How to display text on 16x2 LCD using AVR microcontroller (ATmega16)

To send string on LCD:

i. Make a string pointer variable

ii. Pass the starting address of string to that pointer variable

iii. Pass the string pointer value to the LCD_write function

iv. Increment the pointer value and go to step (iii.) till the value of pointer reaches NULL character.

```
void LCD_write_string(unsigned char *str)     //store address value of the string in pointer
*str
{
         int i=0;
         while(str[i]!='\0')                                    // loop will go on till the
NULL character in the string
         {
                  LCD_write(str[i]);                            // sending data on LCD byte
by byte
                  i++;
         }
         return;
}
```

Full Code :

```
//Program to Display string on LCD using AVR Microcontroller (ATmega16)
/*
LCD DATA port----PORT B
signal port------PORT D
         rs-------PD0
         rw-------PD1
         en-------PD2
*/

#include<avr/io.h>
#include<util/delay.h>

#define LCD_DATA PORTB           //LCD data port

#define ctrl PORTD
#define en PD2           // enable signal
#define rw PD1           // read/write signal
#define rs PD0           // register select signal

void LCD_cmd(unsigned char cmd);
void init_LCD(void);
void LCD_write(unsigned char data);

int main()
```

```
{
        DDRB=0xff;
        DDRD=0x07;
        init_LCD();             // initialization of LCD
        _delay_ms(50);          // delay of 50 mili seconds
        LCD_write_string("EngineersGarage");      // function to print string on LCD
        return 0;
}

void init_LCD(void)
{
        LCD_cmd(0x38);          // initialization of 16X2 LCD in 8bit mode
        _delay_ms(1);

        LCD_cmd(0x01);          // clear LCD
        _delay_ms(1);

        LCD_cmd(0x0E);          // cursor ON
        _delay_ms(1);

        LCD_cmd(0x80);   // ---8 go to first line and --0 is for 0th position
        _delay_ms(1);
        return;
}

void LCD_cmd(unsigned char cmd)
{
        LCD_DATA=cmd;
        ctrl =(0<<rs)|(0<<rw)|(1<<en);
        _delay_ms(1);
        ctrl =(0<<rs)|(0<<rw)|(0<<en);
        _delay_ms(50);
        return;
}

void LCD_write(unsigned char data)
{
        LCD_DATA= data;
        ctrl = (1<<rs)|(0<<rw)|(1<<en);
        _delay_ms(1);
        ctrl = (1<<rs)|(0<<rw)|(0<<en);
        _delay_ms(50);
        return ;
}

void LCD_write_string(unsigned char *str) //store address value of the string in pointer *str
{
        int i=0;
        while(str[i]!='\0')       // loop will go on till the NULL character in the string
        {
                LCD_write(str[i]);       // sending data on LCD byte by byte
                i++;
        }
        return;
}
```