



MAWLANA BHASHANI SCIENCE AND TECHNOLOGY UNIVERSITY

Santosh, Tangail-1902

LAB REPORT

Lab Report No : 02
Lab Report name : Assembly Language-02
Course Title : Microprocessor and Assembly Language Lab
Course Code : ICT- 3106
Date of Performance : 07 Nov 2021
Date of Submission : 08 Nov 2021

Submitted by,

Student Name : Farhana Afrin Shikha

Student ID : IT-18038

Session : 2017-18

3rd year 1st semester

Dept. of ICT

Submitted to,

S.M.Shamim

Lecturer

Dept of ICT

MBSTU

Program-1.a:Read a character and display it at the next position on the same line.

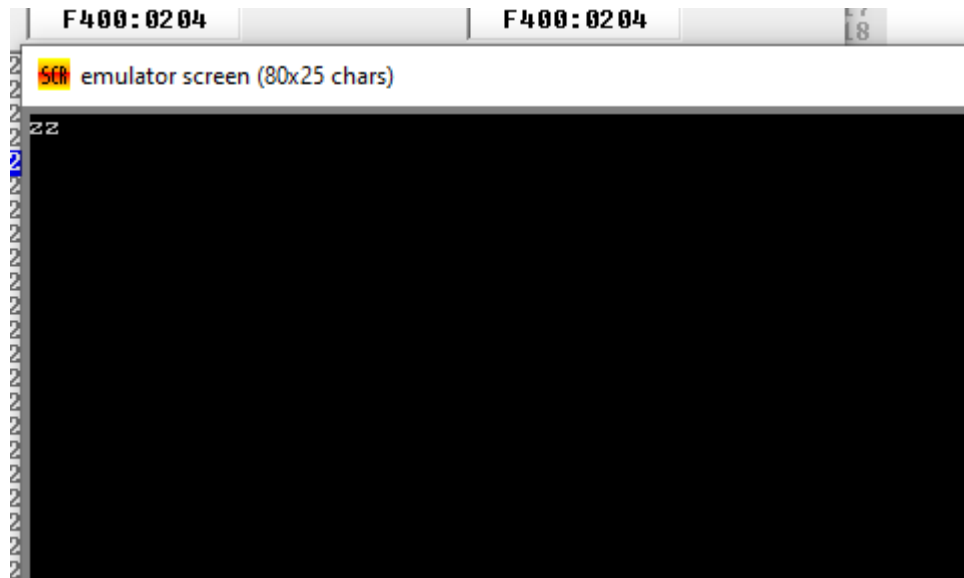
Source code:

```
.model small
.stack 100h
.code
main proc
    mov ah,1
    int 21h
    mov bl,al

    mov ah,2
    mov dl,bl
    int 21h

    mov ah,4ch
    int 21h
    main endp
end main
```

Output:



Program-1.b:Read an uppercase letter and display it at the next position on the same line in lower case.

Algorithm:

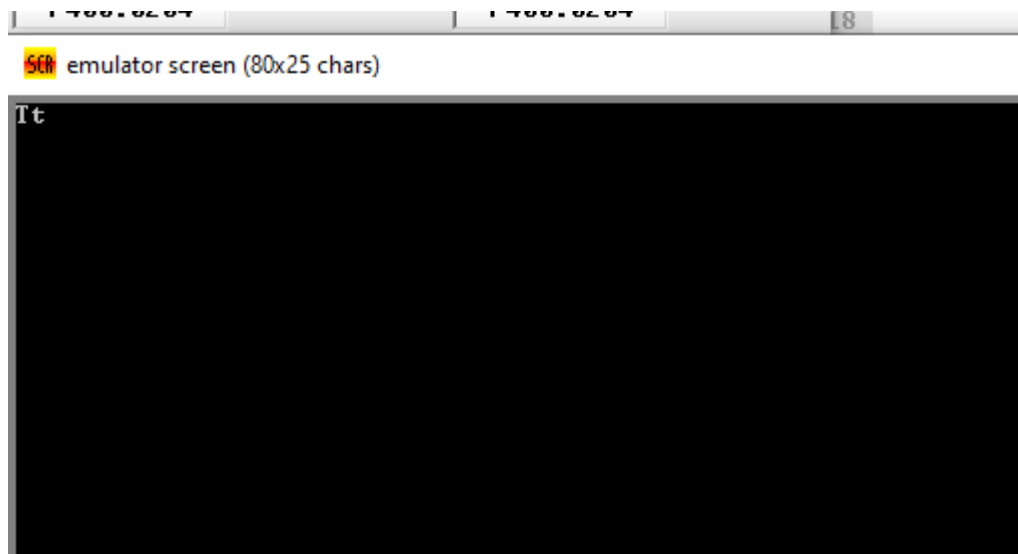
- 1.Start the program.
- 2.Read a character from 'al' register.
- 3.Move the character to 'bh' register.
- 4.Display character.
- 5.Read an uppercase letter from 'al' register.
- 6.Move the character to 'bl' register.
- 7.Convert uppercase to lowercase letter.
- 8.Display the lowercase letter.
- 9.Stop the program.

Source code:

```
.model small  
  
.stack 100h
```

```
.code  
  
main proc  
    mov ah,1  
    int 21h  
    mov bl,al  
  
    mov ah,2  
    add bl,32  
    mov dl,bl  
    int 21h  
  
    mov ah,4ch  
    int 21h  
    main endp  
end main
```

Output:



2. Write a program to

a. display a “?”

b. read two decimal digits whose sum is less than 10

c. display them and their sum in the next line with an appropriate message.

Algorithm:

1.Start the program.

2.Display “?”

3.Read two decimal digit from ‘al’ register.

4.Move them to ‘bh’ and ‘bl’ register accordingly.

5.Add those two numbers.

6.Display the sum of those two numbers.

7.Stop the program.

source code:

```
.model small
```

```
.stack 100h
```

```
.data
```

```
str1 db 0ah,0dh,'the sum of '
```

```
firstnum db ?
```

```
str2 db ' and '
```

```
secondnum db ?
```

```
str3 db ' is '
```

```
ans db ?
```

```
str4 db '$'
```

```
.code
```

main proc

mov ax,@data

mov ds,ax

mov ah,2

mov dl,3fh

int 21h

mov ah,1

int 21h

mov bl,al

mov firstnum,al

int 21h

mov secondnum,al

add bl,al

sub bl,30h

mov ans,bl

mov ah,9

lea dx,str1

int 21h

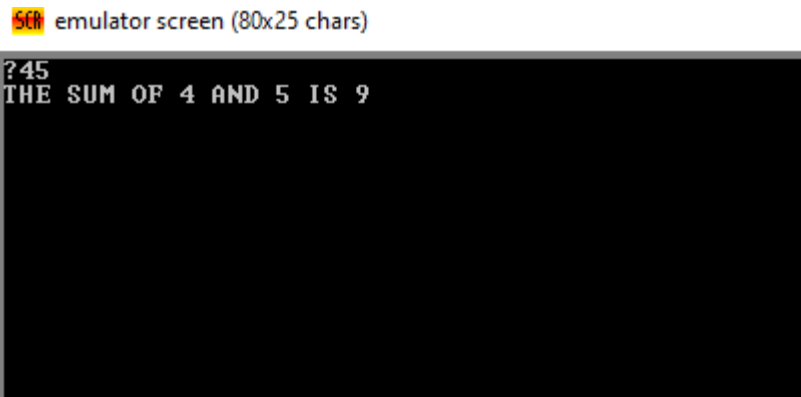
mov ah,4ch

```
int 21h
```

```
main endp
```

```
end main
```

Output:

 emulator screen (80x25 chars)

?45
THE SUM OF 4 AND 5 IS 9

Program-3.

- a. Write a program to prompt the user.
- b. Write a program to read first middle and last initials of a persons name.
- c. Write a program to display them down the left margin.

Algorithm:

1. Start the program.
2. Declare three variable.
3. Initialize those three variable.
4. Display three variable.
5. Stop the program.

Source code:

```
.model small
```

```
.stack 100h

.data

first db "MISS $"

middle db 10,13,"TAIBA $"

last db 10,13,"TASFIA $"

.code

main proc

    mov ax,@data

    mov ds,ax


    mov ah,9

    lea dx,first

    int 21h

    lea dx,middle

    int 21h

    lea dx,last

    int 21h


exit:

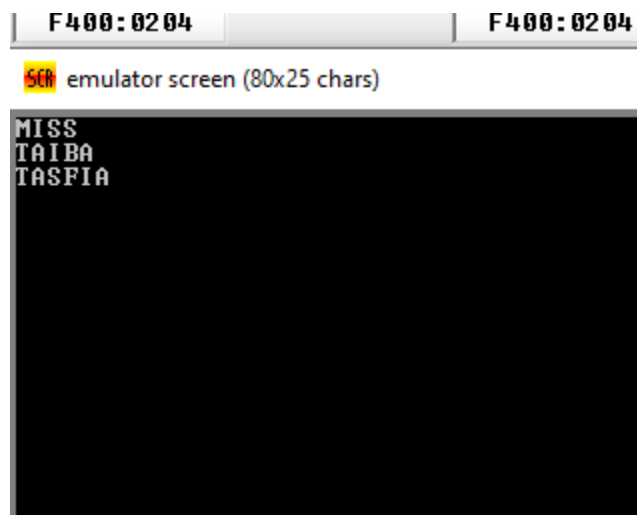
    mov ah,4ch

    int 21h

main endp

end main
```

Output:



Program-4.Write an assembly program to enter one of the hex digits A-F,and display it on the next line in decimal.

Source code:

```
.model small
```

```
.stack 100h
```

```
.data
```

```
    str1 db 'ENTER A HEX DIGIT: $'
```

```
    str2 db 0ah,0dh,'IN DECIMAL IT IS 1'
```

```
    ans db ?
```

```
    str3 db '$'
```

```
.code
```

```
main proc
```

```
    mov ax,@data
```

```
    mov ds,ax
```

```
    mov ah,9
```

```
lea dx,str1
```

```
int 21h
```

```
mov ah,1
```

```
int 21h
```

```
sub al,11h
```

```
mov ans,al
```

```
mov ah,9
```

```
lea dx,str2
```

```
int 21h
```


```
mov ah,4ch
```


```
int 21h
```

```
main endp
```

```
end main
```

Output:

 emulator screen (80x25 chars)



```
ENTER A HEX DIGIT: B
IN DECIMAL IT IS 11
```

Program-5. .Write an assembly program to display asterisks ten times with new line.

Source code:

```
.model small  
  
.stack 100h  
  
.code  
  
main proc  
  
    mov cx,10  
  
lev:  
  
    mov ah,2  
  
    mov dl,'*'  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    int 21h  
  
    mov ah,2  
  
    mov dl,10  
  
    int 21h  
  
    mov dl,13  
  
    int 21h
```

loop lev

Output:



Program-6: Write an assembly program to display to (a) display "?", (b) read three initials,(a,b,c) display them in the middle of an 11 x 11 box of asterisk

Algorithm:

- 1.Start the program.
- 2.Enter three values to bl,bh,cl register.
- 3.Display 11 asterisk in every first five lines.
4. Then print bl,bh,cl register value in the 5,6,7th position in 6th line.
- 5.Then display 11 asterisk in every last five lines
- 6.Stop the program.

Code:

```
.model small  
  
.stack 100h  
  
.data  
  
prompt db 0dh,0ah,'Enter three initials : $'
```

```
asterisks db '*****',0dh,0ah,'$'
```

```
next_line db 0dh,0ah,"$"
```

```
.code
```

```
main proc
```

```
    mov ax, @data        ; initialize ds
```

```
    mov ds, ax
```

```
    mov ah, 2            ; display "?"
```

```
    mov dl, "?"
```

```
    int 21h
```

```
    lea dx, prompt       ; load and display the string prompt
```

```
    mov ah, 9
```

```
    int 21h
```

```
    mov ah, 1
```

```
    int 21h
```

```
    mov bl, al
```

```
    int 21h
```

```
    mov bh, al
```

int 21h

mov cl, al

lea dx, next_line

mov ah, 9

int 21h

int 21h

lea dx, asterisks ; load the string asterisks

mov ah, 9

int 21h ; display the string asterisks 5 times

int 21h

int 21h

int 21h

int 21h

mov asterisks+4, bl ; place the three initials in the position

mov asterisks+5, bh ; of middle asterisks i.e. 4,5,6.

mov asterisks+6, cl

int 21h ; display the modified string asterisks

```
mov asterisks+4, "*"    ; place the "*" back in their original
```

```
mov asterisks+5, "*"    ; position
```

```
mov asterisks+6, "*"    ; position
```

```
int 21h                ; print the string asterisks 5 times
```

```
int 21h
```

```
int 21h
```

```
int 21h
```

```
int 21h
```

```
mov ah, 2
```

```
mov dl, 7h
```

```
int 21h
```


```
mov ah, 4ch
```

```
int 21h
```

```
main endp
```

```
end main
```

Output:

 emulator screen (80x25 chars)

?
Enter three initials: sty

```
*****
*****
*****
*****
*****
****sty****
*****
*****
*****
*****
*****
```