METRO STATE UNIVERSITY

ICS 232 Computer Organization & Architecture
Homework 8 – Irvine Chapter 5 & 6 - 10 points
Due Date: 7/5/2023

Name:

Note: Please post your homework to ICS232 D2L on or before the due date.

Irvine Chapter 5 – Procedures
Irvine Chapter 6 – Conditional Processing

1. Show the value of AL for the instructions below:

```
mov  al, 7Ah
not  al          a. 85h
mov  al,3Dh
and  al,74h      b. 31h
mov  al,9Bh
or   al,35h      c. BFh
mov  al,72h
xor  al,0DCh     d. AEh
```

2. Will the following code jump to the label named Target?

```
mov  ax,8109h negative
cmp  ax,26h postive
jg   target

a. No

mov  ax,8109h
cmp  ax,26h
ja   target

b. No

mov  eax,8109h
cmp  eax,26h
jg   target
```

c. No

```
mov   bx,8109h
movsx eax,bx
cmp   eax,26h
jg    target
```

d. No

3. Write instructions that jump to label L1 when the unsigned integer in DX is less than or equal to the integer in CX.
Cmp dx, cx
Jbe L1

4. Write instructions that jump to label L2 when the signed integer in AX is greater than the integer in CX.
Cmp ax,cx
Jg L2

5. Using the LOOP write the code to sum the positive entries in an array of SWORDs.

```
.data
array     SWORD     -3,-6,-1,-10,10,30,40,4

.code
Mov esi, offset array
Mov ecx, lengthof array
pushfd
Add esi
popfd
loopnz next
```

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```
jnz quit
Sub esi
Quit:
```

6. Implement the following pseudocode in assembly language assuming signed numbers:

```
if (edx <= ecx)
      x = 1;
else
      x = 2;
```

Mov eax, edu
Cmp eax, ecx
jle less;

If edx>ecx
Mov x,2
Jmp done;

Less: if edu <= ecx
Mov x,1

Done:

7. Implement the following pseudocode in assembly language assuming unsigned numbers:

```
if ((val1 > ecx) && (ecx > edx))
      x = 1;
else
      x = 2;
mov ebx,eax
cmp ebx, ecx
```

```
Jbe less

If val1>ecx
Cmp ecx, edx
jbe less

If val1>ecx and ecx>edx
Mov x,1
Jmp done

Less: if!(VAL1>ECX and ecx > edx)
Mov x, 2
```
Prepare for next class by reading lecture notes Irvine Chapter 7 and 8

Continue working on Your Group Project