# **Lab-2**

**Implementation of looping in PIC microcontroller using assembly language programming**

**Objective**

In this lab students will learn

* How to perform looping using conditional and unconditional jumps?
* What are the branch instructions in PIC?

**Theory**

In the sequence of instructions to be executed, it is often necessary to transfer program control to a different location. There are many instructions in PIC to achieve this.

**Branch instructions and looping**

Repeating a sequence of instructions, a certain number of times is called looping. It is one of the most widely used programming techniques. In PIC, there are several ways to repeat an operation many times.

Different instructions for looping are:

DECFCZ fileReg, d

BNZ Label

BZ

BNC

**Lab Exercise**

What are the assembler directives?

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What is the wake up mode of PIC microcontroller when it is powered up?

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Write a program to clear WREG and add 5 to WREG 20 times and place the result in SFR of PORTC.

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What is the maximum number of times the loop can be repeated?

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Write a program to load the PORTB SFR with value 0AAH and complement PORTB 800 times.

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Find the sum of the values 77H, 55H, 0EFH. Put the sum in fileReg locations 10 (low byte) and 11 (high byte).

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What is the meaning of GOTO $ statement?

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Toggle all the bits of the SFR register of PORTB by sending to it the values 55H and AAH continuously. Put a time delay in between each issuing of data to PORTB.

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What is the advantage of using BRA over GOTO?

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