LAB # 1

24-bit Addition using PIC18F assembly Language Programming

1. **Title:**Introduction to PIC18F assembly language programming.
2. **Objective:**The purpose of this lab is to assemble and debug a PIC 18F assembly language program using Microchip's MBLAB assembler.

3. Prelab:

i)   Assemble and execute the tutorial program written in PIC18F assembly language using the MPLAB (Appendix F of the book).

ii)   It is desired to add two 24-bit data items in memory as shown in the figure below. Store the result pointed to by 0x50. The operation with sample data is given by
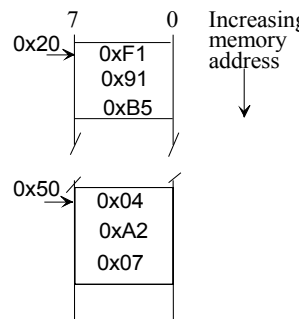
                        F1 91 B5

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      Assume that the data pointers and the data are already initialized.

a. Flowchart the problem.

b. Convert the flowchart to a PIC18F assembly language program at address 0x100. Do not use Loop and indirect addressing mode.

4. **Equipment, Software, and Components required:**

   Microchip's MPLAB assembler /Debugger

5. **Description (corresponding topics covered in the textbook):**

-The concepts associated with this lab provide familiarization withbasic assembly language programming in MPLAB and with the MPLAB assembler/debugger commands. (Problem 6.14 on Page 152)

Prerequisites: Basics of assembly language programming (Pages 115-119), PIC18F registers (Pages 96-100), PIC18F Memory Organization (Pages 100-104), PIC18F Data movement instructions (Pages 124, 125), Addition instructions (Pages 130- 134), MPLAB assembler/Debugger tutorial (Pages 435-463)

6. **Procedure:** Assemble the PIC18F assembly language program using the MPLAB. Then use the debugging tool to verify that the program works properly.

7. **Deliverables:**

   i)   Postlab

   Write a PIC18F assembly language program for Prelab ii)b using Loop and indirect addressing mode.

   ii)   Lab report
   Submit a final Lab report (Staple Signed prelaband typedpostlab at the end of the quarter or semester).

   8.Concluding remarks:
   - Complete each prelab before coming to the lab. Please get it signed.