

# Assembly Language

## Assignment 3

### **Part 1: Chapter 2&3 Review Questions**

- Individual task, every student should submit to the section Instructor.
- **Due:** Next Section (one night before if you submit by email)

Section 2.2.5	: 12, 14	(Book, page 43)
Section 2.3.3	: 4, 6, 7, 8, 9, 10, 11	(Book, page 47)
Section 2.5.2	: 1, 2, 5, 6	(Book, page 55)
Section 2.7	: 3, 4, 5, 6	(Book, page 57)
Section 3.1.11	: All	(Book, page 66)

### **Part 2: Lab**

- Individual task, the instructor should review within the lab.
- **Due:** Next Section.

**In this part you will learn how to write and run a simple 16bit assembly program with 16 bit assembly utilities, and then you will move to a better, friendly environment by using MS visual studio.**

### **Task 1: 16 bit assembly utilities (worth 10 points)**

1. Environment configuration:
  - a. For 32bit "x86" Windows (mostly winxp)
    - i. Start the command prompt [run utility>cmd]
  - For 64 bit windows
    - i. Download DosBox ( [download](#) )
    - ii. Install and start DosBox and mount specific drive (e.g. D) as following [ mount d d:\ ↵]
  - b. Download 8086.rar ( [download](#) )
  - c. Extract 8086.rar to specific drive for example D:\
  - d. Change directory to drive D as following [ d:\8086 ↵]
2. Using notepad (or any equivalent editors), save the following 16 bit assembly basic program into a file with extension ".asm" (e.g. 1.asm). *Note: save the file in "8086" folder*

```

Title 16-bit sample
.model small
.stack 64
.data

.code
main PROC
    mov ax,7fffh
main EndP
END main
  
```

3. In the command prompt run the following instruction [d:\8086> masm 1.asm ]. This will assemble the program and generate the object file (machine code file: "1.obj"). *Note: "masm" is the Microsoft assembler V5.*
  - a. For "object filename" write [1 ↵]
  - b. For "source listing" write [1 ↵]
4. In the command prompt run the following instruction [d:\8086> link 1.obj ]. This will generate the ".exe" file of the program.
5. In the command prompt run [d:\8086>debug 1.exe]
6. In the command prompt run [ p ↵], and note the registers' values.
7. Open "1.lst" and describe its contents.

## Task 2: Assembly with Visual Studio

Please visit: [Getting Started with MASM - Visual Studio](#)

Follow the instructions to configure Visual Studio 2010. Specifically follow the instructions to:

1. Install the Book's Example programs (*download the last version* )
2. Set up Visual Studio
3. Build the "AddSub.asm" Assembly Program and run without debugging

Run "AddSub.asm" program in Debug Mode