**CSCI 360-1 Assignment 3 – Basic Assembler Spring 2019**

**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 variable in storage with label FIRST with the value 142.
* Declare a fullword variable in storage with label SECOND with the value 37.
* Subtract SECOND from FIRST. To do this, simply load these numbers into registers and use an SR.
* Add FIRST to SECOND. 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 in storage with labels ANSWER1 and ANSWER2.
* Store (ST) the FIRST answer (FIRST minus SECOND) into ANSWER1.
* Store (ST) the SECOND answer (SECOND plus FIRST) into ANSWER2.
* XDUMP that area of storage (containing ANSWER1 and ANSWER2) using XDUMP. You can use XDUMP to print the two fullwords, ANSWER1 and ANSWER2, in storage by using the label followed by the length of the field like this:

XDUMP ANSWER1,8 DUMP 8 BYTES BEGINNING AT LABEL ANSWER1

* 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.