BOOT LOADER

Operating Systems Lab(BCSE303P)
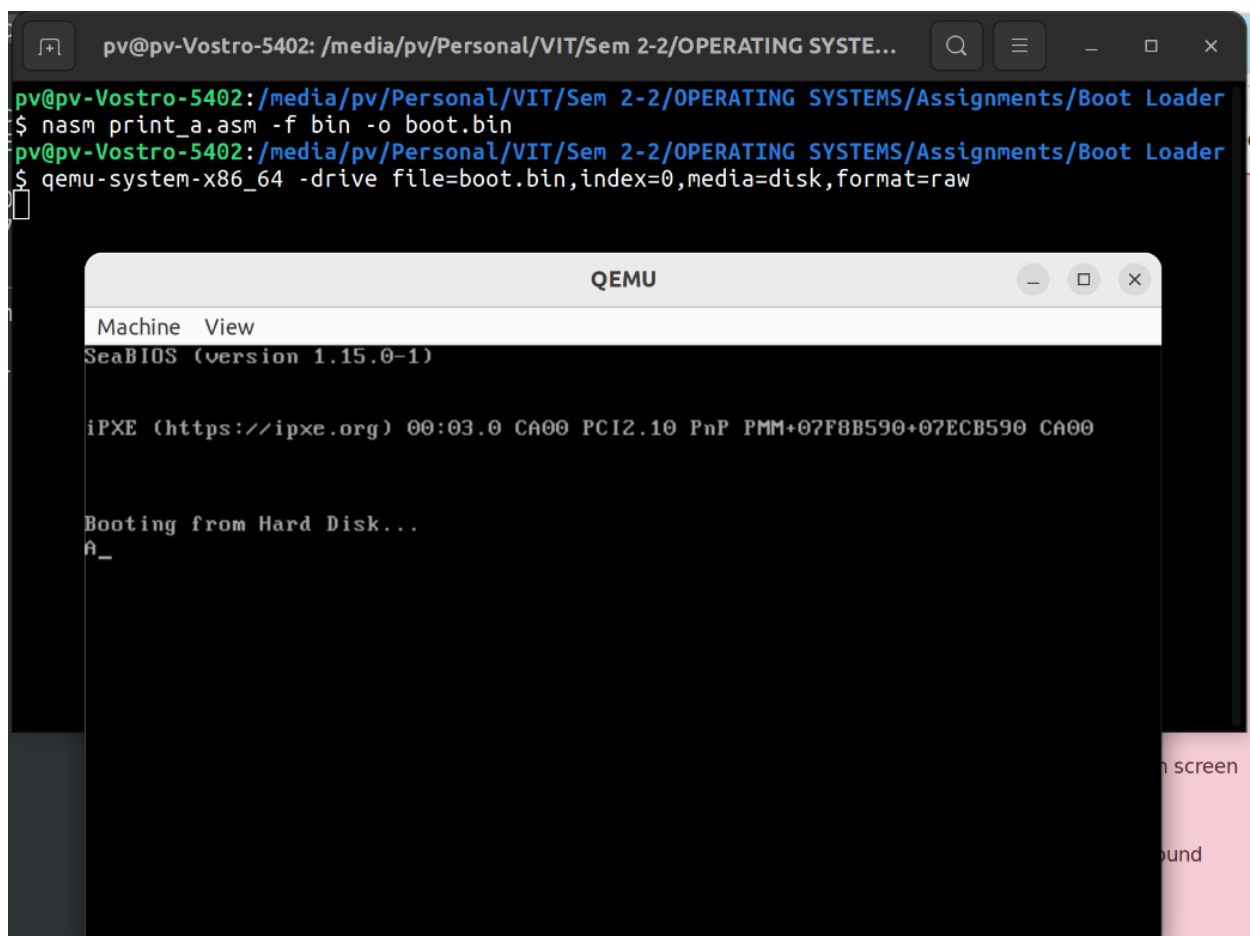
Name: *Chillara V L N S Pavana Vamsi*
Register Number: *21BCE5095*

1. Write a boot loader program that prints A using Print Character procedure

```
[BITS 16]
[ORG 0x7C00]
MOV AL,65
CALL Printcharacter
MOV AL,77
CALL Printcharacter
MOV AL,83
CALL Printcharacter
MOV AL,73
CALL Printcharacter
JMP $
Printcharacter: ;Procedure to print character on screen
MOV AH,0x0E    ;Tell the BIOS that we need to print one character on screen
MOV BH,0x00    ;page no
MOV BL,0x07    ;tell attribute 0x07 is lightgrey font on black background
INT 0x10  ;call vedio interrupt
RET                 ;return to calling procedure
TIMES 510 -($ -$$) db 0
DW 0xAA55
```

2. Write a boot loader program that prints A directly   by performing lodsb and or operations

```
bits 16

org 0x7c00

boot:

mov si,hello

mov ah,0x0e

.loop:

lodsb

or al,al

jz halt

int 0x10

jmp .loop

halt:

cli

hlt

hello: db "A",0

times 510 -($ -$$) db 0

dw 0xaa55
```
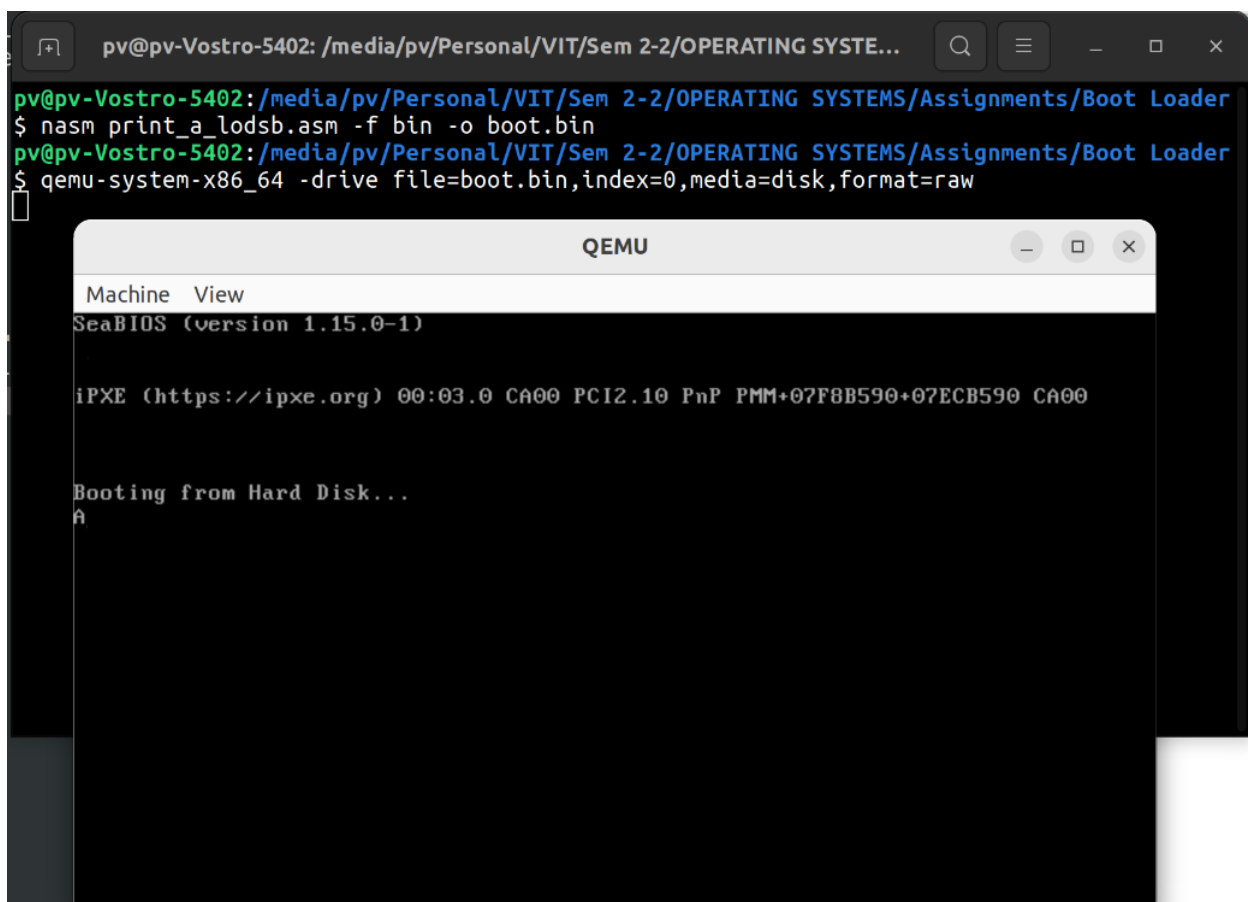
3. Write a boot loader program that prints your name

```
bits 16
org 0x7c00
boot:
mov si,hello
mov ah,0x0e
.loop:
lodsb
or al,al
jz halt
int 0x10
jmp .loop
halt:
cli
hlt
hello: db "21BCE5095 Chillara V L N S Pavana Vamsi",0
times 510 -($ -$$) db 0
dw 0xaa55
```
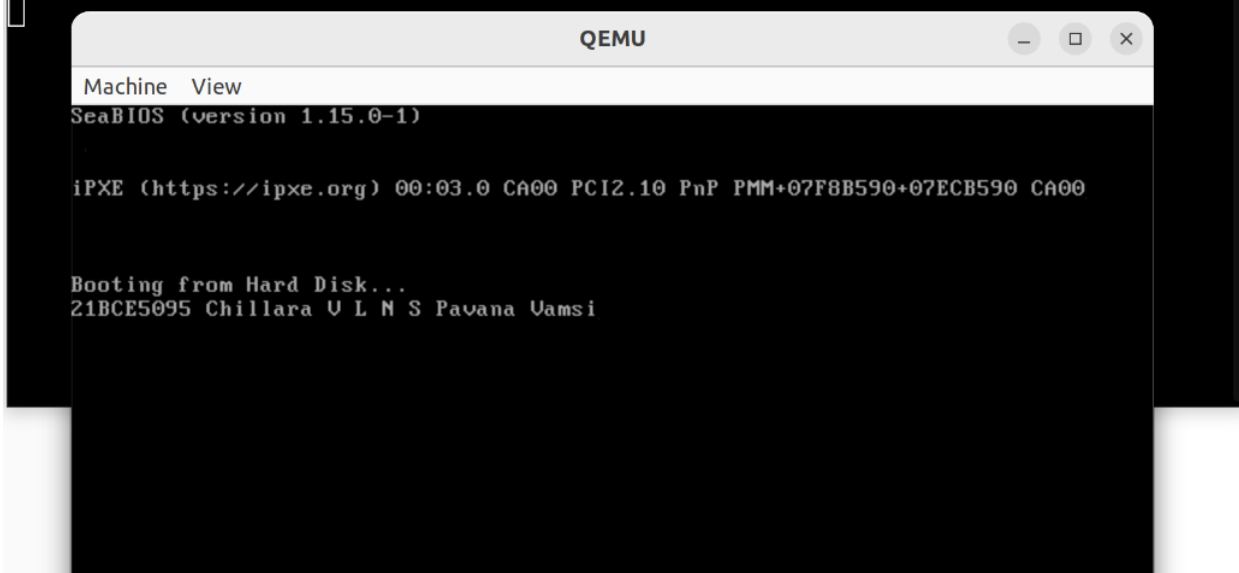
```
pv@pv-Vostro-5402:/media/pv/Personal/VIT/Sem 2-2/OPERATING SYSTEMS/Assignments/Boot Loader
$ nasm name.asm -f bin -o boot.bin
pv@pv-Vostro-5402:/media/pv/Personal/VIT/Sem 2-2/OPERATING SYSTEMS/Assignments/Boot Loader
$ qemu-system-x86_64 -drive file=boot.bin,index=0,media=disk,format=raw
```

```
                              QEMU                    _  □  ×
  Machine  View
SeaBIOS (version 1.15.0-1)


iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+07F8B590+07ECB590 CA00



Booting from Hard Disk...
21BCE5095 Chillara V L N S Pavana Vamsi
```

4. write a boot loader program to print your registration number using print character procedure as well as lodsb and or operations. (21bce with print character and your number 1001 with lodsb => so 21bce1001 is the final display)

```
[BITS 16]

[ORG 0x7C00]

MOV AL,50

CALL Printcharacter

MOV AL,49

CALL Printcharacter

MOV AL,66

CALL Printcharacter

MOV AL,67

CALL Printcharacter

MOV AL,69

CALL Printcharacter


boot:

mov si,hello

mov ah,0x0e

.loop:

lodsb

or al,al

jz halt

int 0x10

jmp .loop

halt:
```

cli

hlt

hello: db "5095",0

JMP $

Printcharacter: ;Procedure to print character on screen

MOV AH,0x0E   ;Tell the BIOS that we need to print one character on screen
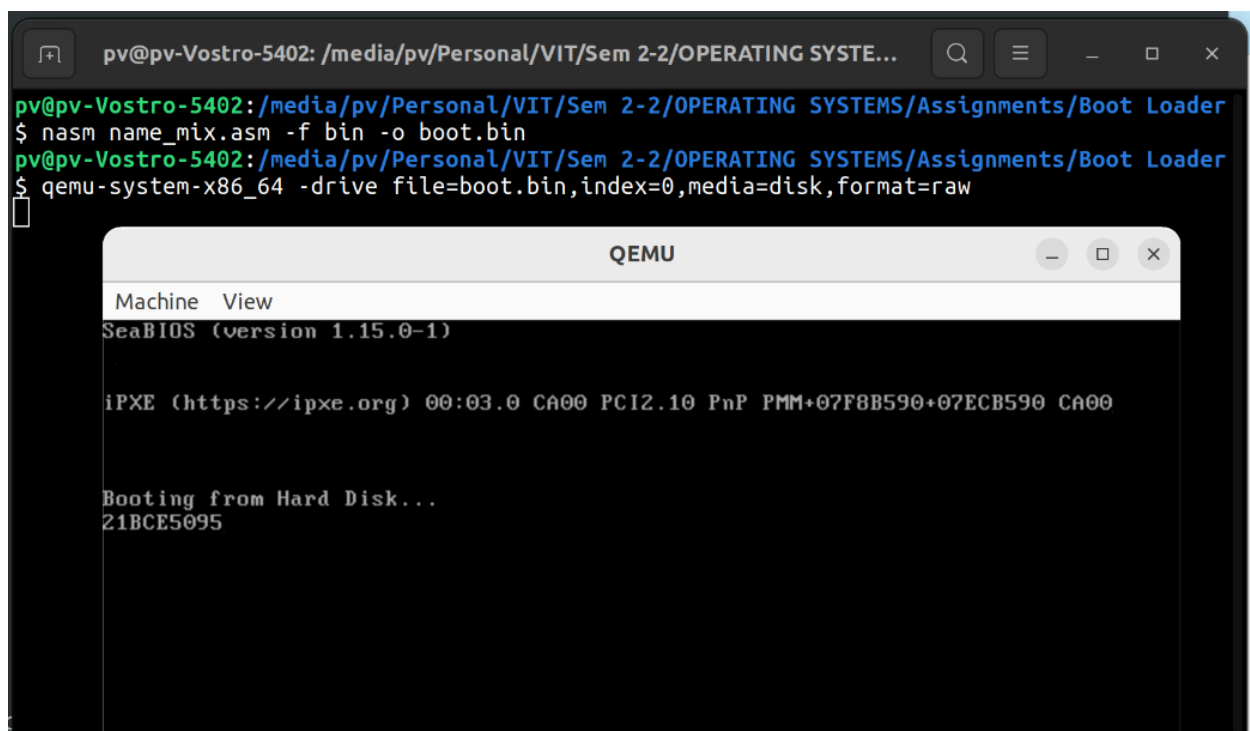
MOV BH,0x00   ;page no

MOV BL,0x07   ;tell attribute 0x07 is lightgrey font on black background

INT 0x10   ;call vedio interrupt

RET ;return to calling procedure

TIMES 510 -($ -$$) db 0

DW 0xAA55


```
pv@pv-Vostro-5402:/media/pv/Personal/VIT/Sem 2-2/OPERATING SYSTEMS/Assignments/Boot Loader
$ nasm name_mix.asm -f bin -o boot.bin
pv@pv-Vostro-5402:/media/pv/Personal/VIT/Sem 2-2/OPERATING SYSTEMS/Assignments/Boot Loader
$ qemu-system-x86_64 -drive file=boot.bin,index=0,media=disk,format=raw
```

```
SeaBIOS (version 1.15.0-1)

iPXE (https://ipxe.org) 00:03.0 CA00 PCI2.10 PnP PMM+07F8B590+07ECB590 CA00

Booting from Hard Disk...
21BCE5095
```

5. Write a boot loader program to print your name in red colour.

```
[bits 16]

[org 7c00h]

jmp main

main:

xor ax,ax ;ds=0

mov ds,ax

cld ;df=0 because our lodsb requires it

mov ax,0012h

int 10h

mov si,string

mov bl,5 ;red

call printstr

jmp $

printstr:

mov bh,0 ;display page

print:

lodsb

cmp al,0

je done

mov ah,0Eh ;BIOS teltype

int 10h

jmp print

done:
```
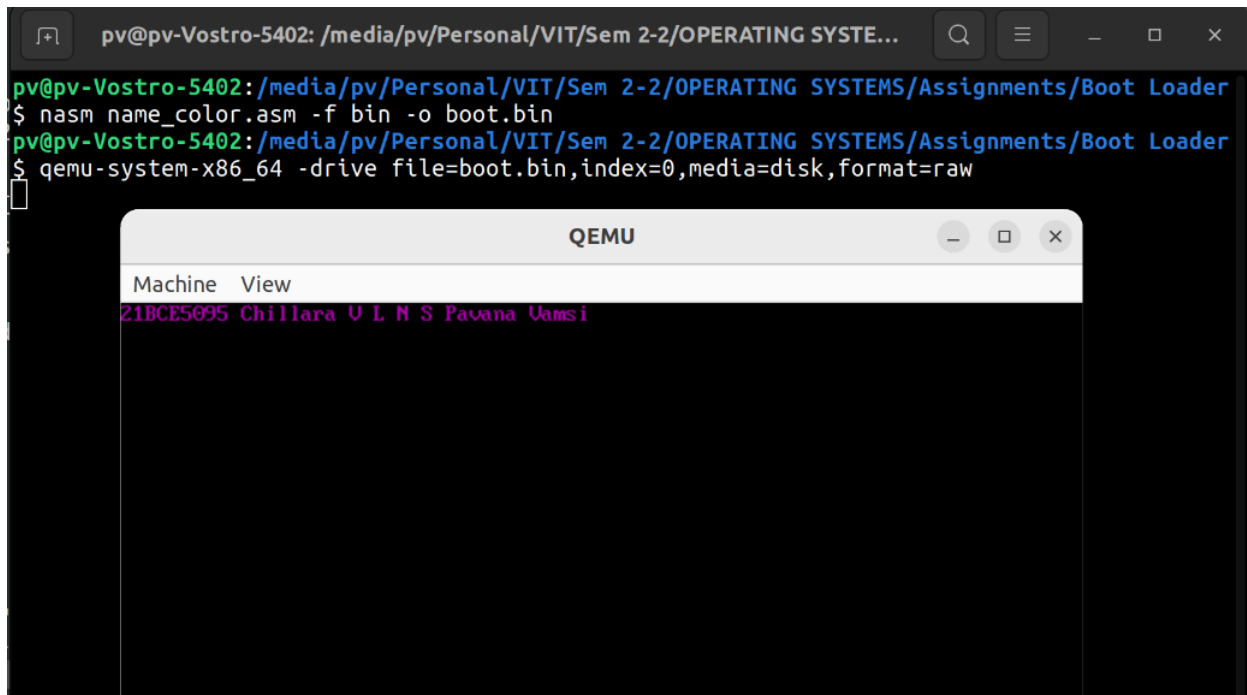
ret

string db "21BCE5095 Chillara V L N S Pavana Vamsi",13,10,0

times 510 -($ -$$) db 0
dw 0AA55h