L0011 – Data transfers, Addressing, and Arithmetic

Please have your textbook available for reference. These exercises are based on 4.9.3 and 4.10. Create a new assembly source file and include reponses to the following.

Goal: Practice new MASM instructions and techniques.

0) Write a sequence of MOV instructions that will exchange the upper and lower words in a doubleword variable named three.

```
; data segment
.data
    three DWORD 12345678h
```

1) Write a sequence of two instructions that set the Carry flag and Zero flag at the same time.

2) a. Implement the "Summing an Integer Array" program from 4.5.4. Make sure that it works.

2) b. Create a version of the "Summing an Integer Array" program using a scale factor with indexed addressing.

3) Use a loop, and with either indirect or indexed addressing, reverse the elements of an integer array in place. (i.e. Do not copy the elements to any other array). Use the SIZEOF, TYPE, and LENGTHOF operators to make the program as flexible as possible if the array size and type should be changed in the future. Don't forget about XCHG).

Tips:

- Know when flags are set and cleared.
- Using hexadecimal will help you keep track of how many bits are in your registers and variables.
- Using pseudocode will help you solve problems before you begin coding.
- Note that XCHG cannot swap mem-mem.
- You can use ESI and EDI to remember the front and the back of arrays.