

Ahsanullah University of Science & Technology

Department of Computer Science & Engineering

Course No : CSE3108

Course Title : Microprocessors Sessional

Assignment No : 04

Date of Submission : 15/01/2022

Submitted To : Ms. Tahsin Aziz & Ms. Tanjila Broti

Submitted By -

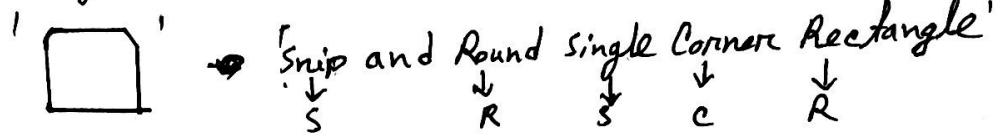
Group : B₂

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ID : 190104077

Section : B

Question: Draw the given shape in dot matrix display and show the initials of the shape in seven segment display and glow the four LEDs according to the initials.



Answer:

DSEG SEGMENT 'DATA'

Count DB 0

DSEG ENDS

SSEG SEGMENT STACK 'STACK'

DW 100h DUP(?)

SSEG ENDS

CSEG SEGMENT 'CODE'

START PROC FAR

PUSH DS

MOV AX, 0

PUSH AX

MOV AX, DSEG

MOV DS, AX

MOV ES, AX

PRINT:

MOV DX, 2001H

MOV AL, 00000001b

OUT DX, AL

```
MOV DX, 2030H
MOV AL, 00000001b
OUT DX, AL
MOV CX, 0010H
L1: LOOP L1

MOV DX, 2002H
MOV AL, 00000001H
OUT DX, AL
MOV DX, 2030H
MOV AL, 00100001b
OUT DX, AL

MOV CX, 0010H
L2 : LOOP L2

MOV DX, 2003H
MOV AL, 00000001b
OUT DX, AL
MOV DX, 2030H
MOV AL, 01100001b
OUT DX, AL
MOV CX, 0010H
L3 : LOOP L3

MOV DX, 2009H
MOV AL, 00000001b
OUT DX, AL
MOV DX, 2030H
MOV AL, 01100101b
OUT DX, AL
MOV CX, 0010H
L4 : LOOP L4
```

Mov DX, 2005H
Mov AL, 00000001b
Out DX, AL
Mov AL, 01101101b ;S
Out DX, AL
Mov DX, 2070H
Mov AL, 01H ;RED1
Out DX, AL ;LED
Mov CX, 0060H
L5 : Loop L5
Mov DX, 2006H
Mov AL, 00000001b
Out DX, AL
Mov DX, 2031H
Mov AL, 00010000b
Out DX, AL
Mov CX, 0010H
L6 : Loop L6
Mov DX, 2007H
Mov AL, 00000001b
Out DX, AL
Mov DX, 2031H
Mov AL, 00110000b
Out DX, AL
Mov CX, 0010H
L8 : Loop L8

MOV DX, 2008H
MOV AL, 00000010b
OUT DX, AL
MOV DX, 2031H
MOV AL, 00110001b
OUT DX, AL
MOV CX, 0010H
L7: LOOP L7

MOV DX, 2009H
MOV AL, 00000100b
OUT DX, AL
MOV DX, 2031H
MOV AL, 00110001b
OUT DX, AL
MOV CX, 0010H
L9: LOOP L9

MOV DX, 2009H
MOV AL, 00001100b
OUT DX, AL
MOV DX, 2031H
~~OUT DX, AL~~
MOV AL, 01110011b
OUT DX, AL
MOV CX, 0010H
L10: LOOP L10

```
MOV DX, 2009H
MOV AL, 00011100b
OUT DX, AL
MOV DX, 2031H
MOV AL, 01110111b ;SR
OUT DX, 2070 ;LED
MOV AL, 03H
OUT DX, AL
MOV CX, 0060H
L11 : LOOP L11
MOV DX, 2009H
MOV AL, 00111100b
OUT DX, AL
MOV DX, 2032H
MOV AL, 00000001b
OUT DX, AL
MOV CX, 0010H
L12 : LOOP L12
MOV DX, 2009H
MOV AL, 01111100b
OUT DX, AL
MOV CX, 0010H
L13 : LOOP L13
```

```
MOV DX, 2008H  
MOV AL, 01000010b  
OUT DX, AL  
  
MOV DX, 2032H  
MOV AL, 01100001b  
OUT DX, AL  
  
MOV CX, 0010H  
L14: LOOP L14  
  
MOV DX, 2008H  
MOV AL, 01000010b  
OUT DX, AL  
  
MOV DX, 2032H  
MOV AL, 01100101b  
OUT DX, AL  
  
MOV CX, 0010H  
L15: LOOP L15  
  
MOV DX, 2007H  
MOV AL, 01000001b  
OUT DX, AL  
  
MOV DX, 2032H  
MOV AL, 01101101b ; SRS  
MOV AL, 03H  
OUT DX, AL  
MOV DX, 2070H ; LED  
MOV AL, 03H  
OUT DX, AL  
  
MOV CX, 0060H  
L16: LOOP L16
```

```
MOV DX, 2006H
MOV AL, 01000001b
OUT DX, AL
MOV DX, 2033H
MOV AL, 00000001b
OUT DX, AL
MOV CX, 0010H
L17: LOOP L17
MOV DX, 2005H
MOV AL, 01000001b
OUT DX, AL
MOV DX, 2033H
MOV AL, 00100001b
OUT DX, AL
MOV CX, 0010H
L18: LOOP L18
MOV DX, 2004H
MOV AL, 01000001b
OUT DX, AL
MOV DX, 2033H
MOV AL, 00110001b
OUT DX, AL
MOV CX, 0010H
L19: LOOP L19
MOV DX, 2003H
MOV AL, 01000001b
OUT DX, AL
MOV DX, 2033H
OUT MOV AL, 00111001b ; SRSC
OUT DX, AL
MOV 2020H ; LED
```

MOV AL, 03H
OUT DX, AL
MOV CX, 0060H

L20 : LOOP L20

MOV DX, 2002H
MOV AL, 0100 0001b
OUT DX, AL
MOV 2034H
MOV AL, 0001 0000b
OUT DX, AL
MOV CX, 000H

L21 : LOOP L21

MOV DX, 2001H
MOV AL, 0100 0001b
OUT DX, AL
~~MOV CX, 0010H~~

~~L22 : LOOP L22~~
MOV DX, 2034H
MOV AL, 0011 0000b
OUT DX, AL
MOV CX, 0010H

L22 : LOOP L22

MOV DX, 2000H
MOV AL, 0100 0000b
OUT DX, AL
MOV DX, 2034H
MOV AL, 0011 0001b
OUT DX, AL
MOV CX, 0010H

L23 : LOOP L23

```
MOV DX, 2000H
MOV AL, 01100000b
OUT DX, AL
MOV DX, 2034H
MOV AL, 00110011b
OUT DX, AL
MOV CX, 0010H
L24: LOOP L24
MOV DX, 2000H
MOV AL, 01110000b
OUT DX, AL
MOV DX, 2034H
MOV AL, 01110011b
OUT DX, AL
MOV CX, 0010H
L26: LOOP L26
MOV DX, 2000H
MOV AL, 01111000b
OUT DX, AL
MOV DX, 2034H
MOV AL, 01110111b ; SRSCR
OUT DX, AL
MOV DX, 2070H ; LED
MOV AL, 03H
OUT DX, AL
MOV CX, 0060H
L25: LOOP L25
MOV DX, 2000H
MOV AL, 01111100b
OUT DX, AL
MOV CX, 0010H
L28: LOOP L28
```

```
MOV DX, 2000H
MOV AL, 0111110b
OUT DX, AL
MOV CX, 0060H
L2: LOOP L2

MOV DX, 2001H ;Reverse
MOV AL, 01000000b
OUT DX, AL
MOV DX, 2030H
MOV AL, 01100101b
OUT DX, AL
MOV CX, 0010H
L01: LOOP L01
MOV DX, 2002H
MOV AL, 01000000b
OUT DX, AL
MOV DX, 2030H
MOV AL, 00100001b
OUT DX, AL
MOV CX, 0010H
L02: LOOP L02
MOV DX, 2003H
MOV AL, 01000000b
OUT DX, AL
MOV DX, 2030H
MOV AL, 00100001b
OUT DX, AL
MOV CX, 0D10H
L03: LOOP L03
MOV DX, 2004H
MOV AL, 01000000b
OUT DX, AL
```

MOV DX, 2030H
MOV AL, 00000001b

OUT DX, AL

MOV CX, 0010H

L04: LOOP L04

MOV DX, 2005H

MOV AL, 01000000b

OUT DX, AL

MOV DX, 2030H

MOV AL, 00000000b ; S removed

OUT DX, AL

MOV CX, 0010H

L05: LOOP L05

MOV DX, 2006H

MOV AL, 01000000b

OUT DX, AL

MOV DX, 2031H

MOV AL, 01110011b

OUT DX, AL

MOV CX, 0010H

L06: LOOP L06

MOV DX, 2007H

MOV AL, 01000000b

OUT DX, AL

MOV DX, 2031

MOV AL, 00110011b

OUT DX, AL

L07: LOOP L07

MOV DX, 2008H
MOV AL, 01000000b
OUT DX, AL
MOV DX, 2031H
MOV AL, 00110001b
OUT DX, AL
MOV CX, 0010H
L08: LOOP L08

MOV DX, 2009H
MOV AL, 01110000b
OUT DX, AL
MOV DX, 2031H
MOV AL, 00110000b
OUT DX, AL
MOV CX, 0010H
L09: LOOP L09

MOV DX, 2009H
MOV AL, 01110000b
OUT DX, AL
MOV DX, 2031H
MOV AL, 00010000b
OUT DX, AL
MOV CX, 0010H
L010: LOOP L010

MOV DX, 2009H
MOV AL, 01100000b
OUT DX, AL
MOV DX, 2031H
MOV AL, 00000000b ; SR removed

OUT DX, AL

MOV AL, 03H

MOV DX, 2070H

MOV AL, 03H

OUT DX, AL

MOV CX, 0040H

L011: LOOP L011

MOV DX, 2009H

MOV AL, 01000000b

OUT DX, AL

MOV DX, 2032H

MOV AL, 01100101b

OUT DX, AL

MOV CX, 0010H

L012: LOOP L012

MOV DX, 2009H

MOV AL, 00000000b

OUT DX, AL

MOV DX, 2032H

MOV AL, 01100001b

OUT DX, AL

MOV CX, 0010H

L013: LOOP L013

MOV DX, 2008H

MOV AL, 00000000b

OUT DX, AL

MOV DX, 2032H

MOV AL, 00100000b

OUT DX, AL

MOV CX, 0010H

L014: LOOP L014

MOV DX, 2008H
MOV AL, 00000000b
OUT DX, AL
MOV DX, 2032H
MOV AL, 00000001b
OUT DX, AL
MOV CX, 0010H
L015: LOOP L015

MOV DX, 2007H
MOV AL, 00000000b
OUT DX, AL
MOV DX, 2032H
MOV AL, 00000000b ; SRS removed
OUT DX, AL
MOV CX, 0060H
L016: LOOP L016

MOV DX, 2006H
MOV AL, 00000000b
OUT DX, AL
MOV DX, 2033H
MOV AL, 00110001b
OUT DX, AL
MOV CX, 0010H
L017: LOOP L017

MOV DX, 2005H
MOV AL, 00000000b
OUT DX, AL
MOV DX, 2033H
MOV AL, 00100001b
OUT DX, AL
MOV CX, 0010H
L018: LOOP L018

```
MOV DX, 2004H  
MOV AL, 00000000b  
OUT DX, AL  
MOV DX, 2033H  
MOV AL, 00000001b  
OUT DX, AL  
MOV CX, 0010H  
L019 : LOOP L019  
MOV DX, 2003H  
MOV AL, 00000000b  
OUT DX, AL  
MOV DX, 2070 ; LED  
MOV AL, 02H  
OUT DX, AL  
MOV CX, 0040H  
L020 : LOOP L020  
MOV DX, 2002H  
MOV AL, 00000000b  
OUT DX, AL  
MOV DX, 2034H  
MOV AL, 01110011b  
OUT DX, AL  
MOV CX, 0010H  
L021 : LOOP L021  
MOV DX, 2001H  
MOV AL, 00000000b  
OUT DX, AL  
MOV DX, 2034H  
MOV AL, 00110011b  
OUT DX, AL  
MOV CX, 0010H  
L022 : LOOP L022
```

MOV DX, 2000H
MOV AL, 0011110b
OUT DX, AL
MOV DX, 2034H
MOV AL, 001100001b
OUT DX, AL
MOV CX, 0010H
L023: LOOP L023
MOV DX, 2000H
MOV AL, 0001110b
OUT DX, AL
MOV DX, 2034H
MOV AL, 00110000b
OUT DX, AL
L024: LOOP L024
MOV DX, 2000H
MOV AL, 00001110b
OUT DX, AL
MOV DX, 2034H
MOV AL, 00010000b
OUT DX, AL
MOV CX, 0010H
L026: LOOP L026
MOV DX, 2000H
MOV AL, 00000110b
OUT DX, AL

```
MOV DX, 2034H
MOV AX, 0000000b ; SRSCR
OUT DX, AL
MOV DX, 2070H; LED
MOV AL, 00 H
OUT DX, AL
MOV CX, 0040H
L025: LOOP L025
MOV DX, 2000H
MOV AL, 00000010 b
OUT DX, AL
MOV CX, 0010H
L028: LOOP L028
MOV DX, 2000H
MOV AL, 00000000b
OUT DX, AL
MOV CX, 0060H
L027: LOOP L027

INC COUNT
CMP COUNT, 5
JL PRINT

RET
START ENDP
CSEG1 ENDS
END START
```