COMPUTER ORGANISATION & ARCHITECHTURE – LABTASK-5

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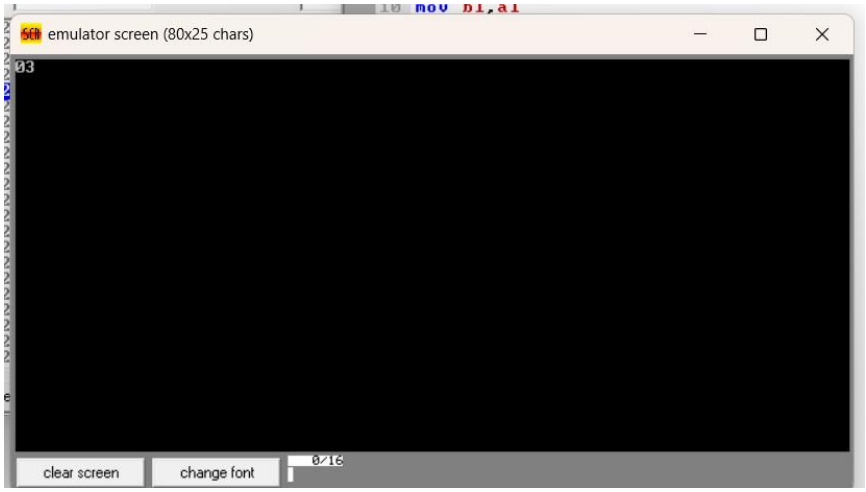
1. Write a program in assembly language to perform Division of 8-bit data.

```
org 100h        ; Set starting address

mov al, 09h     ; Load AL with 05h (dividend)
mov bl, 03h     ; Load BL with 02h (divisor)
div bl          ; Divide AL by BL, result in AL (quotient), remainder in AH

mov bl, al      ; Move quotient (AL) to BL for later use
mov ah, al      ; Move AL to AH

; Convert upper nibble of quotient to ASCII
and ah, 0F0h    ; Mask lower nibble, keep upper
shr ah, 4; Shift upper nibble to lower position
add ah, 30h     ; Convert to ASCII '0'-'9'
cmp ah, 39h     ; Compare with '9'
jle print_first_digit ; If less or equal to '9', skip next step
add ah, 7       ; Convert to ASCII 'A'-'F'

print_first_digit:
mov dl, ah      ; Move first digit to DL
mov ah, 02h     ; Prepare for output
int 21h         ; Print first digit

; Convert lower nibble of quotient to ASCII
mov ah, bl      ; Move quotient (BL) back to AH
and ah, 0Fh     ; Mask upper nibble, keep lower
add ah, 30h     ; Convert to ASCII '0'-'9'
cmp ah, 39h     ; Compare with '9'
jle print_sec_digit ; If less or equal to '9', skip next step
add ah, 7       ; Convert to ASCII 'A'-'F'

print_sec_digit:
mov dl, ah      ; Move second digit to DL
mov ah, 02h     ; Prepare for output
int 21h         ; Print second digit
```

```
mov ah, 4Ch      ; Prepare for program termination
int 21h          ; Terminate program
```



2. Write a program in assembly language to Division of 16-bit data.

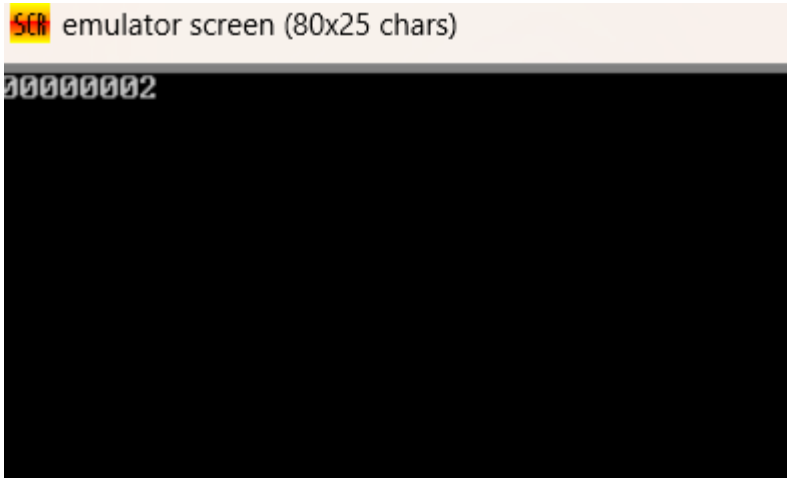
```
org 100h
mov ax,2468h
mov bx,1234h
div bx
 mov bx,ax
 mov cx,dx
 mov ah,ch
 and ah,0f0h
 shr ah,4
 add ah,30h
 cmp ah,39h
 jle print_high_nibble32
 add ah,7
 print_high_nibble32:
   mov dl,ah
   mov ah,02h
   int 21h
```

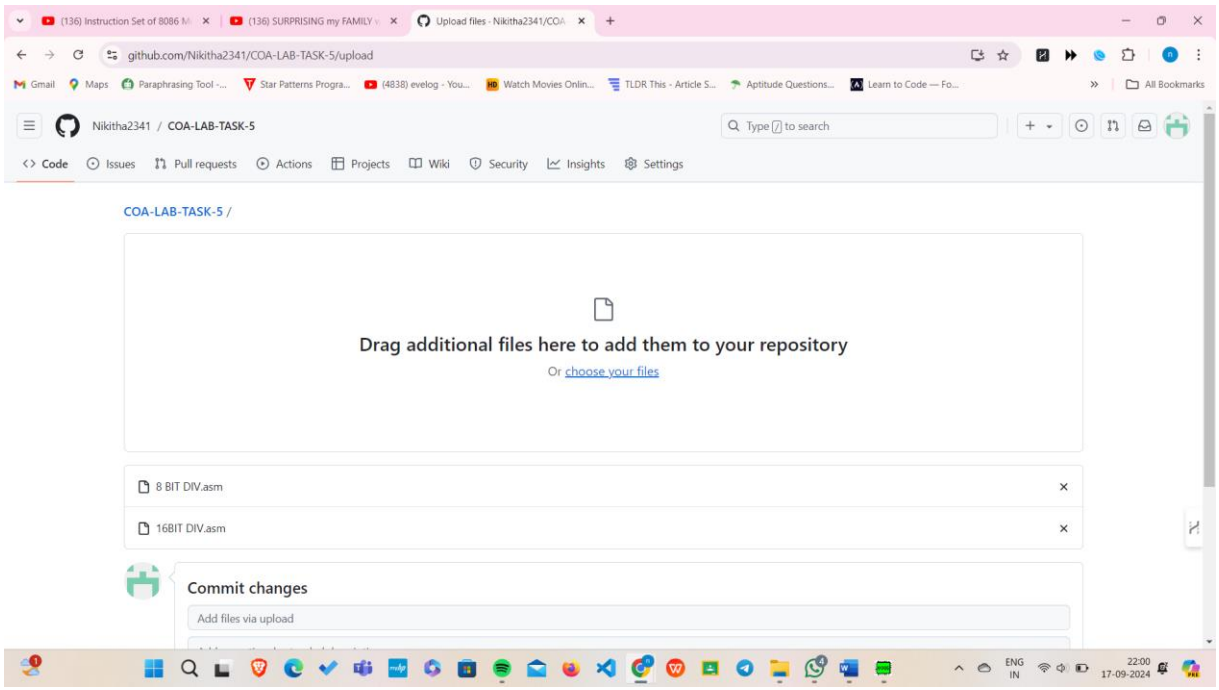
```
mov ah,ch
and ah,0fh
add ah,30h
cmp ah,39h
jle print_low_nibble32
add ah,7
print_low_nibble32:
mov dl,ah
mov ah,02h
int 21h

mov ah,cl
and ah,0f0h
shr ah,4
add ah,30h
cmp ah,39h
jle print_low_nibble24
add ah,7
print_low_nibble24:
mov dl,ah
mov ah,02h
int 21h

mov ah,cl
and ah,0fh
add ah,30h
cmp ah,39h
jle print_high_nibble24:
```

```
add ah,7
print_high_nibble24:
mov dl,ah
mov ah,02h
int 21h


mov ah, bh
shr ah, 4
add ah, 30h
cmp ah, 39h
jle print_high_nibble
add ah, 7
print_high_nibble:
mov dl, ah
mov ah, 02h
int 21h

mov ah, bh
and ah, 0fh
add ah, 30h
cmp ah, 39h
jle print_low_nibble
add ah, 7
print_low_nibble:
mov dl, ah
mov ah, 02h
int 21h
```

```
 mov ah, bl
 shr ah, 4
 add ah, 30h
 cmp ah, 39h
 jle print_high_nibble2
 add ah, 7
print_high_nibble2:
 mov dl, ah
 mov ah, 02h
 int 21h

 mov ah, bl
 and ah, 0fh
 add ah, 30h
 cmp ah, 39h
 jle print_low_nibble2
 add ah, 7
print_low_nibble2:
 mov dl, ah
 mov ah, 02h
 int 21h
 mov ah,4ch
 int 21h
```

SCREENSHOT:





GITHUB LINK: https://github.com/Nikitha2341/COA-LAB-TASK-5/upload