Assembly Language Programming
Home Work 1

1) Consider a Segmented Memory Model with a 4 bit base and offset registers used to address a 64 byte memory.
    a. How many possible segments maybe opened in this memory?
    b. What is the size of each individual segment?
    c. What will be the physical address in the memory when segment is 0xA and offset if 0x7.
    d. Suppose a segment register has value 0xA and another segment register has value 0x9, how much do these two segments overlap in the main memory?

2) In the x86 architecture all segment registers are 16 bit long and all offset registers are also 16 bit long. These are used to address 1MB of memory (20 bit addresses).
    a. How many possible segments maybe opened in this memory?
    b. What is the size of each individual segment?
    c. What will be the physical address in the memory when segment is 0xA010 and offset is 0x07AF.
    d. Suppose CS has value 0xA010 and DS has value 0xB7FF, how much do these two segments overlap in the main memory?

3) In a COM program CS=DS=ES=SS. The program begins at 0x100 (this is the starting value of IP) of the code segment. If CS=0x1020, where is the first instruction located in the physical memory?
4) Write a instruction that reads the first word (16 bits) of the op code of the first line of code in the program add adds 2 to it.