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

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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 letterand 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.Displsy the lowercase letter.

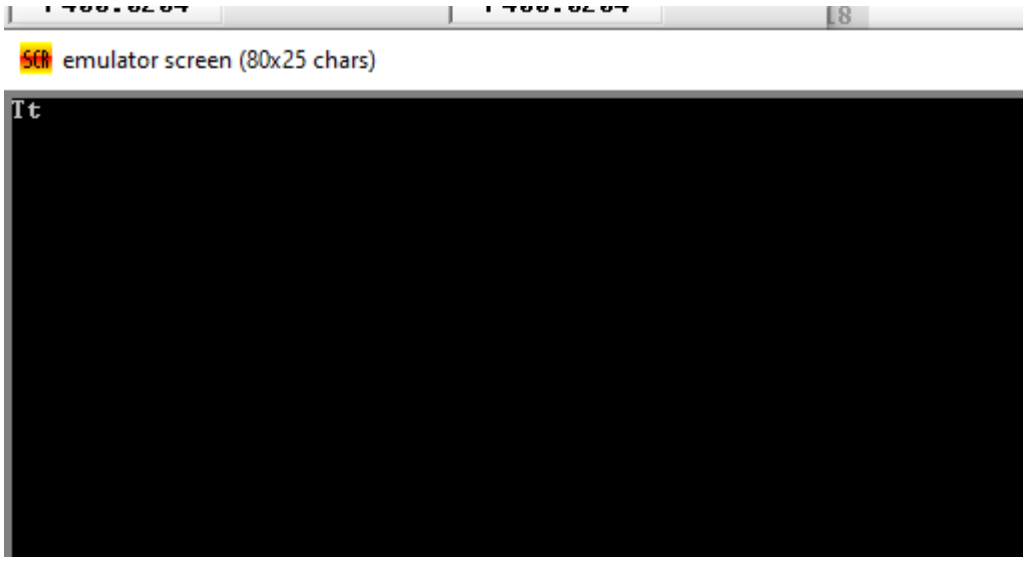
9.Stop the program.

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
```

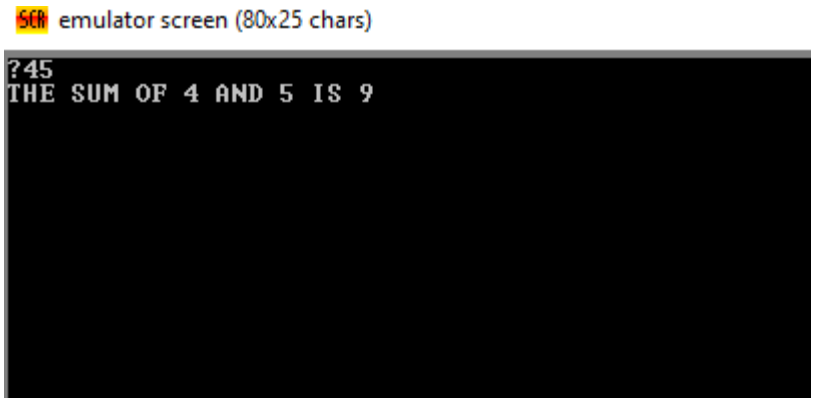
```
main proc

    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:



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.

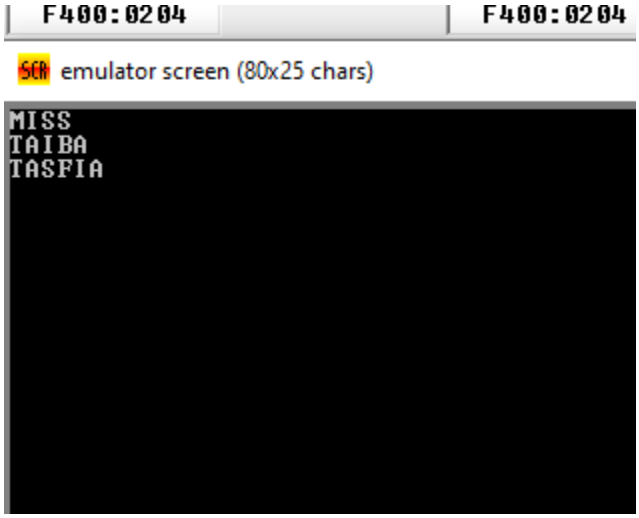
5.Stop the program.

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:



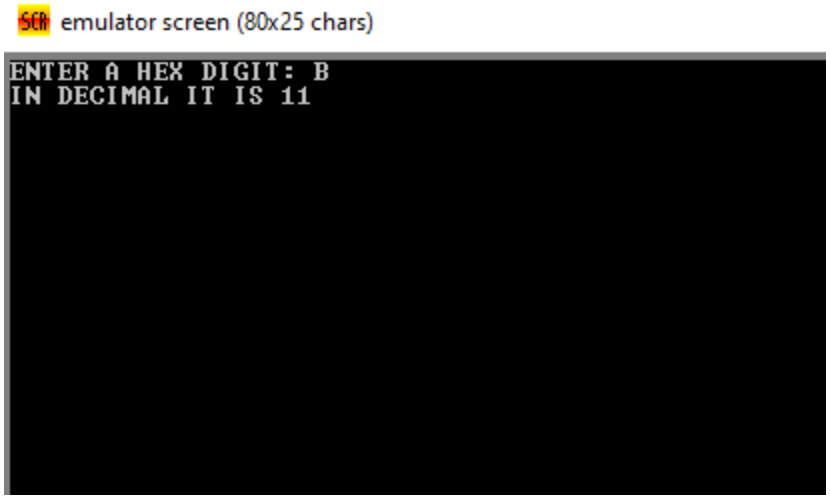
Program-4.Write an assembly program to enter one of the hex digits A-F,and display it on the next line in decimal.

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:



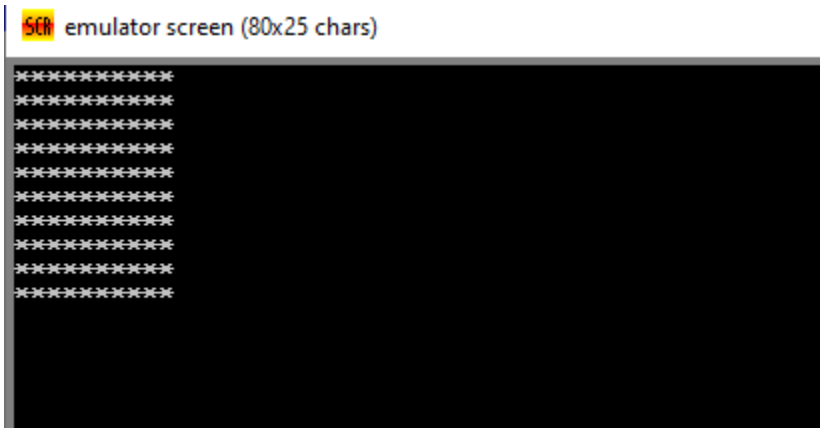
Program-5. .Write an assembly program to display asterisks ten times with new line.

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
  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:

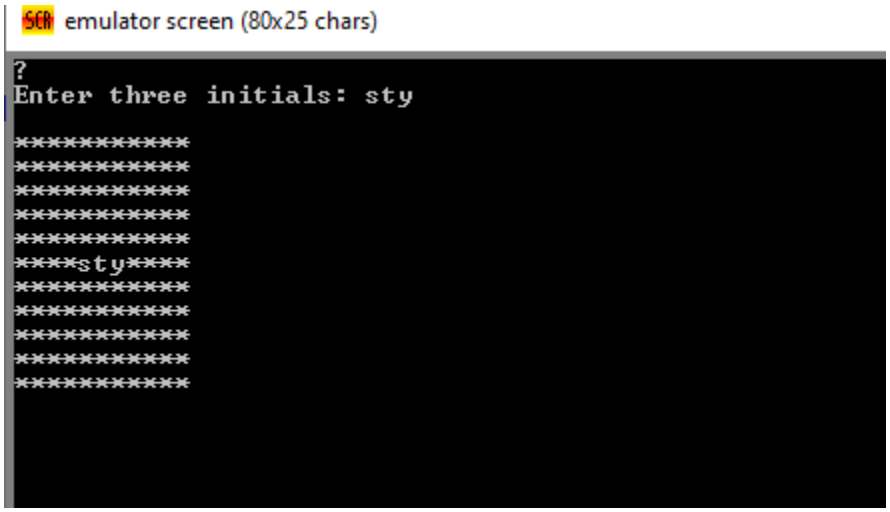
```
.model small

.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, "*"

    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:


SCR emulator screen (80x25 chars)
?
Enter three initials: sty
****
****
****
****
****
****sty****
****
****
****
****
****