Mawlana Bhashani Science and Technology University

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Lab Report

Department of Information and Communication Technology

Report No: 03

Report Name: Assembly language Program.

Course Title: Microprocessor and Assembly Language Lab

Course Code: ICT-3106

Submitted By	Submitted To
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1 . Write an assembly program to display different triangle using asterisk and digit.

Source Code :

```
.model small
.stack 1024h
.code

start:
   mov cx, 5
first:
   mov bl, 2ah
   mov bh, 1
   call   drawall
   loop   first

   mov dx, 5
second:
   mov bl, 20h
   mov bh, 0
   mov cx, dx
   call   drawall
   mov cx, 6
   sub cx, dx
   mov bl, 2ah
   mov bh, 1
   call   drawall
   dec dx
   jnz second
```

```
    mov ax, 4c00h
    int 21h


drawall:
    push    ax
    push    bx
    push    cx
    push    dx
drawone:
    mov     ah,2h
    mov     dl,bl
    int     21h
    loop    drawone
    or  bh, bh
    jz  retorn
    mov     dl,0Ah
    int     21h
    mov dl,0Dh
    int 21h
retorn:
    pop dx
    pop cx
    pop bx
    pop ax
    ret
```

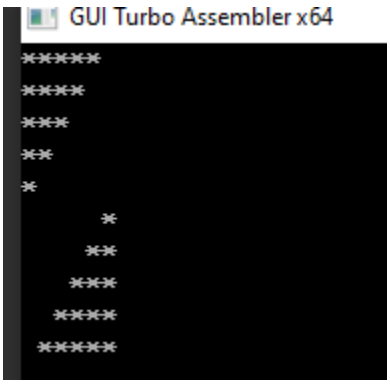
```
    end start
```

Another starts triangle :

```
.MODEL SMALL
.STACK  50H
.DATA
    NL  DB  0DH, 0AH, '$'        ; NL = NEXT LINE
.CODE
MAIN PROC
    MOV AX, @DATA
    MOV DS, AX

    MOV CX, 5
    MOV BX, 1

    FOR_1:
        PUSH    CX
        MOV DL, 20H    ; 20H IS ASCII CODE FOR SPACE
        MOV AH, 2

        FOR_2:
            INT 21H    ; PRINTING SPACES
        LOOP    FOR_2

        MOV CX, BX
        MOV DL, '*'
```

```
        MOV AH, 2

        FOR_3:
           INT     21H    ; PRINTING STARS
        LOOP    FOR_3

        LEA DX, NL
        MOV AH, 9
        INT     21H
        INC BX
        POP CX

    LOOP    FOR_1

    MOV AH, 4CH
    INT     21H
MAIN ENDP
END MAIN
```

Output :



2.Write an assembly program to enter two 8 bit numbers and print their sum which is less than 9.

Algorithm:

1.Start the program.

2.Enter two numbers from ‘al’ register.

3.Move those two numbers to ‘bh’,’bl’ register accordingly.

4.Add ‘bh’ & ‘bl’ and store the reault in ‘bh’ register.

5.Sub 48 from ‘bh’ register.

6.Display ‘bh’ register.

7.Stop the program.

Code:

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

 mov ah,1
 int 21h
 mov bl,al

 mov ah,2
 mov dl,10
 int 21h
 mov dl,13
 int 21h

 add bh,bl
 sub bh,48

 mov ah,2
 mov dl,bh
```

```
 int 21h

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

Output:

3.Write an assembly program to enter two 8 bit numbers and print their sum which is larger than.

Algorithm:

1.Start the program.

2.Enter to number from ‘al’ register,

3.Move those two numbers to ‘bh’ and ‘bl’ register accordingly.

4.Add them and sub 58 from ‘bh’ register and store the result to ‘bh’ register.

5.Display 1 first and then ‘bh’ .

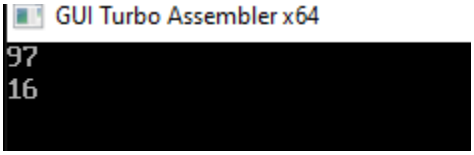
6.Stop the program.

Source Code:

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

 mov ah,1
 int 21h
```

```
mov bl,al

mov ah,2
mov dl,10
int 21h
mov dl,13
int 21h

add bh,bl
sub bh,58

mov ah,2
mov dl,'1'
int 21h
mov dl,bh
int 21h

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

Output :



4. Write an assembly program to enter a number and perform multiplication with itself which less than 9.

Algorithm:

1.Start a program.

2.Enter first number in ‘bl’ register.

3.Enter second number from ‘al’ register and multiply it with ‘bl’ register.

4.Move the value in bl register,

5.Add 48 with bl register.

6.Display it.

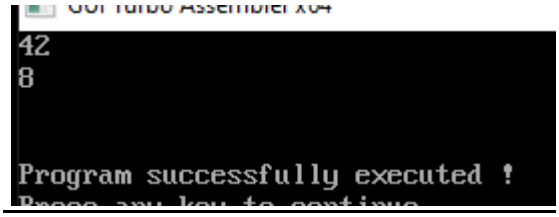
Source Code :

```
.model small

.stack 100h

.data

.code

main proc

 mov ah,1

 int 21h

 mov bl,al

 sub bl,48



 mov ah,1

 int 21h
```

```
sub al,48

mul bl

mov bl,al

add bl,48

mov ah,2

mov dl,10

int 21h

mov dl,13

int 21h

mov ah,2

mov dl,bl

int 21h
```

```
exit:

mov ah,4ch

int 21h

main endp

end main
```

Output:



6. Write an assembly program to enter two numbers and perform division.

Algorithm:

1.Start the program.

2.Enter two numbers.

3.Move them to ‘bl’ and ‘al’ register accordingly.

4.Divide ‘al’ register by ‘bl’ register.

5.Display bl register and bh register.

6.stop the program.

Source Code:

```
.model small

.stack 100h

.data

.code

main proc

 mov al,8

 mov bl,3



 div bl

 mov bx,ax

 mov ah,2

 mov dl,bl

 add dl,48

 int 21h

 mov dl,bh
```

```
add dl,48

int 21h



exit:

mov ah,4ch

int 21h

main endp

end main
```

Output :