```
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;     CE2801 sect. 011
;     10/2/2021
;
;     File:
;           test.S
;     Description of File:
;           Lab 3, Driver to test all methods
;     (opt) Dependencies:
;           delay.S
;           LED_init.S
;           num_to_LED.S
;           num_to_ASCII.S
; Assembler Directives
.syntax unified
.cpu cortex-m4
.thumb
.section .text
.global main
.equ MAX_LOOP, 0x400    ; Loop if less than 1024
.equ DELAY_500, 0x1F4   ; 500ms delay
.equ DELAY_LONG, 0x1388 ; long delay
.equ ASCII, 0x4D2       ; Number to be converted to ASCII
main:
      BL num_to_LED_init      ; Initialize the LEDs
ascii:
      LDR R1, =ASCII          ; Load the number being converted
      BL num_to_ASCII         ; Convert the number to ASCII
1:
      LDR R1, =DELAY_500      ; Prepare the 500ms delay between digits
      BL delay_ms             ; Execute the delay between digits
      CMP R0, #0              ; Determine if the digits register is empty
      MOV R1, #0              ; Empty the register holding the current digit
      ITTT NE                 ; If the digits register is not empty
            BFINE R1, R0, #0, #8    ; Insert the next ASCII value into the current digit
            LSRNE R0, R0, #8  ; Shift the register holding all digits to the next digit
            BLNE num_to_LED   ; Display the current digit
      IT NE                   ; Another conditional block
            BNE 1b            ; Branch back to the beginning if the digits aren't empty
      LDR R1, =DELAY_LONG     ; Load the long delay
      BL delay_ms             ; Execute the long delay
      B ascii                       ; Start process over again
```