EXPERIMENT 9
16x1 LCD DISPLAY

Code:

```
$MOD51 ; this includes 8051
ORG 0000
;STORING NAME IN 60H TO 6FH
        MOV R1 ,#60H
        MOV @R1,#'T'
        INC R1
        MOV @R1,#' '
        INC R1
        MOV @R1,#'R'
        INC R1
        MOV @R1,#'A'
        INC R1
        MOV @R1,#'J'
        INC R1
        MOV @R1,#'A'
        INC R1
        MOV @R1,#' '
        INC R1
        MOV @R1,#'A'
        INC R1
        MOV @R1,#'A'
        INC R1
        MOV @R1,#'D'
        INC R1
        MOV @R1,#'H'
        INC R1
        MOV @R1,#'I'
        INC R1
        MOV @R1,#'T'
        INC R1
        MOV @R1,#'H'
        INC R1
        MOV @R1,#'A'
        INC R1
        MOV @R1,#'N'
        MOV A,#38H    ; initialize LCD
        ACALL COMNWRT ; Call command Subroutine
        MOV A, #0EH   ; Display on, cursor on.
        ACALL COMNWRT ; Call command Subroutine.
        MOV A, # 01   ; Clear LCD.
        ACALL COMNWRT ; Call command subroutine
        MOV A, #80H ; Cursor at line 1 position 0
        ACALL COMNWRT ; Call command subroutine.

; // MESSAGE DISPLY
        MOV R0,#16
        MOV R1,#60H
   LOOP:MOV A,@R1
        ACALL DATAWRT
        INC R1
        DJNZ R0,LOOP
 AGAIN: SJMP AGAIN

COMNWRT:MOV P1, A
        CLR P3.1; RS=0 FOR COMMAND WRITE
        CLR P3.0; R/W=0FOR WRITE
        SETB P3.2; E=1 FOR HIGH PUSLSE
        CLR P3.2 ;E=0 FOR H-TO-L PULSE
        RET

DATAWRT:MOV P1, A; WRITE DATA TO LCD
        SETB P3.1; RS=1 FOR DATA
        CLR P3.0; R/W=0 FOR WRITE
        SETB P3.2; E=1 FOR HIGH PULSE
        CLR P3.2; E=0 FOR H-TO-L PULSE
        RET
        END
```

Theory:

16×1 LCD module is a very common type of LCD module that is used in 8051 based embedded projects. It consists of 16 rows and 1 column of 5×7 or 5×8 LCD dot matrices. The module were are talking about here is a type which is a very popular one . It is available in a 16 pin package with back light ,contrast adjustment function and each dot matrix has 5×8 dot resolution.

Circuit and Output: