Ahsanullah University of Science & Technology

Department of Computer Science and Engineering

Course No	**:**	CSE3108
Course Title	**:**	Microprocessors Lab
Set no	**:**	14 & 5
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Section : A1

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Experiment No: 01

Write an assembly code to glow dots on Dot Matrix Display Left Sided Arrow shape in Green color with its corresponding row number in SSD using array.

SOLUTION:

```
DM SEGMENT PARA PUBLIC 'CODE'

ASSUME CS: DM

ORG 1000H


START:

;control register turn on

MOV AL, 80H

OUT 1FH, AL


TOP1:

MOV SI, OFFSET DATA

MOV BX, 48H


TOP:

;PORT A

MOV AL, BYTE PTR CS:[SI]
```

```
OUT 18H, AL
INC SI
DEC BX

;PORT B
MOV AL, BYTE PTR CS:[SI]
OUT 1AH, AL
INC SI
DEC BX

;PORT C
MOV AL, BYTE PTR CS:[SI]
OUT 1CH, AL
INC SI
DEC BX

;SSD
MOV AL, BYTE PTR CS:[SI]
OUT 19H, AL
INC SI
DEC BX
```

```
;for delay
MOV CX,FFFFH
L1:LOOP L1
MOV CX,FFFFH
L2:LOOP L2
MOV CX,FFFFH
L3:LOOP L3
MOV CX,FFFFH
L4:LOOP L4


CMP BX,0000H
JE TOP1
JMP TOP

DATA:

 DB BFH      ; R6 C2
 DB FFH
 DB 04H
 DB 82H     ; Show 6 in SSD
```

```
DB DFH      ; R5 C1
DB FFH
DB 02H
DB 92H      ; Show 5 in SSD

DB EFH     ; R4 C0
DB FFH
DB 01H
DB 99H     ; Show 4 in SSD

DB F7H      ; R3 C1
DB FFH
DB 02H
DB B0H      ; Show 3 in SSD

DB FBH      ; R2 C2
DB FFH
DB 04H
DB A4H      ; Show 2 in SSD

DB F7H       ; R3 C2
DB FFH
```

```
DB 04H
DB B0H      ; Show 3 in SSD

DB F7H      ; R3 C3
DB FFH
DB 08H
DB B0H      ; Show 3 in SSD

DB F7H      ; R3 C4
DB FFH
DB 10H
DB B0H    ; Show 3 in SSD

DB F7H      ; R3 C5
DB FFH
DB 20H
DB B0H    ; Show 3 in SSD

DB F7H      ; R3 C6
DB FFH
DB 40H
DB B0H    ; Show 3 in SSD
```

```
DB F7H       ; R3 C7
DB FFH
DB 80H
DB B0H    ; Show 3 in SSD

DB EFH    ; R4 C7
DB FFH
DB 80H
DB 99H     ; Show 4 in SSD

DB DFH    ; R5 C7
DB FFH
DB 80H
DB 92H     ; Show 5 in SSD

DB DFH    ; R5 C6
DB FFH
DB 40H
DB 92H     ; Show 5 in SSD

DB DFH    ; R5 C5
DB FFH
```

```
 DB 20H
 DB 92H       ; Show 5 in SSD

 DB DFH      ; R5 C4
 DB FFH
 DB 10H
 DB 92H       ; Show 5 in SSD

 DB DFH      ; R5 C3
 DB FFH
 DB 08H
 DB 92H       ; Show 5 in SSD

 DB DFH      ; R5 C2
 DB FFH
 DB 04H
 DB 92H       ; Show 5 in SSD

DM ENDS
END START
```

Experiment No: 02

Write an assembly code to glow dots on Dot Matrix Display Left Sided Arrow shape in different color and LED using array.

SOLUTION:

```
DM SEGMENT PARA PUBLIC 'CODE'

ASSUME CS: DM

ORG 1000H


START:

;control register turn on

MOV AL, 80H

OUT 1FH, AL


TOP1:

MOV SI, OFFSET DATA

MOV BX, 48H


TOP:

;PORT A

MOV AL, BYTE PTR CS:[SI]

OUT 18H, AL
```

```
INC SI
DEC BX

;PORT B
MOV AL, BYTE PTR CS:[SI]
OUT 1AH, AL
INC SI
DEC BX

;PORT C
MOV AL, BYTE PTR CS:[SI]
OUT 1CH, AL
INC SI
DEC BX

;LED
MOV AL, BYTE PTR CS:[SI]
OUT 1BH, AL
INC SI
DEC,BX

;for delay
```

```
MOV CX,FFFFH
L1:LOOP L1
MOV CX,FFFFH
L2:LOOP L2
MOV CX,FFFFH
L3:LOOP L3
MOV CX,FFFFH
L4:LOOP L4


CMP BX,0000H
JE TOP1
JMP TOP

DATA:

 DB FFH     ; R6 C2 (RED)
 DB BFH
 DB 04H
 DB 01H      ;Turn on R1 in LED
```

```
DB FFH       ; R5 C1 (RED)
DB DFH
DB 02H
DB 01H       ;Turn on R1 in LED

DB FFH      ; R4 C0 (RED)
DB EFH
DB 01H
DB 01H       ;Turn on R1 in LED

DB FFH      ; R3 C1 (RED)
DB F7H
DB 02H
DB 01H       ;Turn on R1 in LED

DB FFH       ; R2 C2 (RED)
DB FBH
DB 04H
DB 01H       ;Turn on R1 in LED

DB F7H       ; R3 C2 (GREEN)
DB FFH
```

```
DB 04H
DB 02H        ;Turn on G in LED

DB F7H        ; R3 C3 (GREEN)
DB FFH
DB 08H
DB 02H        ;Turn on G in LED

DB F7H        ; R3 C4 (GREEN)
DB FFH
DB 10H
DB 02H        ;Turn on G in LED

DB F7H        ; R3 C5 (GREEN)
DB FFH
DB 20H
DB 02H      ;Turn on G in LED

DB F7H        ; R3 C6 (GREEN)
DB FFH
DB 40H
DB 02H      ;Turn on G in LED
```

```
DB F4H       ; R3 C7 (ORANGE)
DB F4H
DB 80H
DB 0CH     ;Turn on Y and R2 in LED

DB EFH       ; R4 C7 (ORANGE)
DB EFH
DB 80H
DB 0CH     ;Turn on Y and R2 in LED

DB DFH       ; R5 C7 (ORANGE)
DB DFH
DB 80H
DB 0CH     ;Turn on Y and R2 in LED

DB DFH     ; R5 C6 (GREEN)
DB FFH
DB 40H
DB 02H       ;Turn on G in LED

DB DFH     ; R5 C5 (GREEN)
DB FFH
```

```
 DB 20H
 DB 02H       ;Turn on G in LED

 DB DFH     ; R5 C4 (GREEN)
 DB FFH
 DB 10H
 DB 02H       ;Turn on G in LED

 DB DFH     ; R5 C3 (GREEN)
 DB FFH
 DB 08H
 DB 02H       ;Turn on G in LED

 DB DFH     ; R5 C2 (GREEN)
 DB FFH
 DB 04H
 DB 02H       ;Turn on G in LED

DM ENDS
END START
```