Introduction to Microcomputers

Lab0

The goal of this lab is to introduce the PICSIM Simulator and show how you can implement and compile a simple assembly program in MPLabX IDE. You will then load the generated .hex program into the PICSIM Simulator and run it. **Do not submit this code**. This is just so that you get used to using MPLabX IDE and PICSim Simulator.

Assignment

You are asked create a new project named Lab00, add a new assembly file to the project and implement a very simple code to display a decimal value (say 19) on the LEDs connected to PORTD of PIC16F877A. We are giving you the code for this lab. Here is the code:

```
   LIST   P=16F877A
   INCLUDE       P16F877.INC
   __CONFIG _CP_OFF &_WDT_OFF & _BODEN_ON & _PWRTE_ON & _XT_OSC & _WRT_ENABLE_OFF & _LVP_OFF &
_DEBUG_OFF & _CPD_OFF

   ; Reset vector
   org 0x00
   ; ---------- Initialization --------------------------------
   BSF    STATUS, RP0     ; Select Bank1
   CLRF    TRISB          ; Set all pins of PORTB as output
   CLRF    TRISD          ; Set all pins of PORTD as output
   BCF    STATUS, RP0     ; Select Bank0
   CLRF    PORTB          ; Turn off all LEDs connected to PORTB
   CLRF    PORTD          ; Turn off all LEDs connected to PORTD

   ; ---------- Your code starts here --------------------------

   MOVLW   d'19'          ; Put decimal 19 in WREG

   ; ---------- Your code ends here ----------------------------
   MOVWF   PORTD       ; Send the result stored in WREG to PORTD to display it on the LEDs

LOOP   GOTO   $         ; Infinite loop
    END                ; End of the program
```

MPLABX v5.20 & PICSIM Simulator

You will be using MPLABX v5.20 as your IDE for development in all your projects. You can download the IDE from the following link: https://ww1.microchip.com/downloads/en/DeviceDoc/MPLABX-v5.20-windows-installer.exe. A video describing how to create a new project in MPLABX v5.20 and compile it can be found in the following video: https://www.youtube.com/watch?v=wRKhotkvvos&list=PLnnmB3A_3jbZpBs75QCcY6pRphHc9Ka4J

To run the generated executable (.hex file), you will be using the PICSIM simulator, which you can download and install from the following link: https://sourceforge.net/projects/picsim/