Lab 4

Task 2:

```
LIST P=16F877
#include <P16F877.inc>
ORG 0x00 ; Program start address
GOTO MAIN ; Jump to main program

COUNT1 EQU 0x20
COUNT2 EQU 0x30

MAIN:

    BANKSEL TRISB       ; Select bank containing PORTC
    CLRF TRISB          ; Clear PORTC (all outputs low initially)
    BANKSEL PORTB
    CLRF PORTB

BLINK1:

    BANKSEL PORTB
    BSF PORTB, 0

CALL DELAY

    BANKSEL PORTB
    BCF PORTB, 0

CALL DELAY

   GOTO BLINK1

DELAY:

        MOVLW D'10'
        MOVWF COUNT1

OUTER:
        MOVLW D'40'
        MOVWF COUNT2

INNERLOOP:
        NOP
        NOP
        DECFSZ COUNT2,F

   GOTO INNERLOOP
        DECFSZ COUNT1,F

   GOTO OUTER

RETURN
END
```

```
LIST P=16F877
#include <P16F877.inc>
ORG 0x00
GOTO MAIN
COUNT EQU 0X20

MAIN:

BANKSEL TRISB
CLRF TRISB
BANKSEL PORTB
CLRF PORTB

BLINK1:
BANKSEL PORTB
BSF PORTB, 0

CALL DELAY
BANKSEL PORTB
BCF PORTB, 0

CALL DELAY
GOTO BLINK1

DELAY:
MOVLW D'250'
MOVWF COUNT

WAIT1:
NOP
NOP
DECFSZ COUNT, F
GOTO WAIT1
RETURN

END
```
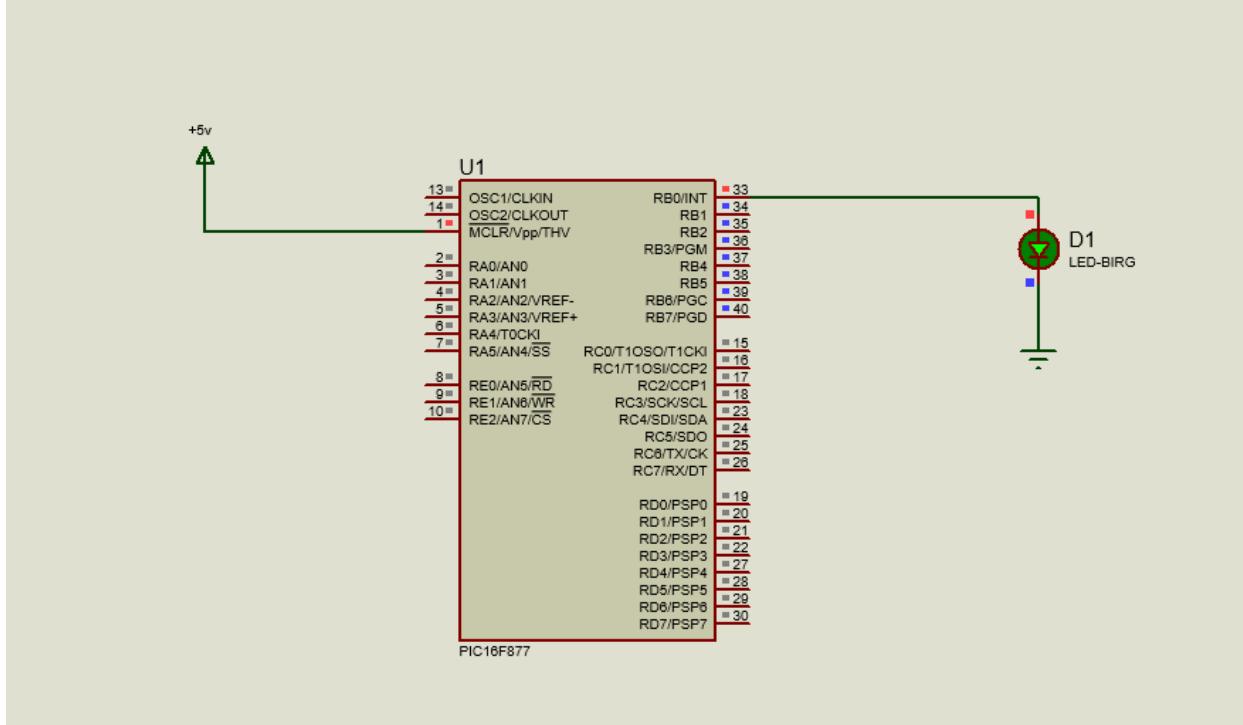
Output

Build | Version Control | Find in Files | MPLAB SIM

```
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 12 : Found
Warning[205] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 15 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 16 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 18 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 19 : Found
Warning[205] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 20 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 22 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 23 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 26 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 27 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 30 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 31 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 32 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 33 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 34 : Found
Warning[205] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 36 : Found
Loaded C:\Users\I236006\Documents\task1lab4.cod.

Debug build of project 'C:\Users\I236006\Documents\lab4.mcp' succeeded.
Preprocessor symbol '__DEBUG' is defined.
Thu Sep 18 12:26:13 2025

BUILD SUCCEEDED
```

Task 3:

```
LIST P=16F877
#include<P16F877.inc>
ORG 0x00;
GOTO MAIN

   COUNT1 EQU 0x20
   COUNT2 EQU 0x30

MAIN:

  BANKSEL TRISB;
  CLRF TRISB;

  BANKSEL PORTB
  CLRF PORTB

          MOVLW 0x0F
          MOVWF PORTB

 CALL DELAY

        SWAPF PORTB, F

 DELAY:
        MOVLW D'10'
        MOVWF COUNT1
OUTER:
        MOVLW D'40'
        MOVWF COUNT2
INNERLOOP:
        NOP
        NOP
        DECFSZ COUNT2,F

   GOTO INNERLOOP

        DECFSZ COUNT1,F

 GOTO OUTER

 RETURN

 END
```

```
LIST P=16F877
#include<P16F877.inc>
ORG 0x00 ;
GOTO MAIN
COUNT EQU 0x20

MAIN:

BANKSEL TRISB ;
CLRF TRISB ;

BANKSEL PORTB
CLRF PORTB

MOVLW 0x0F
MOVWF PORTB

CALL DELAY
SWAPF PORTB, F

DELAY:
MOVLW D'250'
MOVWF COUNT

WAIT1:
NOP
NOP
DECFSZ COUNT, F
GOTO WAIT1
RETURN

END
```

Output Build:
```
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 10 : Found
Message[302] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 10 : Regis
Warning[205] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 12 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 13 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 15 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 16 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 18 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 19 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 22 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 23 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 26 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 27 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 28 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 29 : Found
Warning[203] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 30 : Found
Warning[205] C:\USERS\I236006\DOCUMENTS\TASK1LAB4.ASM 32 : Found
Loaded C:\Users\I236006\Documents\task1lab4.cod.

Debug build of project 'C:\Users\I236006\Documents\lab4.mcp' succeeded.
Preprocessor symbol '__DEBUG' is defined.
Thu Sep 18 12:44:21 2025

BUILD SUCCEEDED
```