```
    NAME DISPLAY
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;
;                                                                            ;
;                                    QUEUE                                   ;
;                               Display Routines                             ;
;                                   EE/CS 51                                 ;
;                                 Archan Luhar                               ;
;                                 TA: Joe Greef                              ;
;                                                                            ;
;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;;


; DisplayTimerInit
;
; Description:      This function initializes the display timer event handler
;                   and display_string.
; Operation:        It zeroes out all 8 chars in display_string and
;                   sets the timer event handler to the function pointer of
;                   DisplayTimerEventHandler.
;
; Arguments:        None.
;
; Return Value:     None.
;
; Local Variables:  None.
;
; Shared Variables: display_string
;                   currentIndex
;
; Global Variables: None.
;
; Input:            None.
;
; Output:           Display
;
; Error Handling:   None.
;
; Algorithms:       None.
;
; Data Structures:  None.
;
; Registers Used:   None.
;
; Stack Depth:      .
;
; Author:           Archan Luhar
; Last Modified:    11/04/2013
;
;
; Pseudo Code
; -----------
;   currentIndex = 0
;   display_string = 0 dup 8
;   Set Timer 2 registers to interrupt every 1/1000 second.
;   Interrupt Table [ timer 2 ] = DisplayTimerEventHandler



; DisplayTimerEventHandler
;
; Description:      This function is handles timer interrupts and outputs
;                   to the display what is stored at display_string shared
;                   memory.
;
; Operation:
;
; Arguments:        display_string shared variable
;
; Return Value:     None.
;
; Local Variables:  None.
;
; Shared Variables: display_string
;                   currentIndex
;
; Global Variables: None.
;
; Input:            None.
;
; Output:           Display
;
; Error Handling:   None.
;
; Algorithms:       None.
;
; Data Structures:  None.
;
; Registers Used:   None.
;
; Stack Depth:      .
;
; Author:           Archan Luhar
; Last Modified:    11/04/2013
;
;
; Pseudo Code
; -----------
;   FIRST_DISPLAY_UNIT = 0
;   NUM_DISPLAY_DIGITS = 8
;
;   OUT (FIRST_DISPLAY_UNIT + currentIndex), display_string[currentIndex]
;   currentIndex = (currentIndex + 1) mod NUM_DISPLAY_DIGITS



; Display
;
; Description:      This function is used to display a <null> terminated string
;                   to the LED display on the target board.
;
; Operation:        This function goes through each character of the string
;                   located at ES:SI by checking if it is a letter or digit
;                   and then writing the corresponding led display bits from a
;                   array to a space in memory dedicated to storing the current
;                     display. A timer interrupt handler will take care of
;                     actually OUTputting to the several display pieces the
;                     letter and digit "codes".
;
; Arguments:          SI - the offset from ES which is the location of the the
;                     string.
;
; Return Value:       None.
;
; Local Variables:    None.
;
; Shared Variables:   SEGTAB14 - LED pattern codes table for ASCII characters
;                     display_string - a portion of the memory dedicated to
;                                      storing the exact representation of the
;                                      currently displayed characters. The timer
;                                      event handler will display what is in this
;                                      location.
;
; Global Variables:   None.
;
; Input:              None.
; Output:             A timer interrupt handler will output to the LED display
;                     the ASCII-display binary translated digits and letters.
;
; Error Handling:     None.
;
; Algorithms:         None.
;
; Data Structures:    Array.
;
; Registers Used:     None.
;
; Stack Depth:        .
;
; Author:             Archan Luhar
; Last Modified:      11/04/2013
;
;
; Pseudo Code
; -----------
;   i = 0;
;   while true:
;       char = string[i]
;       if char == ASCII_NULL:
;           display_string[i] = DISPLAY_STRING_END_CHAR
;           break;
;
;       display_string[i] = SEGTAB14[char];
;
;       i++;




; DisplayNum
;
; Description:        This function is used to display a decimal number to
;                   the LED display.
;
; Operation:        This function simply calls Dec2String to get the ASCII
;                   representation of the number and then call Display
;                   to display the ascii representation of the number.
;
; Arguments:        AX - number to display.
;
; Return Value:     None.
;
; Local Variables:  None.
;
; Shared Variables: None.
; Global Variables: None.
;
; Input:            None.
; Output:           None.
;
; Error Handling:   None.
;
; Algorithms:       None.
;
; Data Structures:  None.
;
; Registers Used:   None.
;
; Stack Depth:      .
;
; Author:           Archan Luhar
; Last Modified:    11/04/2013
;
;
; Pseudo Code
; -----------
;   Display(Dec2String(n))



; DisplayHex
;
; Description:      This function is used to display a hexadecimal number to
;                   the LED display.
;
; Operation:        This function simply calls Hex2String to get the ASCII
;                   representation of the number and then call Display
;                   to display the ascii representation of the number.
;
; Arguments:        AX - number to display.
;
; Return Value:     None.
;
; Local Variables:  None.
;
; Shared Variables: None.
; Global Variables: None.
;
; Input:            None.
; Output:           None.
;
; Error Handling:   None.
;
; Algorithms:       None.
;
; Data Structures:  None.
;
; Registers Used:   None.
;
; Stack Depth:      .
;
; Author:           Archan Luhar
; Last Modified:    11/04/2013
;
;
; Pseudo Code
; -----------
;   Display(Hex2String(n))
```