

19BCE1327 KARTIKEY GAUTAM

CSE2005 OS LAB

BOOTLOADER EXP2

## 1.bootloader with black screen output

Create asm file and then compile

Step 7 : Open a file

**Vi <filename.asm>**

```
Processing triggers for man-db (2.10.1-1) ...
kartikey@kartikey-VirtualBox:~$ vi b1.asm
kartikey@kartikey-VirtualBox:~$ nasm b1.asm -f bin -o boot.bin
kartikey@kartikey-VirtualBox:~$ dd if=boot.bin bs=512 of=floppy1.img
1+0 records in
1+0 records out
512 bytes copied, 8.1172e-05 s, 6.3 MB/s
kartikey@kartikey-VirtualBox:~$
```

Step 8 : Type the Program for Boot

**[BITS 16];** tell the assembler that its a 16 bit code

**[ORG 0x7C00];** Origin, tell the assembler that where the Code

Will be in memory after it is been loaded

**JMP \$;** infinite loop

**TIMES 510 - (\$ - \$\$) db 0;** fill the rest of sector with 0

**DW 0xAA55;** add boot signature at the end

Step 9 : Press Escape, Colon and type wq, then press Enter (Compilation)

Step 10: Compile the assembler file;;;

**nasm <b1.asm> -f bin -o boot.bin**

Step 11: Create the Floppy image by executing the below syntax

**dd if =boot.bin bs=512 of=floppy1.img**

Step 12: Send the Floppy image to mail

```
kartikey@kartikkey-VirtualBox: ~  
[BITS 16];  
[ORG 0x7C00];  
  
JMP $;  
TIMES 510 - ($ - $$) db 0;  
DW 0xAA55;  
~  
~  
~  
~  
~  
~
```

Send the Floppy image to mail

Step 13: Power off the machine

Step 14: Download the Floppy image in host environment

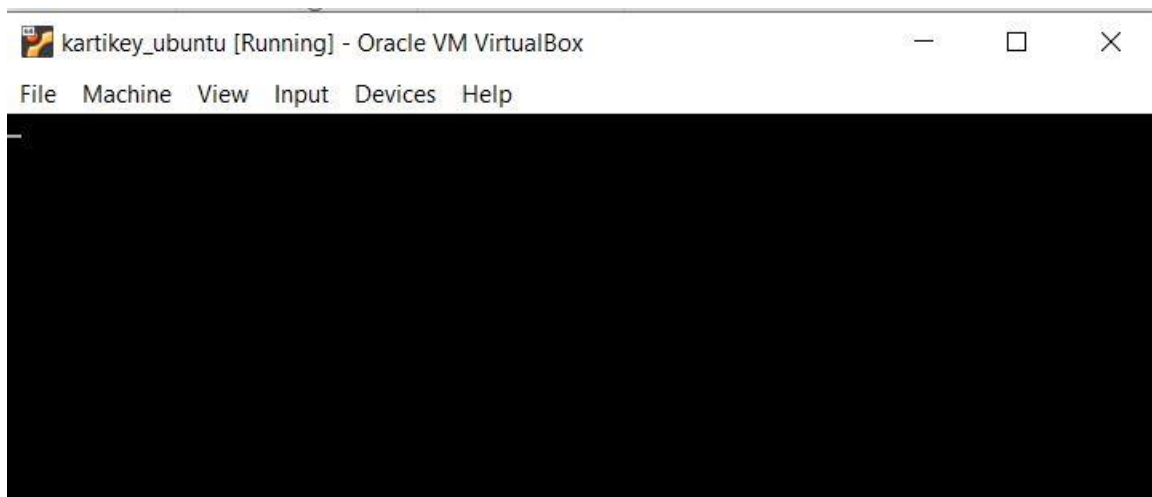
Step 15: Open Virtual box again and select storage

Step 16: Delete the files in the storage (Delete button is available at the bottom)

Step 17: After deleting, add (+symbol), search floppy image, choose and press OK

Step 18: Black screen with cursor (Output)

**OUTPUT -**



## 2. BOOTLOADER SCREEN WITH CHARACTER 'A'

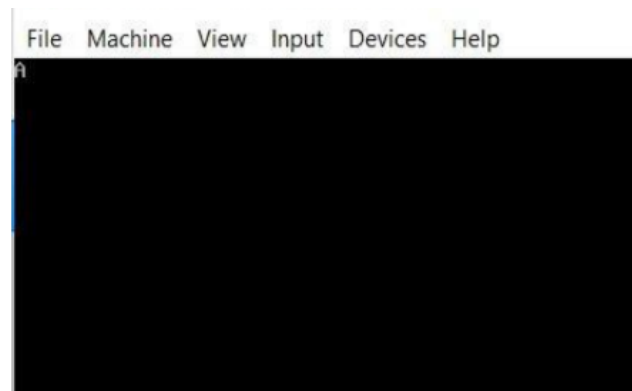
```
kartikey@kartikkey-VirtualBox:~$ vi b2.asm  
kartikkey@kartikkey-VirtualBox:~$ nasm b2.asm -f bin -o boot.bin  
kartikkey@kartikkey-VirtualBox:~$ dd if=boot.bin bs=512 of=floppy2.img  
1+0 records in  
1+0 records out  
512 bytes copied, 0.000102737 s, 5.0 MB/s  
kartikkey@kartikkey-VirtualBox:~$
```

## b2.asm

```
kartikey@kartikkey-VirtualBox: ~  
[BITS 16];  
[ORG 0x7C00]  
MOV AL,65;  
  
CALL printcharacter;  
JMP $;  
printcharacter::  
MOV AH , 0x0E;  
MOV BH , 0x00;  
MOV BL , 0x07;  
INT 0x10;  
RET;  
TIMES 510 - ($-$$)db 0;  
DW 0xAA55;  
  
~  
~
```

kartikkey Desktop				
Name	Size	Type	Modified	
Desktop			01:18	
Documents			01:18	
Downloads			01:18	
Music			01:18	
Pictures			01:18	
Public			01:18	
Templates			01:18	
Videos			01:18	
b1.asm	72 bytes	Text	01:28	
b2.asm	178 bytes	Text	01:35	
boot.bin	512 bytes	unknown	01:36	
bootl1.asm	47 bytes	Text	01:22	
bootld1.asm	550 bytes	Text	01:24	
bootload1.asm	796 bytes	Text	01:25	
floppy1.img	512 bytes	Raw disk image	01:29	
floppy2.img	512 bytes	Raw disk image	01:36	

## OUTPUT -



### 3. Print Hello, World! In output screen.

```
kartikey@kartikey-VirtualBox:~$ vi b3.asm
kartikey@kartikey-VirtualBox:~$ nasm b3.asm -f bin -o boot.bin
kartikey@kartikey-VirtualBox:~$ dd if=boot.bin bs=512 of=floppy3.img
1+0 records in
1+0 records out
512 bytes copied, 8.5721e-05 s, 6.0 MB/s
kartikey@kartikey-VirtualBox:~$
```

```
kartikey@kartikey-VirtualBox: ~
[BITS 16]
[ORG 0x7C00];
MOV SI, HelloString;
CALL Printstring;
JMP $;
Printcharacter::
MOV AH, 0x0E;
MOV BH, 0x00;
MOV BL, 0x07;
INT 0x10;
RET;
Printstring::
next_character::
MOV AL, [SI];
INC SI;
OR AL, AL;
JZ exit_function;
CALL Printcharacter;
JMP next_character;
exit_function::
RET;
HelloString: db "Hello ,World!",0;
TIMES 510 - ($ - $$) db 0;
DW 0xAA55;
```

kartikey\_ubuntu [Running] - Oracle VM VirtualBox

File Machine View Input Devices Help

Hello ,World!