

①

Corrections

```
movlw 0xFF;
movwf Counter1;

loop1 movlw 0xFF;
      movwf Counter2;

loop2 decfsz Counter2, F
      goto loop2
      decfsz Counter1, F;
      goto loop1;
      return
```

→ Creates 0.8sec
For 1MHz
oscillator
Creates 0.2sec
delay
for 4MHz
oscillator.

Exo Write a program as described below

- Leds connected to PORTB turn ON & OFF
in a sequential manner with 1sec delay.

S/n: list P=16F84A
include "16F84A.INC"

```
Counter1 equ 0x0E
Counter2 equ 0x0D
c1rf PORTB;
bcf STATUS, 0; bcf STATUS, C
bsf STATUS, RPO;
c1rf TRISB;
bcf STATUS, RPO
```

②

```
bsf PORTB, 0; } → movlw b'00000001'  
movwf PORTB,
```

loopA

```
call delay-1sec;  
movwf PORTB, F;  
btfss STATUS, 0  
goto loopA
```

loopB goto loopB

delay-0.2sec

```
movlw 0xFF,  
movwf Counter1,
```

delay-loop1

```
movlw 0xFF,  
movwf Counter2,
```

delay-loop2

```
decfsz Counter2, F,  
goto delay-loop2,  
decfsz Counter1, F,  
goto delay-loop1,  
return
```

delay-1sec

```
call delay-0.2sec;  
call delay-0.2sec;  
call delay-0.2sec;  
call delay-0.2sec;  
call delay-0.2sec;  
return  
end
```


④

swapf f,d → Swap nibbles in f

↓

The upper and lower nibbles of register "f" are exchanged. If d=0, the result is placed in W register. If d=1, the result is placed in register "f".

Ex.:

```
PORTB → out
movlw 0x0F;
movwf PORTB;
loop call delay_1sec;
      swapf PORTB, F;
      goto loop
```

Ex.:

```
PORTB → out;
movlw b'01011010';
movwf PORTB;
loop call delay_1sec;
      swapf PORTB, F;
      goto loop;
```