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

        cblock  0x20
            temp
            temp1
            count
            count0
            count1
            count2
        endc

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


main:
        call    Init

L1:
        btfsc   PORTA,0     ; is UP pressed?
        goto    L2

        incf    temp,f

L2:     btfsc   PORTA,1     ; is DOWN pressed?
        goto    L3

        decf    temp,f

L3      movlw   .16
        subwf   temp,w
        btfss   STATUS,Z    ;check if temp=16?
        goto    L4      ;No,check zero

        clrf    temp        ;Yes, clear 'temp' back to zero
        goto    L5          ;Repeat the infinite loop

L4:
        movlw   .255
        subwf   temp,w
        btfss   STATUS,Z    ;check if temp=255?
        goto    L5          ;No, go back and do it again

        movlw   .15
        movwf   temp        ;yes, set temp = 16
        goto    L5          ;Repeat the infinite loop


L5:     movf    temp,w      ;use [Temp] to call 'Table7seg'
        call    Table7seg
        movwf   PORTB       ;Send the obtain 7 seg pattern to PORTB

        movlw   .250
        call    DelayMS

        goto    L1


;Loopup table for 7segments LED Patterns
Table7seg:
        addwf   PCL,F
        ;Segments   .GFEDBA
        retlw   B'00111111'     ;Number0
```

```
69          retlw   B'00000110'     ;Number1
70          retlw   B'01011011'     ;Number2
71          retlw   B'01001111'     ;Number3
72          retlw   B'01100110'     ;Number4
73          retlw   B'01101101'     ;Number5
74          retlw   B'01111101'     ;Number6
75          retlw   B'00000111'     ;Number7
76          retlw   B'01111111'     ;Number8
77          retlw   B'01101111'     ;Number9
78          retlw   B'01110111'     ;A
79          retlw   B'01111100'     ;B
80          ;retlw  B'01011000'     ;C little
81          retlw   B'00111001'     ;C big
82          retlw   B'01011110'     ;D
83          retlw   B'01111001'     ;E
84          retlw   B'01110001'     ;F
85          retlw   B'10000000'     ;dot-point
86
87  DelayMS:
88          movwf   count2
89          incf    count2,f
90          decfsz  count2,f
91          goto    $+2
92          goto    $+3
93          call    Delay1MS
94          goto    $-4
95          return
96
97  Delay1MS:
98          movlw   .50             ; 1 cyc
99          movwf   count1          ; 1 cyc
100 outterloop:
101         movlw   .5              ; 1 cyc * count1
102         nop                     ; 1 cyc * count1
103         movwf   count0          ; 1 cyc * count1
104 innerloop:
105         decfsz  count0,F        ; 1 cyc * count1 * count0
106         goto    innerloop       ; 2 cyc * count1 * count0
107         decfsz  count1,F        ; 1 cyc * count1
108         goto    outterloop      ; 2 cyc * count1
109         return                  ; 1 cyc
110         ; total = 3 + (6+3.count0).count1
111         ; count0 = 5 , count1 = 50, total = 1053 cyc
112
113 ; Time delay subroutine for 1.[W] seconds by calling DelayMS subroutine
114 DelayS:
115         movwf   temp1
116 delays_1:
117         movlw   .250
118         call    DelayMS
119         movlw   .250
120         call    DelayMS
121         movlw   .250
122         call    DelayMS
123         movlw   .250
124         call    DelayMS
125         decfsz  temp1,f
126         goto    delays_1
127         return
128
129 Init:
130         movlw   .7
131         banksel CMCON
132         movwf   CMCON       ; Disable analog comparator
133         banksel TRISB
134         movlw   0x00
135         movwf   TRISB       ; Set PORTB as output ports
136         movlw   0xFF
```

```
137             movwf   TRISA       ; Set PORTA as input ports
138             banksel PORTB
139             clrf    PORTB
140             clrf    temp
141             return
142
143             END
144
145
146
147
148
149
```