Assignment 2

Due date: 24-10-2023

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I confirm that I will keep the content of this assignment confidential. I confirm that I have not received any unauthorized assistance in preparing for or writing this assignment. I acknowledge that a mark of 0 may be assigned for copied work." + Spondon Sayeed + 110101278

1. For each of the following statements, state whether or not the instruction is valid: (4 marks)

a. mov ax,var1 NOT Valid

b. mov ax,var2 NOT Valid

c. mov eax,var3 Valid

d. mov var2,var3 NOT Valid

e. movzx ax,var2 Valid

f. movzx var2,al NOT Valid

g. mov ds,ax Valid

h. mov ds,1000h Valid

2. What will be the hexadecimal value of the destination operand after each of the following instructions execute in sequence? (1 mark)

mov al,var1 ; al = -4 = -0x04

mov ah,[var1+3] ; ah = 1 = 0x01

3. What will be the value of the destination operand after each of the following instructions execute in sequence? (1 mark)

mov ax,var2 ; ax = 1000h

mov ax,[var2+4] ; ax = ???? since it goes out of bounds of the array and ill grab a garbage value

4. What will be the value of the destination operand after each of the following instructions execute in sequence? (2 mark)

mov edx,var4 ; edx = 1

movzx edx,var2 ; edx = 1000

mov edx,[var4+4] ; edx = 2

movsx edx,var1 ; edx = FFFFFFFC

5.1 Write an instruction that increments val2.

inc val2

5.2 Write an instruction that subtracts val3 from EAX.

sub eax, val3

5.3 Write instructions that subtract val4 from val2

sub val2, val4

5.4 If val2 is incremented by 1 using the ADD instruction, what will be the values of the Carry and Sign flags?

Carry = 0

Sign = 1

5.5 If val4 is incremented by 1 using the ADD instruction, what will be the values of the Overflow and Sign flags?

Overflow = 1

Sign = 1

6. Where indicated, write down the values of the Carry, Sign, Zero, and Overflow flags after each instruction has executed: (1.5 marks)

a. CF =1, SF = 0, ZF = 1, OF = 0

b. CF =0, SF = 1, ZF = 0, OF = 1

c. CF = 0, SF = 1, ZF = 0, OF = 0

7.1 What will be the value of EAX after the following instructions mov eax,TYPE myBytes execute?

EAX = 1

7.2 Write a single instruction that moves the first two bytes in myBytes to the DX register

mov dx, WORD PTR myBytes

7.3 Write an instruction that moves the second byte in myWords to the AL register.

mov al, [myWords + 1]

7.4 Write an instruction that moves all four bytes in myBytes to the EAX register.

mov eax, DWORD PTR myBytes

8. Fill in the requested register values on the right side of the following instruction sequence:

- **mov esi,OFFSET myBytes ; esi = E96000**
- **mov al,[esi] ; al = 10h**

- **mov al,[esi+3]** **; al = 40h**
- **mov esi,OFFSET myWords + 2** **; esi = E96006**
- **mov ax,[esi]** **; ax = 72h**
- **mov edi,8** **; edi = 8**
- **mov edx,[myDoubles + edi]** **; edx = 3**