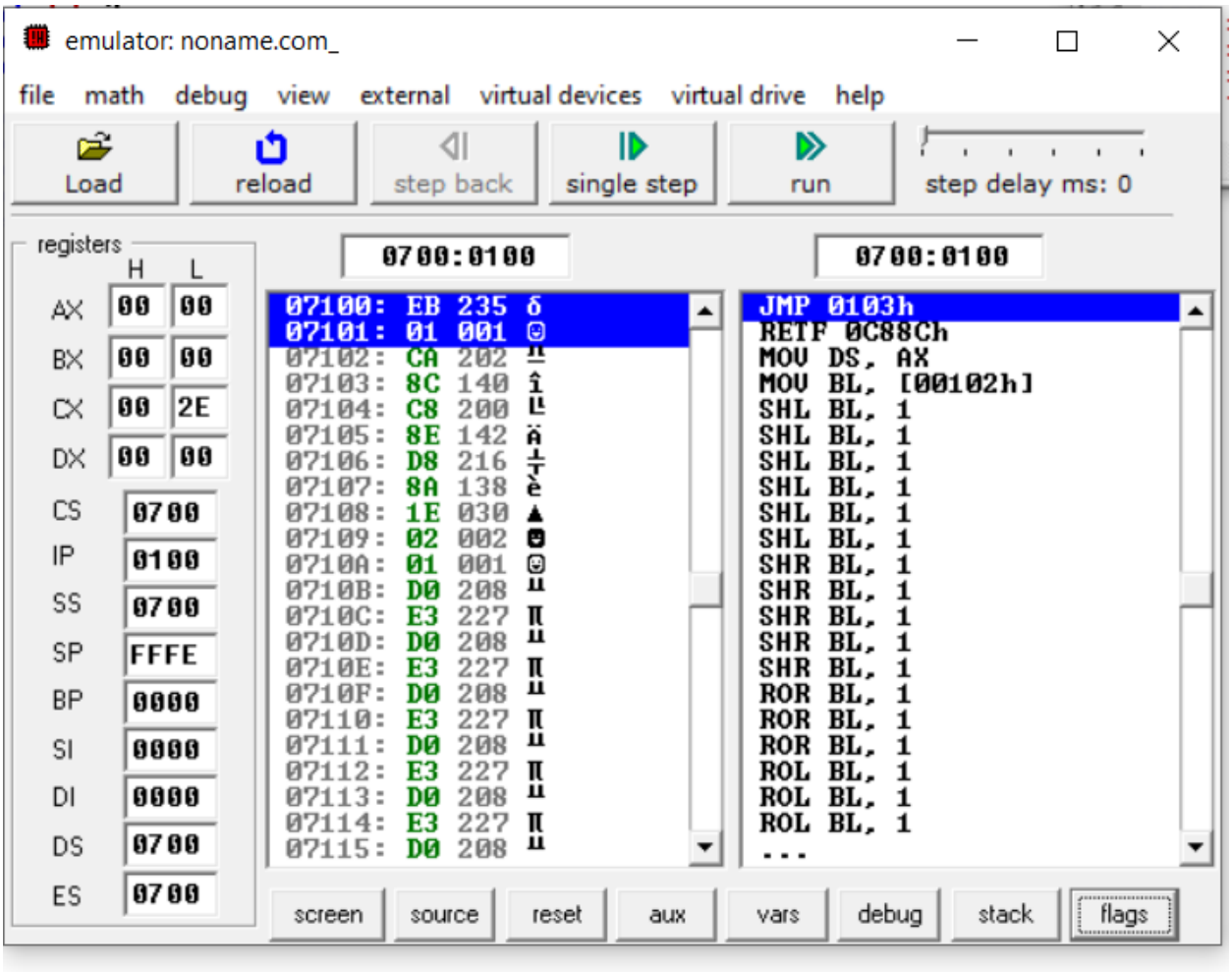
# LAB TASK :: WEEK 11

**TASK 1:**

```
open  examples  save
1  org 100h
2  .data
3  a db 11001010b
4  .code
5  mov ax,@data
6  mov ds,ax
7  mov bl,a
8  shl bl,1
9  shl bl,2
0  shl bl,3
1  shr bl,2
2  shr bl,3
3
4  ror bl,2
5  ror bl,1
6  rol bl,1
7  rol bl,2
8  ret
9
0
1
```


emulator: noname.com_
file
math
debug
view
external
virtual devices
virtual drive
help
Load
reload
step back
single step
run
step delay ms: 0
registers
H
L
AX 00 00
BX 00 00
CX 00 2E
DX 00 00
CS 0700
IP 0100
SS 0700
SP FFFE
BP 0000
SI 0000
DI 0000
DS 0700
ES 0700
0700:0100
0700:0100
07100: EB 235 δ
07101: 01 001 ☺
07102: CA 202 ╩
07103: 8C 140 î
07104: C8 200 ╚
07105: 8E 142 Ä
07106: D8 216 ╪
07107: 8A 138 è
07108: 1E 030 ▲
07109: 02 002 ☻
0710A: 01 001 ☺
0710B: D0 208 ╨
0710C: E3 227 π
0710D: D0 208 ╨
0710E: E3 227 π
0710F: D0 208 ╨
07110: E3 227 π
07111: D0 208 ╨
07112: E3 227 π
07113: D0 208 ╨
07114: E3 227 π
07115: D0 208 ╨
JMP 0103h
RETF 0C88Ch
MOV DS, AX
MOV BL, [00102h]
SHL BL, 1
SHL BL, 1
SHL BL, 1
SHL BL, 1
SHL BL, 1
SHL BL, 1
SHR BL, 1
SHR BL, 1
SHR BL, 1
SHR BL, 1
SHR BL, 1
ROR BL, 1
ROR BL, 1
ROR BL, 1
ROL BL, 1
ROL BL, 1
ROL BL, 1
...
screen
source
reset
aux
vars
debug
stack
flags

**Task 2:**

```
C:\>edit l10_t2.asm

C:\>masm l10_t2.asm;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserved.


  51700 + 464844 Bytes symbol space free

      0 Warning Errors
      0 Severe  Errors

C:\>link l10_t2.obj;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>l10_t2.exe
sS
```

```
Sdosseg
.model small
.stack 100h
.data
.code
main proc
mov ah,1
int 21h
mov bl,al
and bl,11011111b
mov ah,2
mov dl,bl
int 21h
mov ah,4ch
int 21h
main endp
end main
```

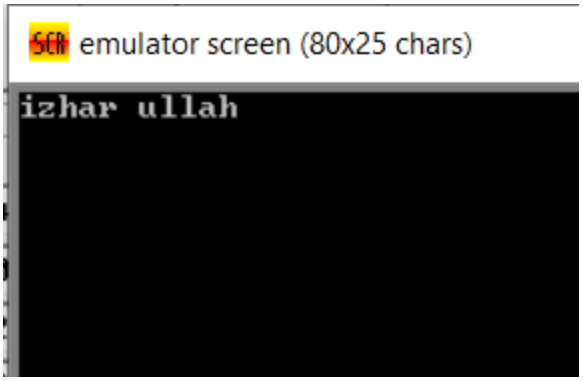
**Task 3:**

```
C:\>edit l10_t3.asm

C:\>masm l10_t3.asm;
Microsoft (R) Macro Assembler Version 5.00
Copyright (C) Microsoft Corp 1981-1985, 1987.  All rights reserv


  51700 + 464844 Bytes symbol space free

      0 Warning Errors
      0 Severe  Errors

C:\>linl l10_t3.obj;
Illegal command: linl.

C:\>link l10_t3.obj;

Microsoft (R) Overlay Linker  Version 3.60
Copyright (C) Microsoft Corp 1983-1987.  All rights reserved.


C:\>l10_t3.exe
dd
```

```
File  Edit  Search  Vie
Sdosseg
.model small
.stack 100h
.data
.code
main proc
mov ah,1
int 21h
mov bl,al
or bl,00100000b
mov ah,2
mov dl,bl
int 21h
mov ah,4ch
int 21h
main endp
end main
```

**Task 5 :**

```
01 org 100h
02
03 .data
04 a db "izhar ullah$",0
05
06 .code
07 mov ax,@data
08 mov ds,ax
09 mov dx,offset a
10 mov ah,09h
11 int 21h
12 mov ah,4ch
13 int 21h
14 mov ah,4ch
15 int 21h
16 end
17
18
19
```

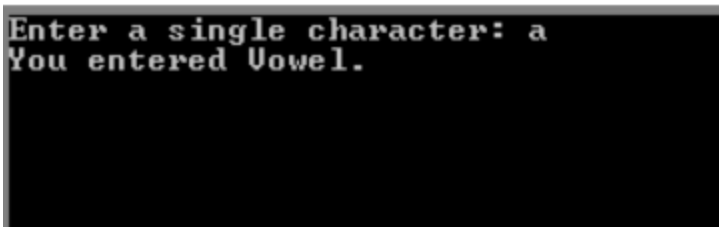


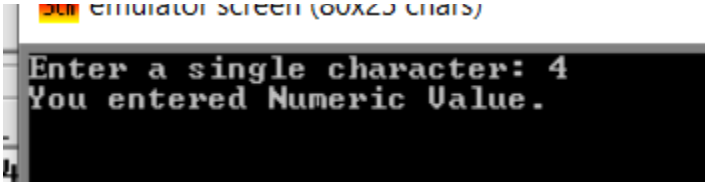
**Task 6:**

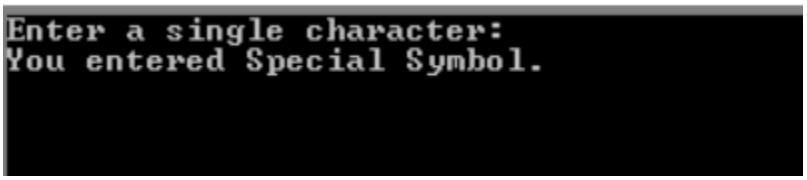
```
ORG 100h

.DATA
msg_prompt    DB 'Enter a single character: $'
msg_vowel     DB 0DH,0AH,'You entered Vowel.$'
msg_digit     DB 0DH,0AH,'You entered Numeric Value.$'
msg_alpha     DB 0DH,0AH,'You entered Alphabet.$'
msg_special   DB 0DH,0AH,'You entered Special Symbol.$'

.CODE

MAIN PROC

    MOV AX, @DATA
    MOV DS, AX


    LEA DX, msg_prompt
    MOV AH, 09H
    INT 21H


    MOV AH, 1
    INT 21H
    MOV BL, AL

    CMP BL, '0'
    JL CHECK_ALPHA
    CMP BL, '9'
    JG CHECK_ALPHA
    LEA DX, msg_digit
    JMP DISPLAY

CHECK_ALPHA:

    CMP BL, 'A'
    JL CHECK_LOWER
    CMP BL, 'Z'
    JG CHECK_LOWER
    JMP CHECK_VOWEL

CHECK_LOWER:

    CMP BL, 'a'
    JL SPECIAL
    CMP BL, 'z'
    JG SPECIAL
    JMP CHECK_VOWEL

CHECK_VOWEL:

    CMP BL, 'A'
    JE IS_VOWEL
    CMP BL, 'E'
    JE IS_VOWEL
    CMP BL, 'I'
    JE IS_VOWEL
    CMP BL, 'O'
```

```
CHECK_VOWEL:

    CMP BL, 'A'
    JE IS_VOWEL
    CMP BL, 'E'
    JE IS_VOWEL
    CMP BL, 'I'
    JE IS_VOWEL
    CMP BL, 'O'
    JE IS_VOWEL
    CMP BL, 'U'
    JE IS_VOWEL
    CMP BL, 'a'
    JE IS_VOWEL
    CMP BL, 'e'
    JE IS_VOWEL
    CMP BL, 'i'
    JE IS_VOWEL
    CMP BL, 'o'
    JE IS_VOWEL
    CMP BL, 'u'
    JE IS_VOWEL


    LEA DX, msg_alpha
    JMP DISPLAY

IS_VOWEL:
    LEA DX, msg_vowel
    JMP DISPLAY

SPECIAL:

    LEA DX, msg_special

DISPLAY:
    MOV AH, 09H
    INT 21H

    ; --- Exit ---
    MOV AH, 4CH
    INT 21H

MAIN ENDP
END MAIN
```

```
Enter a single character: h
You entered Alphabet.
```


Enter a single character: a
You entered Vowel.


Enter a single character: 4
You entered Numeric Value.


Enter a single character:
You entered Special Symbol.