**CSCI 360-1 Assignment 3 – Basic Assembler Fall 2018**

**75 points**

**This assignment is in three parts. Each part is worth 25 programming points.**

**Part A**

Write an assembler program that does the following:

* Declare a fullword with label NUM1 with the value 142.
* Declare a fullword with label NUM2 with the value 37.
* Subtract NUM2 from NUM1. To do this, simply load these numbers into registers and use an SR.
* Add NUM1 to NUM2. To do this, load the two numbers into registers (a different pair of registers) and use an AR.
* Now use an XDUMP to dump out the registers and look at the register values to see your answer.

**Part B**

Modify the assembler program from Part A as follows:

* Declare two consecutive fullwords of storage with labels RESULTS1 and RESULTS2.
* Store (ST) the NUM1 answer (NUM1 minus NUM2) into RESULTS1.
* Store (ST) the NUM2 answer (NUM2 plus NUM1) into RESULTS2.
* XDUMP that area of storage (containing RESULTS1 and RESULTS2) using XDUMP. You can use XDUMP to print the two fullwords, RESULTS1 and RESULTS2, in storage by using the label followed by the length of the field like this:

XDUMP RESULTS1,8 DUMP 8 BYTES BEGINNING AT LABEL RESULTS1

* Go into the XDUMP output and verify your math is correct.

**Part C**

Now rewrite your assembler program using explicit addressing. This means on the L and ST, take out your labels and fill in the addresses of the various fullwords. You can get these addresses from the program listing of Part B.

**Other Notes**

To get started, use Option 3 Move/Copy within TSO/ISPF Utilities to copy your ASSIGN1 member in your ASSIGNS PDSE. Name the new member ASSIGN3A. Remove the following three lines of instructions:

LA 3,12 LOAD 12 INTO REGISTER 3

LA 9,5 LOAD 5 INTO REGISTER 9

AR 3,9 ADD REGISTER 9 TO REGISTER 3

and begin adding what you need to to complete Part A above.

Once again, you are encouraged to complete Part A as a PDSE member named ASSIGN3A in your own ASSIGNS PDSE. Then, for Part B, create an entirely new PDSE member named ASSIGN3B and, when you're ready, create an entirely new PDSE member named ASSIGN3C.

**Be sure to follow the documentation standards described beginning on page 9 of the CSCI 360 Course Notes. Be sure your name and the assignment number (including Part A, B or C) is included in the documentation for each file.**

Submit all three .txt files representing your successful runs of your jobs for Parts A, B and C on Blackboard.