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Nilai:

```
Command Prompt
C:\Users\Person>cd/

C:\>cd os

C:\OS>setpath

C:\OS>Path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Windows;c:\Windows\System32
C:\OS>cd lab

C:\OS\LAB>cd lab2

C:\OS\LAB\LAB2>dir
Volume in drive C is Windows
Volume Serial Number is 2CAB-5537

Directory of C:\OS\LAB\LAB2

17/10/2019  01:03    <DIR>        .
17/10/2019  01:03    <DIR>        ..
01/01/2249  02:27             10.127 bochs.log
15/12/2008  16:18             1.625 bochsrc.bxrc
17/10/2019  01:59             15.911 boot.asm
17/10/2019  01:03              512 boot.bin
15/12/2008  13:52              78 dosfp.bat
17/10/2019  01:06         1.474.560 floppy.a.img
17/10/2019  01:05             7.971 kernel.asm
17/10/2019  01:05             616 kernel.bin
15/12/2008  16:21             228 Makefile
15/12/2008  12:20              44 s.bat
               10 File(s)          1.511.672 bytes
```

```
Command Prompt

2 Dir(s)  142.656.344.064 bytes free

C:\OS\LAB\LAB2>bxImage
=====
                        bximage
                        Disk Image Creation Tool for Bochs
                        $Id: bximage.c,v 1.32 2006/06/16 07:29:33 vruppert Exp $
=====

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

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

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

The disk image 'floppya.img' already exists.  Are you sure you want to replace it?
Please type yes or no. [no] yes

Writing: [] Done.
```

```
Command Prompt
I wrote 1474560 bytes to floppy.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)

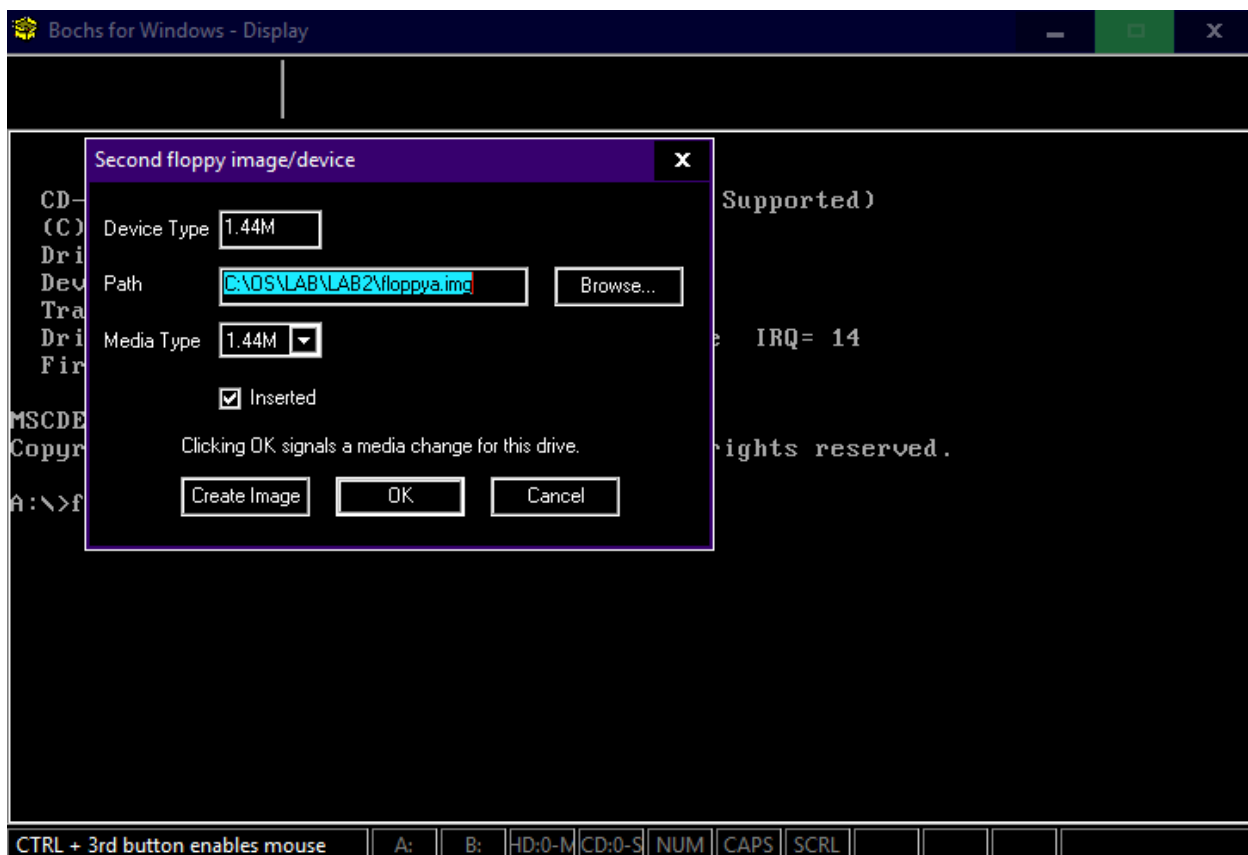
Press any key to continue

C:\OS\LAB\LAB2>dir
Volume in drive C is Windows
Volume Serial Number is 2CAB-5537

Directory of C:\OS\LAB\LAB2

17/10/2019  01:03    <DIR>        .
17/10/2019  01:03    <DIR>        ..
01/01/2249  02:27          10.127 bochs.log
15/12/2008  16:18          1.625 bochsrc.bxrc
17/10/2019  01:59          15.911 boot.asm
17/10/2019  01:03           512 boot.bin
15/12/2008  13:52           78 dosfp.bat
01/01/2249  02:40       1.474.560 floppy.img
17/10/2019  01:05          7.971 kernel.asm
17/10/2019  01:05          616 kernel.bin
15/12/2008  16:21          228 Makefile
15/12/2008  12:20           44 s.bat
               10 File(s)       1.511.672 bytes
               2 Dir(s)    142.653.558.784 bytes free

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



```
Command Prompt
[WGUI ] Window closed, exiting!
=====
Bochs is exiting. Press ENTER when you're ready to close this window.

C:\OS\Bochs-2.3.5\dos>cd "C:\os\lab\lab2"
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
00000000000i[APIC?] local apic in  initializing
=====
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007
=====
00000000000i[      ] reading configuration from bochsrc2.txt
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] 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>
```

```
Bochs for Windows - Display
Plex86/Bochs VGABios 0.6a 19 Aug 2006
This VGA/VBE Bios is released under the GNU LGPL

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

Bochs VBE Display Adapter enabled

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

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

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

A:\>_

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

```
Command Prompt
=====
0000000000i[      ] reading configuration from bochsrc2.txt
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] 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
0000000000i[APIC?] local apic in  initializing
=====
                Bochs x86 Emulator 2.3.5
                Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====

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

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

C:\OS\LAB\LAB2>make fp.disk
make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00
make: Warning: File 'makefile' has modification time 1,2e+009 s in the future
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
make: warning:  Clock skew detected.  Your build may be incomplete.

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

```
Bochs for Windows - Display
Plex86/Bochs UGABios 0.6a 19 Aug 2006
This UGA/UBE Bios is released under the GNU LGPL

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

Bochs UBE Display Adapter enabled

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

Booting from Floppy...

ahmad fikri alqhozali
.....
Ahmad fikri alqhozali_

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

```
Command Prompt
make: Warning: File `make
nasm boot.asm -o boot.bin
dd if=boot.bin of=floppya
rawwrite dd for windows v
Written by John Newbigi
This program is covered by
1+0 records in
1+0 records out
make: warning: Clock skew

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs
00000000000i[APIC?] local
=====
Bochs
Build from CVS
=====
00000000000i[ ] readi
00000000000i[ ] instal
00000000000i[ ] using
# In bx_win32_gui_c::exit
=====
Bochs is exiting with the
[WGUI ] POWER button turne
=====
C:\OS\LAB\LAB2>notepad bo
C:\OS\LAB\LAB2>

boot.asm - Notepad
File Edit Format View Help
; *****
; LAB-2 : boot-strap loader - real mode
; digunakan untuk memindahkan file OS/kernel
; dari floppy disk ke dalam RAM (memori kerja PC).
; *****
;Mengatur mode kerja 16 bit (real-mode)
[BITS 16]
;Menentukan lokasi awal dari program
[ORG 0x0000]
;=====
;(1) BLOK STARTER
; loncat ke label START
;=====
jmp START
;=====
;(2) BLOK ID FAT12
; Keterangan format FAT12 pada floppy disk
;=====
```

```
make: Warning: File `makefile' has modification time 1.2e+009 s in the future
nasm boot.asm -o boot.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
make: warning: Clock skew detected. Your build may be incomplete.

C:\OS\LAB\LAB2>s

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

=====
; Teks yang akan ditampilkan saat mulai proses
; BOOT : Loading kernel ver 0.01
; Di awali dan diakhiri dengan tanda :
; -- 0x0D akhir baris
; -- 0x0A baris baru
; -- 0x00 Karakter 'NULL' pembatas dengan data di bawahnya
;=====
; alqhozali ", 0x0D, (
=====
;=====
; Tek
;=====
; msgfailure db 0x0D, 0x0A, "Annamad rIKRI alqhozali", 0x00
;=====
; (4) BLOK BOOT SIGNATURE
;=====

TIMES 510-($-$$) DB 0
DW 0xAA55
;*****
```

```
[WGUI ] POWER button turned off.
=====

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

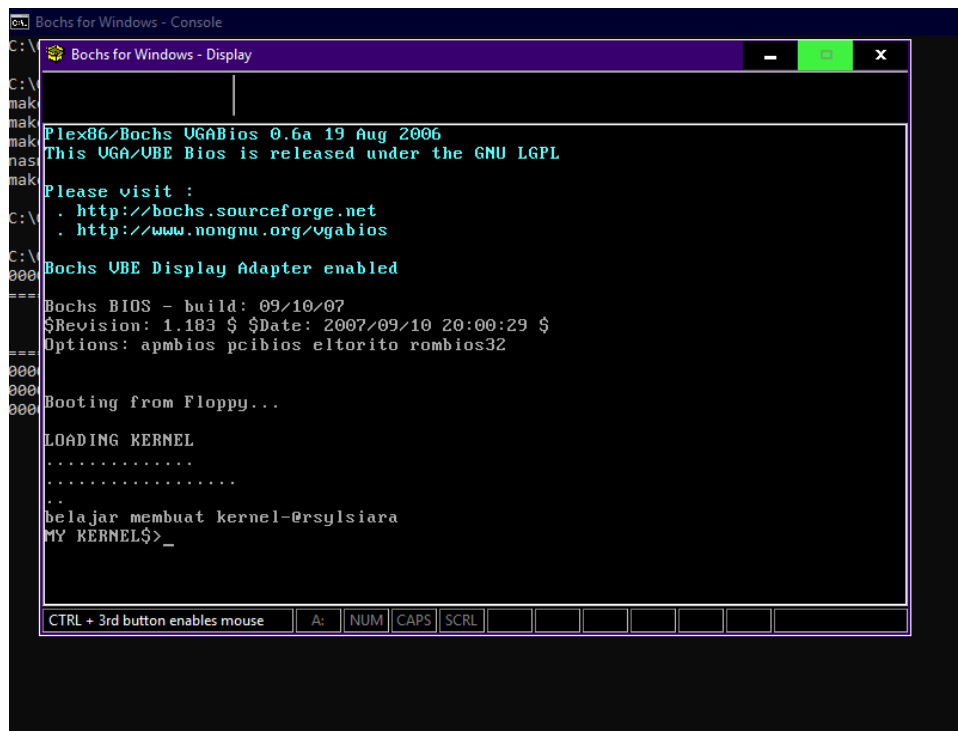
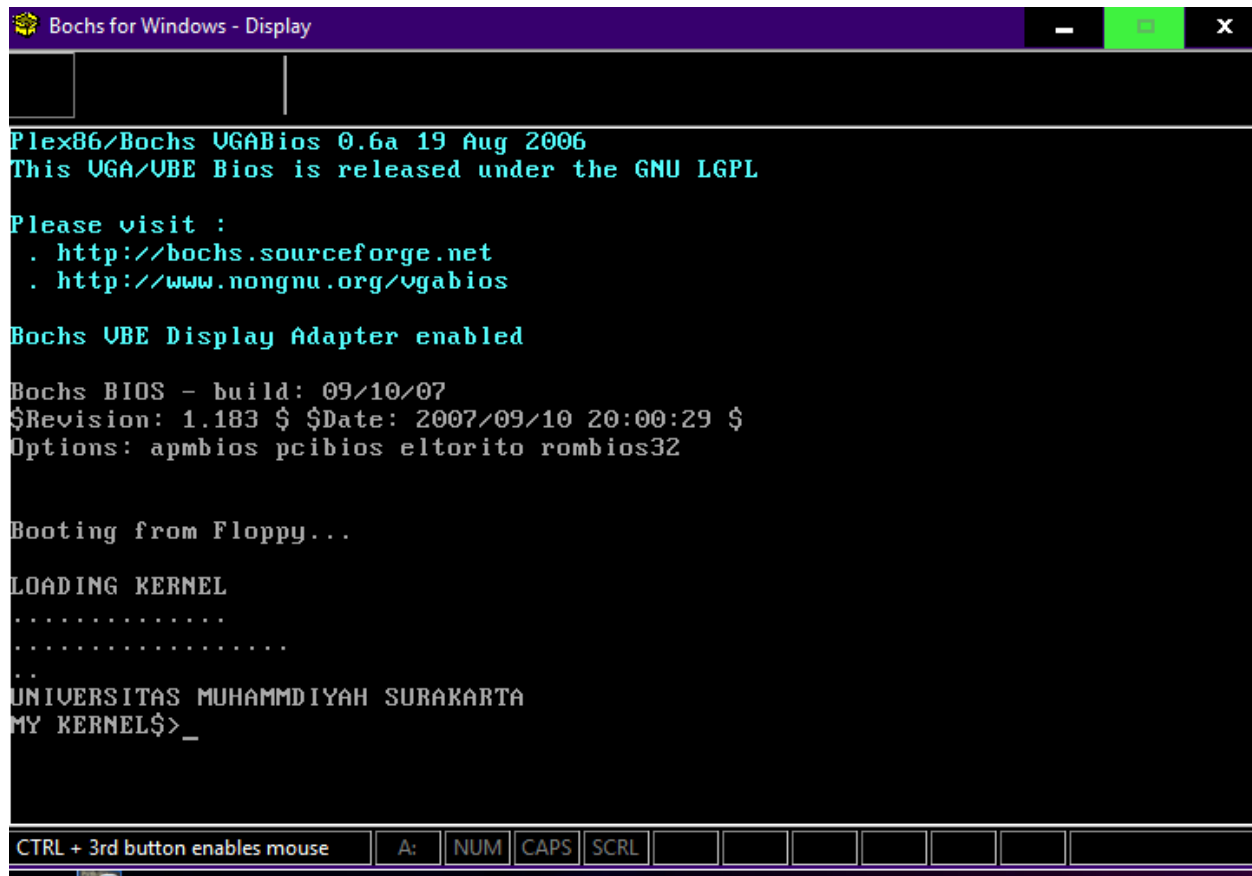
C:\OS\LAB\LAB2>make fp.disk
make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00
make: Warning: File `makefile' has modification time 1.2e+009 s in the future
make: boot.asm: Timestamp out of range; substituting 1970-01-01 07:00:00
nasm boot.asm -o boot.bin -f bin
dd if=boot.bin 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
make: warning: Clock skew detected. Your build may be incomplete.

C:\OS\LAB\LAB2>s

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

```
Bochs for Windows - Display
[GUI] PO
=====
C:\OS\LAB\
C:\OS\LAB\
make: Curr
make: Warn
make: boot
nasm boot.
dd if=boot
rawwrite d
Written by
This progr
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
1+0 record
1+0 record
make: warn
C:\OS\LAB\
C:\OS\LAB\
0000000000
=====
0000000000
0000000000
0000000000
=====
Flex86/Bochs VGABios 0.6a 19 Aug 2006
This VGA/VE Bios is released under the GNU LGPL
Please visit :
. http://bochs.sourceforge.net
. http://www.nongnu.org/vgabios
Bochs VBE Display Adapter enabled
Bochs BIOS - build: 09/10/07
$Revision: 1.183 $ $Date: 2007/09/10 20:00:29 $
Options: apmbios pcibios eltorito rombios32
Booting from Floppy...
LOADING KERNEL
LOADING KERNEL_
CTRL + 3rd button enables mouse  A: NUM CAPS SCRL
```

```
Command Prompt
C:\OS\LAB\LAB2>kernel.asm
C:\OS\LAB\LAB2>make kernel
make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00
make: Warning: File 'makefile' has modification time 1,2e+009 s in the future
nasm kernel.asm -o kernel.bin -f bin
make: warning: Clock skew detected. Your build may be incomplete.
C:\OS\LAB\LAB2>dir
Volume in drive C is Windows
Volume Serial Number is 2CAB-5537
Directory of C:\OS\LAB\LAB2
17/10/2019 01:03 <DIR> .
17/10/2019 01:03 <DIR> ..
01/01/2249 03:07 10.154 bochs.log
15/12/2008 16:18 1.625 bochsrc.bxrc
01/01/2249 03:04 15.897 boot.asm
01/01/2249 03:05 512 boot.bin
15/12/2008 13:52 78 dosfp.bat
01/01/2249 03:05 1.474.560 floppy.a.img
17/10/2019 01:05 7.971 kernel.asm
01/01/2249 03:14 616 kernel.bin
15/12/2008 16:21 228 Makefile
15/12/2008 12:20 44 s.bat
10 File(s) 1.511.685 bytes
2 Dir(s) 142.652.116.992 bytes free
C:\OS\LAB\LAB2>
```





Command Prompt

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc

0000000000i[APIC?] local apic in initializing

```
=====
                        Bochs x86 Emulator 2.3.5
                        Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!
```

Bochs is exiting with the following message:

[WGUI ] POWER button turned off.

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

C:\OS\LAB\LAB2>make fp.disk

make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00

make: Warning: File 'makefile' has modification time 1,2e+009 s in the future

make: boot.asm: Timestamp out of range; substituting 1970-01-01 07:00:00

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

make: warning: Clock skew detected. Your build may be incomplete.

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc

0000000000i[APIC?] local apic in initializing

```
=====
                        Bochs x86 Emulator 2.3.5
                        Build from CVS snapshot, on September 16, 2007
=====
0000000000i[      ] reading configuration from bochsrc.bxrc
0000000000i[      ] installing win32 module as the Bochs GUI
0000000000i[      ] using log file bochs.log
```

C:\ Command Prompt

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc

00000000000i[APIC?] local apic in initializing

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

00000000000i[ ] reading configuration from bochsrc.bxrc  
00000000000i[ ] installing win32 module as the Bochs GUI  
00000000000i[ ] using log file 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

make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00  
make: Warning: File `makefile' has modification time 1,2e+009 s in the future  
nasm kernel.asm -o kernel.bin -f bin  
make: warning: Clock skew detected. Your build may be incomplete.

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

C:\OS\LAB\LAB2>make kernel

make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00  
make: Warning: File `makefile' has modification time 1,2e+009 s in the future  
nasm kernel.asm -o kernel.bin -f bin  
make: warning: Clock skew detected. Your build may be incomplete.

C:\OS\LAB\LAB2>dir

Volume in drive C is Windows  
Volume Serial Number is 2CAB-5537

Directory of C:\OS\LAB\LAB2

17/10/2019	01:03	<DIR>	.
17/10/2019	01:03	<DIR>	..
01/01/2249	03:07	10.154	bochs.log
15/12/2008	16:18	1.625	bochsrc.bxrc
01/01/2249	03:04	15.897	boot.asm
01/01/2249	03:05	512	boot.bin
15/12/2008	13:52	78	dosfp.bat

Command Prompt

C:\OS\LAB\LAB2>s

C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc  
00000000000i[APIC?] local apic in initializing

```
=====
                        Bochs x86 Emulator 2.3.5
                Build from CVS snapshot, on September 16, 2007
=====
00000000000i[      ] reading configuration from bochsrc.bxrc
00000000000i[      ] installing win32 module as the Bochs GUI
00000000000i[      ] using log file 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

C:\OS\LAB\LAB2>make kernel  
make: Current time: Timestamp out of range; substituting 1970-01-01 07:00:00  
make: Warning: File `makefile' has modification time 1,2e+009 s in the future  
make: kernel.asm: Timestamp out of range; substituting 1970-01-01 07:00:00  
nasm kernel.asm -o kernel.bin -f bin  
make: warning: Clock skew detected. Your build may be incomplete.

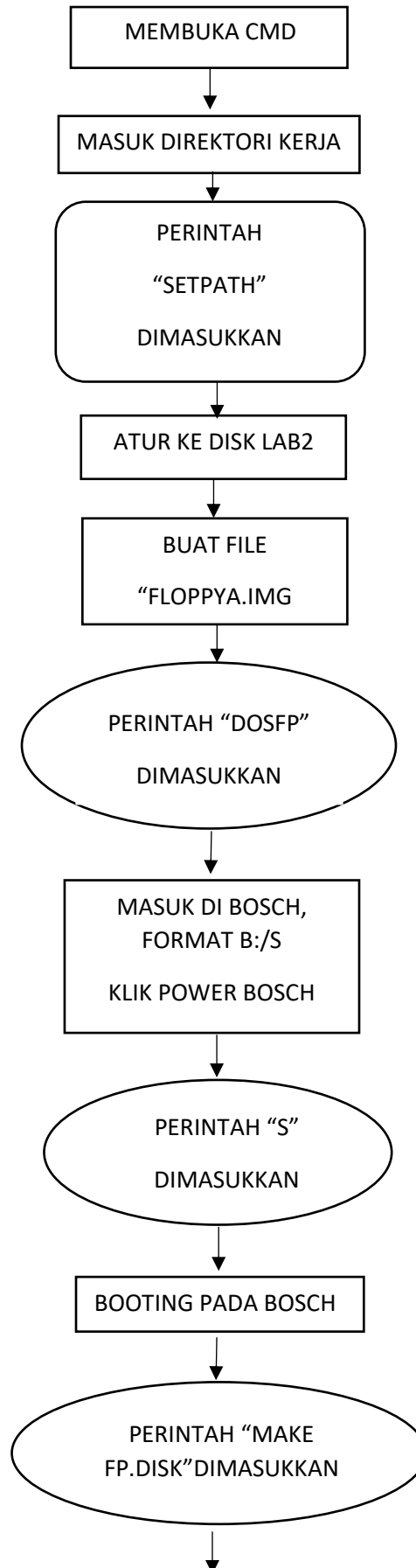
C:\OS\LAB\LAB2>s

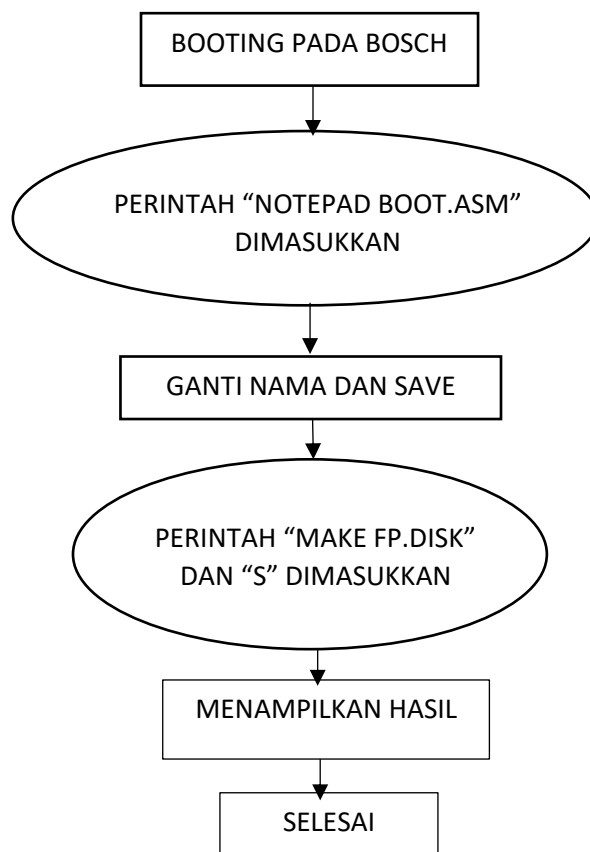
C:\OS\LAB\LAB2>..\..\bochs-2.3.5\bochs -q -f bochsrc.bxrc  
00000000000i[APIC?] local apic in initializing

```
=====
                        Bochs x86 Emulator 2.3.5
                Build from CVS snapshot, on September 16, 2007
=====
00000000000i[      ] reading configuration from bochsrc.bxrc
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00000000000i[      ] using log file bochs.log
# In bx_win32_gui_c::exit(void)!
=====
Bochs is exiting with the following message:
[WGUI ] POWER button turned off.
=====
```

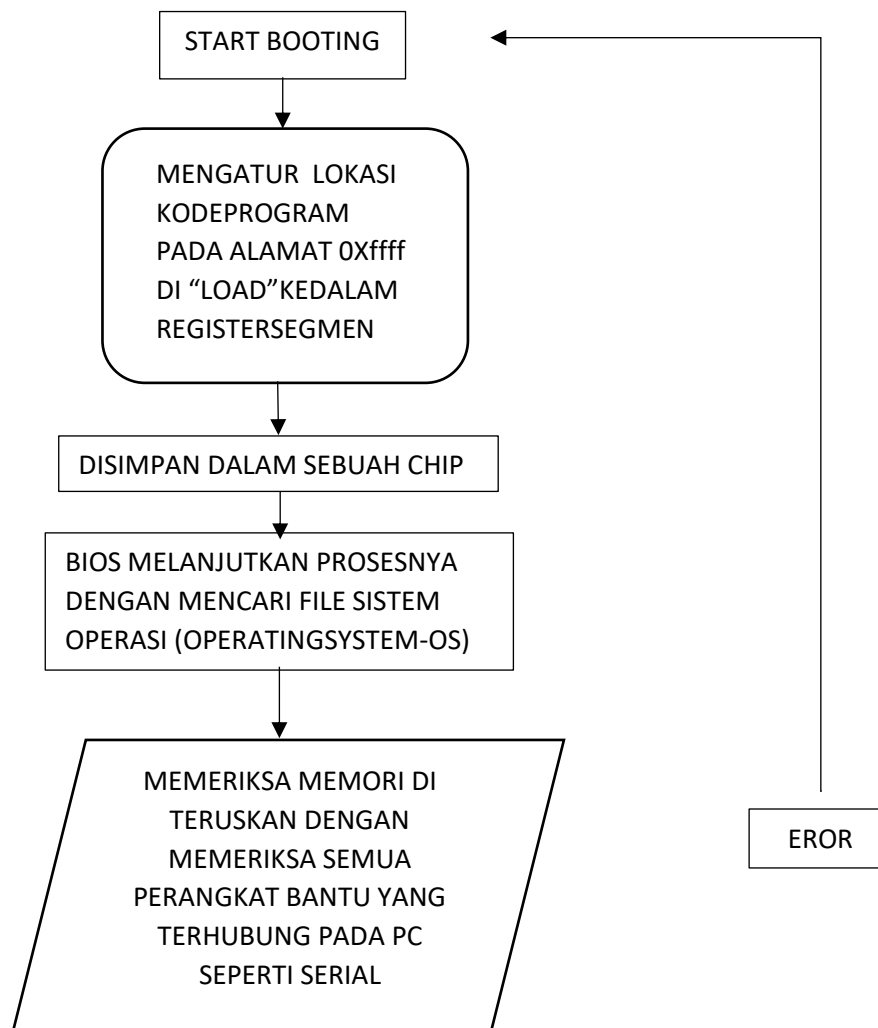
## Tugas

Flowchart Boot.asm detail

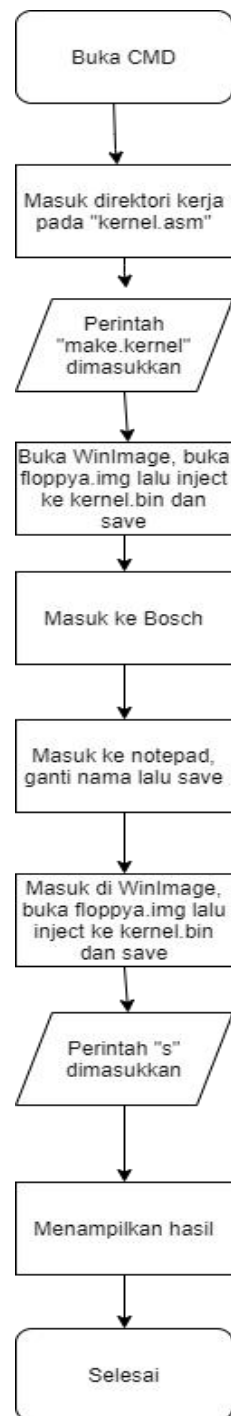




Flowchart boot.asm global



## Flowchart kernel.asm global



## Flowchart kernel.asm detail

