

**PRAKTIKUM SISTEM OPERASI
MODUL 2
MENGENAL PROSES PEMBUATAN DISK BOOT**

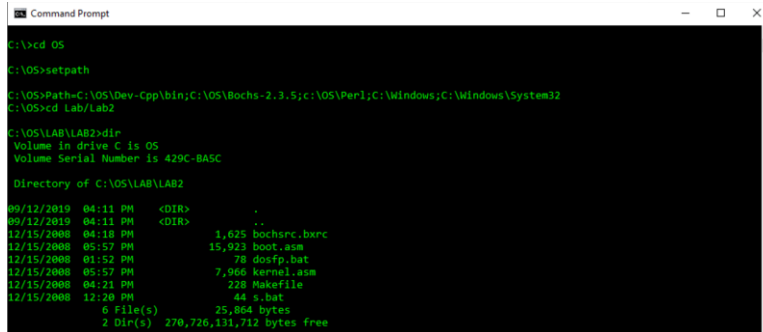


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FAKULTAS KOMUNIKASI DAN INFORMATIKA
UNIVERSITAS MUHAMMADIYAH SURAKARTA
2021**

Langkah Kerja

1. Buka 'Command Prompt', atur 'path' dan pergi ke direktori kerja.

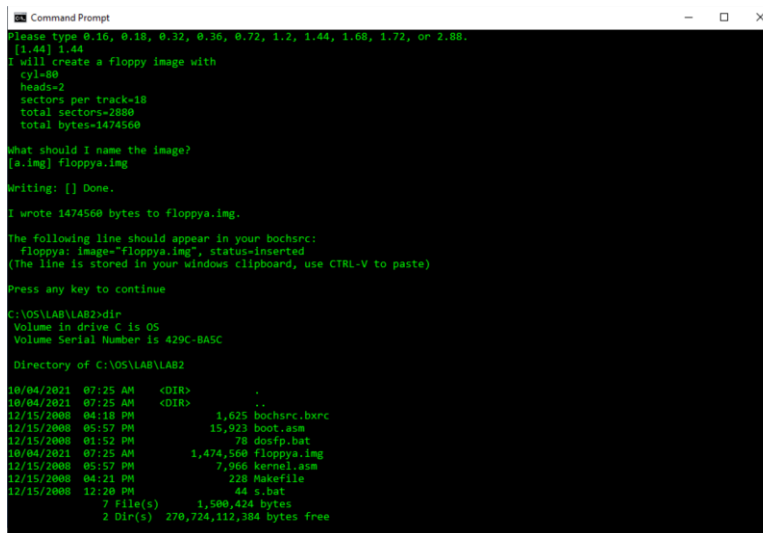


```
Command Prompt
C:\>cd OS
C:\OS>setpath
C:\OS>path=C:\OS\Dev-Cpp\bin;C:\OS\Bochs-2.3.5;c:\OS\Perl;c:\Windows;c:\Windows\System32
C:\OS>cd Lab/Lab2
C:\OS\LAB\LAB2>dir
Volume in drive C is OS
Volume Serial Number is 429C-BASC

Directory of C:\OS\LAB\LAB2

09/12/2019  04:11 PM  <DIR>          .
09/12/2019  04:11 PM  <DIR>          ..
12/15/2008  04:18 PM             1,625 bochsrc.bsrc
12/15/2008  05:57 PM             15,923 boot.asm
12/15/2008  01:52 PM              78 dosfp.bat
12/15/2008  05:57 PM             7,968 kernel.asm
12/15/2008  04:21 PM              228 Makefile
12/15/2008  12:20 PM              44 s.bat
               6 File(s)      25,864 bytes
               2 Dir(s)  270,726,131,712 bytes free
```

2. Menyiapkan file 'floppya.img' dan jalankan bximage



```
Command Prompt
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
You 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)

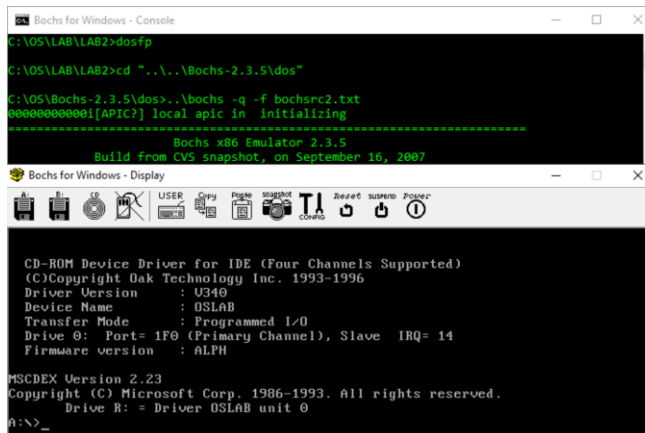
Press any key to continue

C:\OS\LAB\LAB2>dir
Volume in drive C is OS
Volume Serial Number is 429C-BASC

Directory of C:\OS\LAB\LAB2

10/04/2021  07:25 AM  <DIR>          .
10/04/2021  07:25 AM  <DIR>          ..
12/15/2008  04:18 PM             1,625 bochsrc.bsrc
12/15/2008  05:57 PM             15,923 boot.asm
12/15/2008  01:52 PM              78 dosfp.bat
10/04/2021  07:25 AM      1,474,560 floppya.img
12/15/2008  05:57 PM             7,968 kernel.asm
12/15/2008  04:21 PM              228 Makefile
12/15/2008  12:20 PM              44 s.bat
               7 File(s)     1,500,424 bytes
               2 Dir(s)  270,724,112,384 bytes free
```

3. Mem-format 'floppya.img' dan mengisinya dengan sistim operasi DOS versi 7.

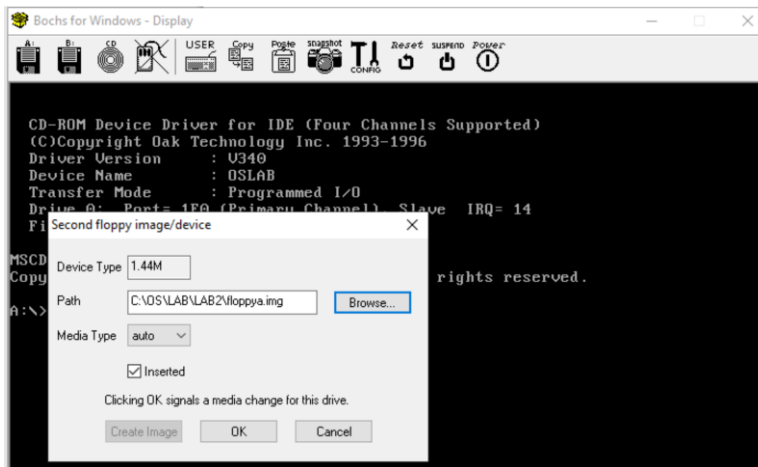


```
Bochs for Windows - Console
C:\OS\LAB\LAB2>dosfp
C:\OS\LAB\LAB2>cd "..\..\Bochs-2.3.5\dos"
C:\OS\Bochs-2.3.5\dos>.\bochs -q -f bochsrc2.txt
*****
000000000000[APIC?] local apic in initializing
*****
Bochs x86 Emulator 2.3.5
Build from CVS snapshot, on September 16, 2007

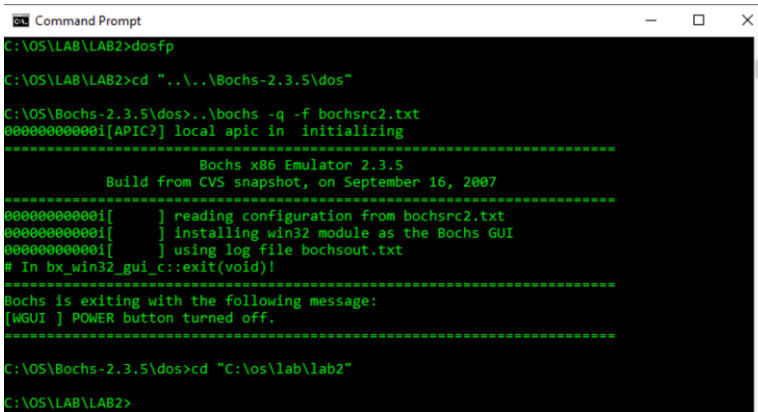
Bochs for Windows - Display
CD-ROM Device Driver for IDE (Four Channels Supported)
(C)Copyright Oak Technology Inc. 1993-1996
Driver Version : V340
Device Name : OSLAB
Transfer Mode : Programmed I/O
Drive 0: Port= 1F0 (Primary Channel), Slave IRQ= 14
Firmware version : ALPH

MSCDEx Version 2.23
Copyright (C) Microsoft Corp. 1986-1993. All rights reserved.
Drive R: = Driver OSLAB unit 0
A:\>_
```

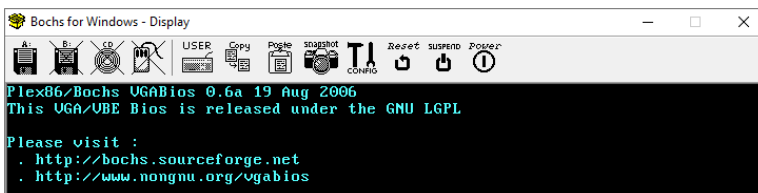
4. Selanjutnya atur lokasi file image sehingga menunjuk ke file 'floppya.img' yang terdapat pada direktori kerja 'LAB2'.



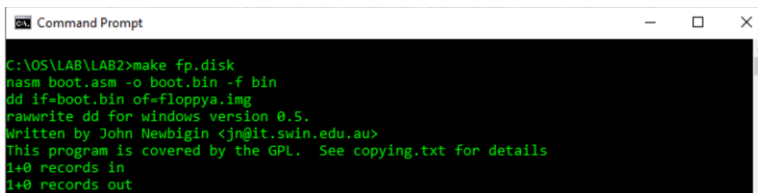
5. Dari prompt 'A:>' ketikkan perintah 'A:>Format B: /S' selesaikan prosesnya.



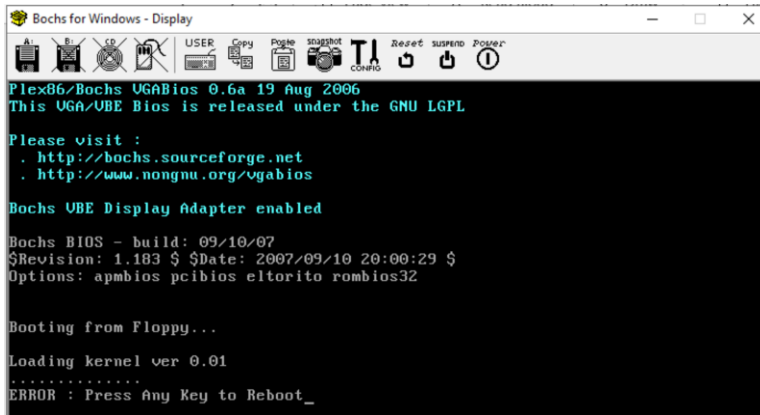
6. BOOT PC-simulator dengan file 'floppya.img'



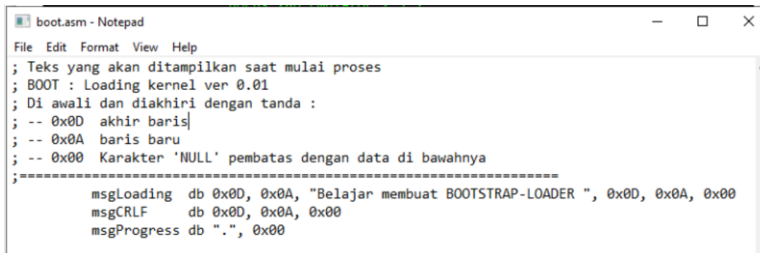
7. Kompilasi source code 'boot.asm' dan memindah hasilnya ke bootsector 'floppya.img'.



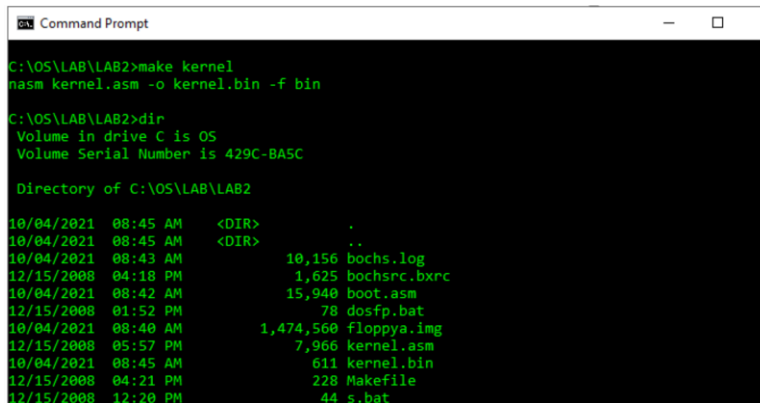
8. Boot PC Simulator dengan program bootstaploader yang baru.



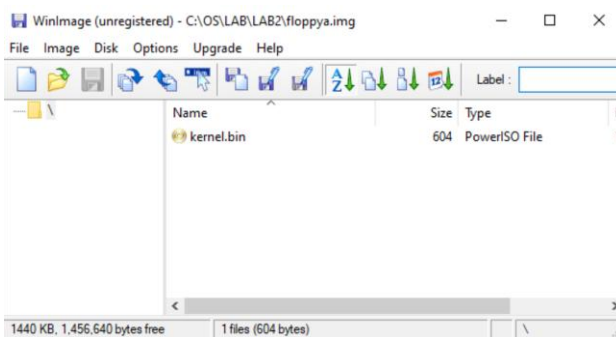
9. Menyunting file 'boot.asm



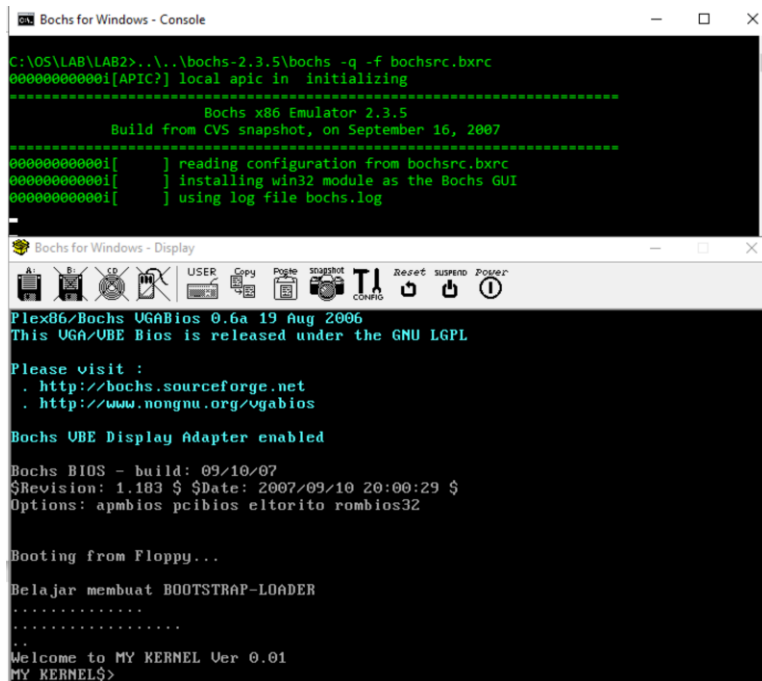
10. Menyiapkan file 'KERNEL.BIN'



11. Memindahkan file 'kernel.bin' ke dalam file image 'floppya.img'.



12. Melakukan proses boot menggunakan 'floppya.img' yang sudah diberi tambahan file 'kernel.bin'.



```
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

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/vgabios

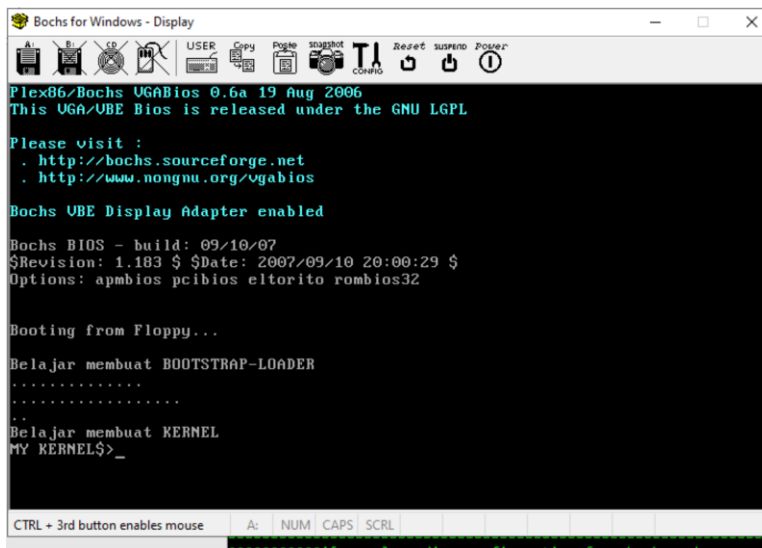
Bochs UBE Display Adapter enabled

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

Booting from Floppy...

Belajar membuat BOOTSTRAP-LOADER
.....
..
Welcome to MY KERNEL Ver 0.01
MY KERNEL$>_
```

13. Memodifikasi file 'kernel.asm'.



```
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/vgabios

Bochs UBE Display Adapter enabled

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

Booting from Floppy...

Belajar membuat BOOTSTRAP-LOADER
.....
..
Belajar membuat KERNEL
MY KERNEL$>_

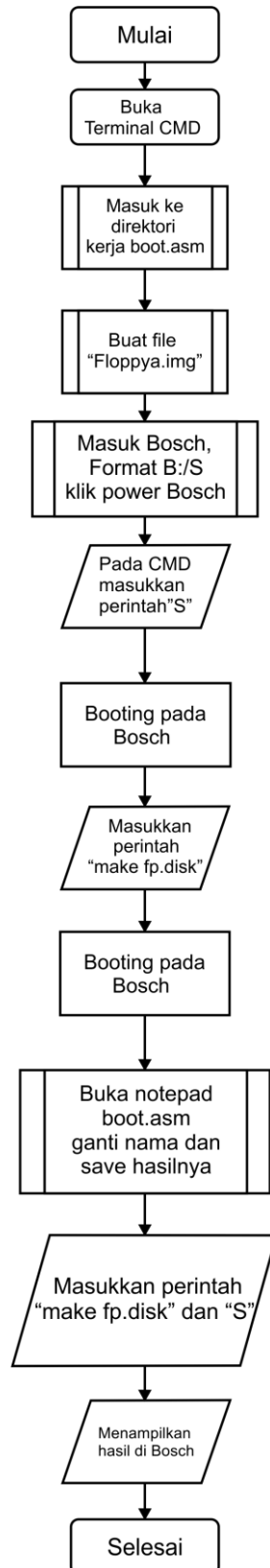
CTRL + 3rd button enables mouse
=====
000000000001[      ] reading configuration from bochsrc.bxrc
```

Tugas

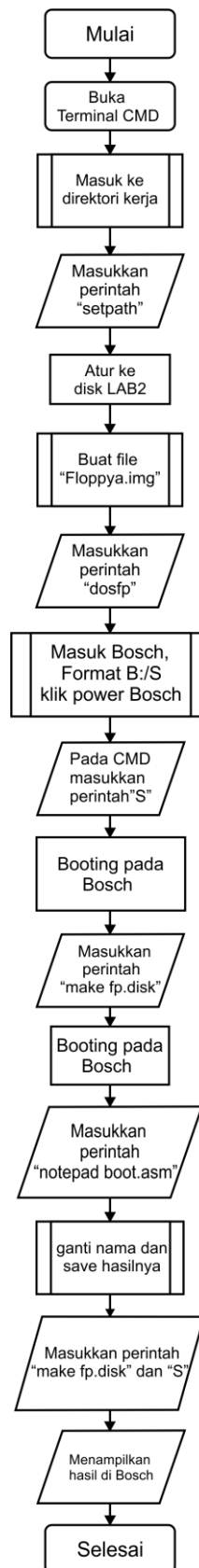
1. Pelajari cara kerja program 'boot.asm' buatlah algoritma dari program tersebut dalam bentuk flowchart. Untuk memudahkan dalam memahami proses boot buatlah dua jenis algoritma, pertama buat algoritma yang bersifat global dan kedua buat algoritma yang bersifat lebih detail.
2. Lakukan hal yang sama untuk program 'kernel.asm'

1. Flowchart Boot.asm

A. Flowchart Boot.asm Global

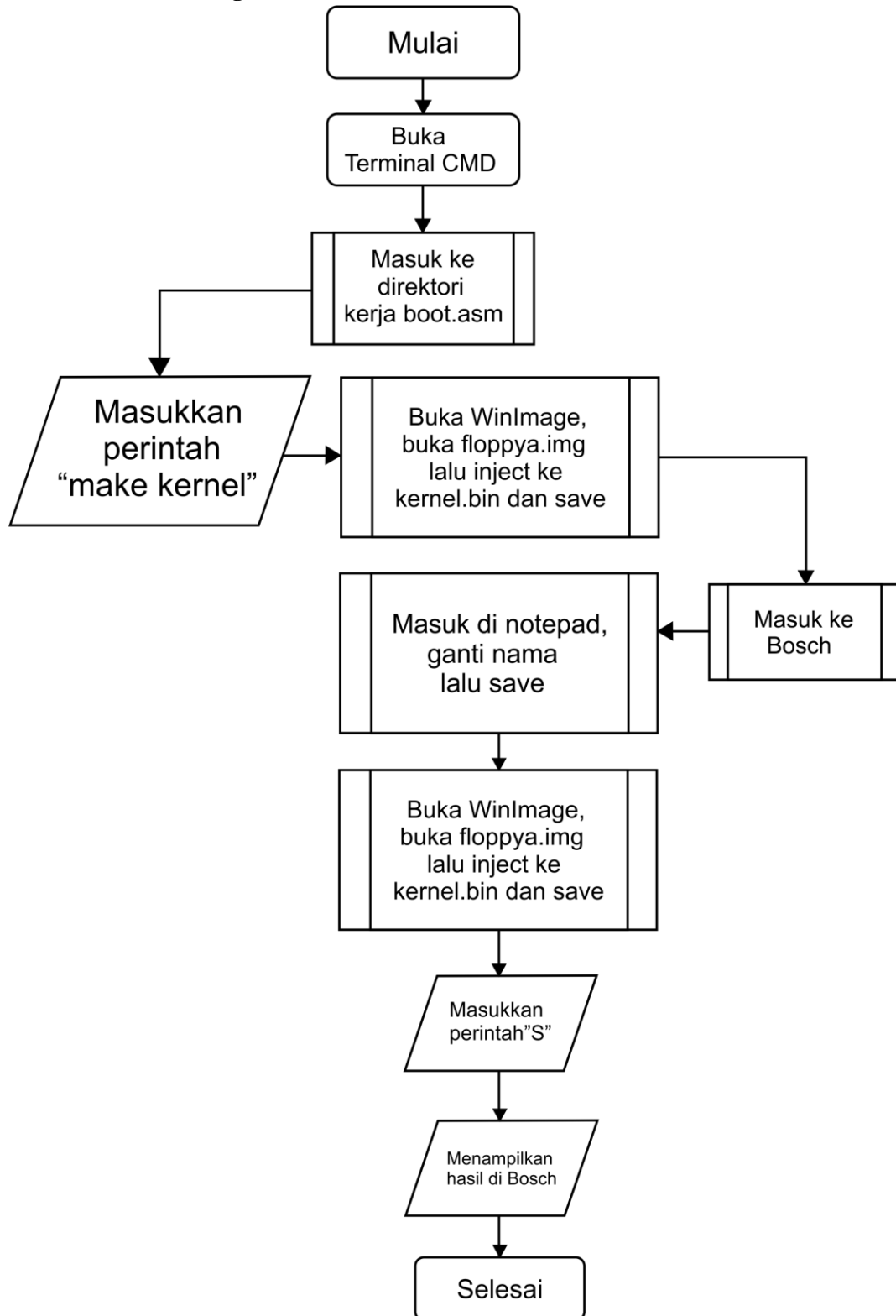


B. Flowchart Boot.asm detail



2. Flowchart Kernel.asm

A. Flowchart Kernel.asm global



B. Flowchart Kernel.asm global

