```
;*****************************************
;**** lab5 up down switch to 7 segment -> interrupt
;*****************************************
        PROCESSOR PIC16F628
        #include <P16F628.INC>
        __CONFIG    _CP_OFF & _MCLRE_OFF & _HS_OSC & _LVP_OFF & _WDT_OFF

        cblock  0x20
            temp
            INT_mS
            TESTTTT
            temp1
            count
            count0
            count1
            count2
            w_temp
            OPTION_REG_temp
            STATUS_temp
        endc

        ORG 0x00        ;reset vector
        goto    main    ;vector to main program

        ORG 0x04        ;interrupt vector
        goto    ISR     ;exit Interrupt Service Routine


main:
        call    Init
        goto    $

;---interrupt---
;clock 4MHz, 1cycle=1uS
;ISR every 200mS -> 200,000 cycle
; 200,000/x < 256 -> x > 200,000/256
; 256-(1000/4)= 256-250 = 6

ISR:
        bcf     INTCON,T0IF     ; clear Timer0 interrupt flag
        movlw   .6
        movwf   TMR0            ; reload for another 100uS period

        incf    INT_mS,f
        movlw   .200
        subwf   INT_mS,w
        btfsc   STATUS,Z    ;check if INT_mS=200?
        call    L1          ;yes

        RETFIE


L1:     incf    temp,f

        movlw   .16
        subwf   temp,w
        btfsc   STATUS,Z    ;check if temp=16?
        clrf    temp        ;Yes, clear 'temp' back to zero

        movf    temp,w      ;use [Temp] to call 'Table7seg'
        call    Table7seg
        movwf   TESTTTT
        movwf   PORTB       ;Send the obtain 7 seg pattern to PORTB
        clrf    INT_mS

        return


```

```
69  ;Loopup table for 7segments LED Patterns
70  Table7seg:
71          addwf   PCL,F
72          ;Segments   .GFEDBA
73          retlw   B'00111111'     ;Number0
74          retlw   B'00000110'     ;Number1
75          retlw   B'01011011'     ;Number2
76          retlw   B'01001111'     ;Number3
77          retlw   B'01100110'     ;Number4
78          retlw   B'01101101'     ;Number5
79          retlw   B'01111101'     ;Number6
80          retlw   B'00000111'     ;Number7
81          retlw   B'01111111'     ;Number8
82          retlw   B'01101111'     ;Number9
83          retlw   B'01110111'     ;A
84          retlw   B'01111100'     ;B
85          ;retlw  B'01011000'     ;C little
86          retlw   B'00111001'     ;C big
87          retlw   B'01011110'     ;D
88          retlw   B'01111001'     ;E
89          retlw   B'01110001'     ;F
90          retlw   B'10000000'     ;dot-point
91
92
93  Init:   ;---Port Config---
94          banksel PORTB       ; select Bank0
95          movlw   .7
96          banksel CMCON       ; select Bank0 (CMCON อยู่Bank0)
97          movwf   CMCON       ; Disable analog comparator
98          banksel TRISB       ; select Bank1
99          clrf    TRISB       ; 0=output, 1=input
100         ;---End Port Config---
101         ;---Option Config---
102         banksel OPTION_REG  ;   select Bank1
103         movlw   B'00000001' ;   prescaler to TMR0 at rate 1:4
104         movwf   OPTION_REG
105         ;---Interrupt Config---
106         banksel PORTB       ;   select Bank0
107         bsf     INTCON,T0IE ; enable timer0 interrupt
108         bcf     INTCON,T0IF ; clear timer0 interrupt flag
109         bsf     INTCON,GIE  ; enable global interrupt *enable GIE should be
            the last code line (dunno why)
110         ;---End Interrupt Config---
111         ;---End Option Config---
112         movlw   .6      ; reload value for 1mS interrupt period
113         banksel PORTA       ; select Bank0
114         movwf   TMR0        ; set TMR0 = 6
115         clrf    PORTB
116         clrf    temp
117         clrf    INT_mS
118         return
119
120         END
121
122
123
124
125
126
```