**CSCI 360 More Load Instructions**

**Load and Test Register**

Format: LTR R1,R2

- loads the contents of R2 into R1 and sets only sets the condition

code. Of course, R1's contents are lost but the register you are

testing, R2, with the instruction remains unaffected.

Code Meaning

0 R1 contains 0

1 R1 contains a negative number

2 R1 contains a positive number

- If you do not want to lose the contents of R1, you can still use   
 this instruction to check if a register contains the value 0, a

negative number, or a positive number by executing a LTR on a   
 register with itself, such as:

LTR 2,2

This will not affect the contents of register 2 but WILL set the

condition code so that you know what type of signed number is in

register 2.

**Load Positive Register**

Format: LPR R1,R2

- loads the absolute value of the contents of R2 into R1

and sets the condition code

Code Meaning

0 R1 contains 0

1 ---

2 R1 contains a positive number

3 Overflow occurred

- overflow will occur if R2 contains the maximum negative

**Load Negative Register**

Format: LNR R1,R2

- loads the negative of the absolute value of the contents of R2

into R1 and sets the condition code

Code Meaning

0 R1 contains 0

1 R1 contains a negative number

**Load Complement Register**

Format: LCR R1,R2

- loads the complement (opposite) of the contents of R2 into R1

and sets the condition code

Code Meaning

0 R1 contains 0

1 R1 contains a negative number

2 R1 contains a positive number

3 Overflow occurred

- overflow will occur if R2 contains the maximum negative

**Load Address**

Format: label LA R,D(X,B)

- We have saved the BEST of the load instructions for last!

- Certainly one of the most important and most useful of ALL

Assembler instructions!

- Calculates the absolute address represented by D(X,B) and loads it

into the last 3 bytes of R. The first byte is set to 00.

Some Possible Uses:

1. Initialize a register to a value between 0 and 4095

LA 10,50 puts the number 50 into register 10

Note that this encodes the instruction with a 0 index register

and a 0 base register and is equivalent to the instruction:

LA 10,50(0,0)

2. Add a value from 1 to 4095 to a register

LA 5,4(,5) adds 4 to the value in register 5 and stores it

back into register 5

3. Add 3 numbers together

LA 10,375(4,5) adds 375 to the values in registers 4 and 5

and stores it in register 10

4. Put the address of a storage field in a register

LA 5,TABLE puts the address of label TABLE in register 5