```
        #include<p18f4550.inc>

lp_cnt      set 0x01
lp_cnt1     set 0x02

            org 0x00
            goto start
            org 0x08
            retfie
            org 0x18
            retfie


; Subroutine to create 98m second delay with 20 MHz crystal



dup_nop     macro kk
            variable i

i=0
            while i < kk
            nop

i+=1
            endw
            endm



delay98ms   movlw D'250' ; 98ms delay interval
            movwf lp_cnt1,A ; 20MHz crystal
            again1 movlw D'250'
            movwf lp_cnt,A
            again dup_nop D'5'
            decfsz lp_cnt,F,A
            bra again
            decfsz lp_cnt1,F,A
            bra again1
            return

start       bra delay98ms

            end


;-----------------------------------------------------------------
; HOW TO SOLVE THE CALCULATION PART !!!!
;-----------------------------------------------------------------

; 98m second time delay with 20 MHz crystal
; Frequency = 20MHz,which means in 1s,there is 20M oscillations.
; Period,T:the time taken for 1 complete oscillation.
; 1 oscillation takes (0.05 micro sec)
; 1 instruction cycle takes 4 oscillations. (0.2 micro sec)

; 1 sec ----> 20,000,000 oscillations (20M)
; 1 oscillation ----> ? seconds
; 1 oscillation ----> 1/20M seconds
; 1 oscillation ----> 0.05 micro seconds

; 1 instruction cycle ----> 4 oscillation
; 1 instruction cycle ----> ? seconds
; 1 instruction cycle ----> (0.05 micro x 4)
; 1 instruction cycle ----> 0.2 micro seconds

; 1 instruction cycle ----> nop ----> 4 oscillation
; 0.2 micro sec x ? = 98ms ----> ? = 490,000 (490K)
; 490,000/250 = 1960 (Max value for PIC18 is 255 loops)
; 1960/250 = 8
; 8-3 = 5  (Minus 3 dup_nop instructions)
```

```
; D'250', D'250', D'5'
```