CSE 331L / EEE 332L: Microprocessor Interfacing & Embedded System

Section: 7&9, Spring 2020

Lab - 04 (Jump Instructions)

Conditional Jumps

Signed	**Unsigned**	**Single-flag**
JE/JZ Jump Equal or Jump Zero **JNE/JNZ** Jump not Equal or Jump Not Zero **JG/JNLE** Jump Greater or Jump Not Less/Equal **JGE/JNL** Jump Greater/Equal or Jump Not Less **JL/JNGE** Jump Less or Jump Not Greater/Equal **JLE/JNG** Jump Less/Equal or Jump Not Greater	**JE/JZ** Jump Equal or Jump Zero **JNE/JNZ** Jump not Equal or Jump Not Zero **JA/JNBE** Jump Above or Jump Not Below/Equal **JAE/JNB** Jump Above/Equal or Jump Not Below **JB/JNAE** Jump Below or Jump Not Above/Equal **JBE/JNA** Jump Below/Equal or Jump Not Above	**JXCZ** Jump if CX is Zero **JC** Jump If Carry **JNC** Jump If No Carry **JO** Jump If Overflow **JNO** Jump If No Overflow **JP/JPE** Jump Parity or Jump Parity Even **JNP/JPO** Jump No Parity or Jump Parity Odd **JS** Jump Sign (negative value) **JNS** Jump No Sign (positive value) SF

Examples

1. print the first five characters of ascii table

```
ORG 100H
.MODEL SMALL
.CODE
MAIN PROC
        MOV AH, 2
        MOV CX, 5
        MOV DL, 0

        PRINT_LOOP:
            INT 21H
            INC DL
            DEC CX
            JNZ PRINT_LOOP

        EXIT:
        MOV AH, 4CH
        INT 21H

MAIN ENDP
END MAIN
```

2. Output the greater number

```
ORG 100H
.MODEL SMALL
.CODE
MAIN PROC
        MOV AH, 1
        INT 21H
        MOV BH, AL
        INT 21H
        MOV CH, AL

        CMP BH, CH
        JA PRINT

        MOV AH, 2
        MOV DL, CH
        INT 21H
        JMP EXIT

        PRINT:
        MOV AH, 2
        MOV DL, BH
        INT 21H
        JMP EXIT

        EXIT:
        MOV AH, 4CH
        INT 21H
MAIN ENDP
END MAIN
```

Example: if AL contains 1 or 3, display “o”l if AL contains 2 or 4, display “e”.

1. if AL contains 1 or 3, display “o”l if AL contains 2 or 4, display “e”.

```
MOV AH, 1
INT 21H

CMP AL, 31H
JE ODD
CMP AL, 33H
JE ODD

CMP AL, 32H
JE EVEN
CMP AL, 34H
JE EVEN

ODD:
        MOV DL, 'O'
        JMP DISPLAY
EVEN:
        MOV DL, 'E'
        JMP DISPLAY

DISPLAY:
        MOV AH, 2
        INT 21H
```

2. Read a character and check if it is uppercase.

```
ORG 100H
.DATA
        MSG1 DB " IS UPPERCASE LETTER$"
        MSG2 DB " IS NOT UPPERCASE$"

.CODE
        MOV AX, @DATA
        MOV DS, AX

        MOV AH, 1
        INT 21H

        MOV AH, 9

        ;CHECK IF AL>='A' AND AL<='Z'
        CMP AL, 'A'
        JL DISPLAY
        CMP AL, 'Z'
        JG DISPLAY

        ;ELSE
        LEA DX, MSG1
        INT 21H
        JMP END

        ;THEN
DISPLAY:
        LEA DX, MSG2
        INT 21H
        JMP END
END:
        MOV AH, 4CH
        INT 21H
```

Task

1. Read a character, check if it is ‘a’ or ‘A’. if yes, print a message “the character: a” or “the character: A”