Ahsanullah University of Science & Technology

Department of Computer Science and Engineering

Course No	**:**	CSE3108
Course Title	**:**	Microprocessors Lab
Set no	**:**	14 & 5
Date of Submission	**:**	31.01.2021
Submitted To	**:**	Farzad Ahmed and Junaed Younus Khan

Submitted By:

Name : Nusrat Jahan

Id : 18.01.04.020

Section : A1

Year : 3rd

Semester : 1st

Assignment 1:

Write an assembly code to display A, 6, L in Seven Segment Display (SSD) respectively. After each segment a delay occur.

Solution:

```
SA SEGMENT PARA PUBLIC 'CODE'
ASSUME CS:SA
ORG 1000H

START:
;control register turn on
MOV AL,80H
OUT 1FH,AL

MOV SI,OFFSET DATA
MOV BX,11H

TOP:
;LED turn on
L1: MOV AL,BYTE PTR CS:[SI]
OUT 19H,AL

;for delay
MOV CX, 0FFFFH
L1: LOOP L1

;for delay
MOV CX, 0FFFFH
L2: LOOP L2

;for delay
MOV CX, 0FFFFH
L3: LOOP L3

;for delay
MOV CX, 0FFFFH
L4: LOOP L4

INC SI
DEC BX
```

```
CMP BX, 0000H
JE EXIT
JMP TOP

DATA:

; for display A
DB 0FEH
DB 0FCH
DB 0F8H
DB 0E8H
DB 0C8H
DB 088H
DB 0FFH ; for blank

;for display 6
DB 0FEH
DB 0DEH
DB 0CEH
DB 0C6H
DB 0C2H
DB 082H
DB 0FFH ; for blank

;for display L
DB 0DFH
DB 0CFH
DB 0C7H

EXIT:

SA ENDS
END START
```

Assignment2:

Write an assembly code to glow R2 and Y in LED Display respectively. After a delay G turn ON and then after a delay Y turn OFF. Again after a delay R1 turn ON.

Solution:

```
LA SEGMENT PARA PUBLIC 'CODE'
ASSUME CS: LA
ORG 1000H

START:
 ;control register turn on
  MOV AL,80H
  OUT 1FH,AL

 ;segment address forcefully off
  MOV AL,0FFH
  OUT 19H,AL

  MOV SI,OFFSET DATA
  MOV BX,04H

   TOP:
   MOV AL,BYTE PTR CS:[SI]
   OUT 19H,AL

   ;for delay
   MOV CX,0FFFFH
   L1:LOOP L1

   MOV CX,0FFFFH
   L2:LOOP L2

   MOV CX,0FFFFH
   L3:LOOP L3

    MOV CX,0FFFFH
    L4:LOOP L4
```

```
    INC SI
    DEC BX
    CMP BX,0000H
    JE EXIT
    JMP TOP

    DATA:

    ;R2 AND Y LED turn on
     DB 0CH

     ;G LED turn ON
      DB 0EH

     ;Y LED turn OFF
     DB 0AH

     ;R1 LED turn ON
     DB 0BH

EXIT:

LA ENDS
END START
```

Assignment3:

Write an assembly code to glow dots on Dot Matrix Display Left Sided Arrow shape in GREEN color.

Solution:

```
DM SEGMENT PARA PUBLIC 'CODE'

ASSUME CS: DM

ORG 1000H
```

```
START:
MOV AL,80H
OUT 1EH,AL

L1:
MOV AL,BFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,04H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L0:LOOP L0

MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,02H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L1:LOOP L1

MOV AL,EFH
```

```
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,01H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L2:LOOP L2

MOV AL,F7H
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,02H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L3:LOOP L3

MOV AL,FBH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,04H
OUT 1CH,AL ;PORT C
;for delay
```

```
MOV CX,0FFFFH
L4:LOOP L4

MOV AL,F7H
OUT 18H,AL ;PORT A
MOVAL,FFH
OUT 1AH,AL ;PORT B
MOV AL,04H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L5:LOOP L5

MOV AL,F7H
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,08H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L6:LOOP L6

MOV AL,F7H
OUT 18H,AL ;PORT A
MOV AL,FFH
```

```
OUT 1AH,AL ;PORT B
MOV AL,10H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,F7H
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,20H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,F7H
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,40H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7
```

```
MOV AL,F7H
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,80H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,EFH
OUT 18H,AL ;PORT A
MOV AL,FBH
OUT 1AH,AL ;PORT B
MOV AL,80H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
```

```
MOV AL,80H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,40H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,20H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7
```

```
MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,10H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,08H
OUT 1CH,AL ;PORT C
;for delay
MOV CX,0FFFFH
L7:LOOP L7

MOV AL,DFH
OUT 18H,AL ;PORT A
MOV AL,FFH
OUT 1AH,AL ;PORT B
MOV AL,04H
OUT 1CH,AL ;PORT C
```

```
;for delay
MOV CX,0FFFFH
L7:LOOP L7

JMP L1
DM ENDS
END START
```