfki labfki 773 Nov 23 08:58 wait.c
-rw-r--r-- 1 root root 768 Nov 24 15:45 wait.c.save
-rw-r--r-- 1 root root 563 Nov 24 14:43 y
root@labfki:~/home/labfki#
```