**CSCI 360 Basic Assembler Instructions**

Generic Format:

optional\_label mnemonic operands line\_documentation

Column: 1 10 16 up to 71

Some instructions set a 2 bit **Condition Code (CC)**, which reflects the execution of an instruction.

**RX Instructions:** R - register, X - D(X,B) address format, 4 bytes

1. **Load**

Column: 1 1 (the same in all instructions below)  
 1 0 6  
Format: label L R,D(X,B)

Copies the 4 bytes at the absolute address represented by D(X,B) into R. The previous contents of R are overwritten.

1. **Store**

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

Stores the contents of R at the absolute address represented by D(X,B).

1. **Add**

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

Takes the 4 bytes from the absolute address represented by D(X,B) and adds it to the contents of R. The result is stored in R.

Sets the Condition Code.

Code Meaning

0 Result is equal to 0

1 Result is less than 0

2 Result is greater than 0

3 Overflow

1. **Subtract**

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

Takes the 4 bytes from the absolute address represented by D(X,B) and subtracts it from the contents of R. The result is stored in R.

Sets the Condition Code.

Code Meaning

0 Result is equal to 0

1 Result is less than 0

2 Result is greater than 0

3 Overflow

**RR Instructions:** 2 registers as the operands, 2 bytes

1. **Load Register**

Format: label LR R1,R2

Copies the contents of R2 into R1. The previous contents of R1 are overwritten.

1. **Add Register**

Format: label AR R1,R2

Adds the contents of R2 to R1. Result is placed in R1.

Sets the Condition Code.

Code Meaning

0 Result is equal to 0

1 Result is less than 0

2 Result is greater than 0

3 Overflow

1. **Subtract Register**

Format: label SR R1,R2

Subtracts the contents of R2 from R1. Result is placed in R1.

Sets the Condition Code.

Code Meaning

0 Result is equal to 0

1 Result is less than 0

2 Result is greater than 0

3 Overflow