Module A1: x86 and x64 architectures and assembly languages

# Exploring Assembly Language

**Lab Description:** The objective of this lab is to demonstrate mastery of the prerequisite material by extending the assembly language concepts discussed in class to create a new functional product that meets the student’s self-defined requirements.

**Lab Environment:** This is intended to be an interactive lab with the instructor providing guidance to extend student demonstrations of the prerequisite knowledge of assembly language. The exercises can be created and run on the machine of choice for students. In addition, they can be created and run in the SRE class virtual environment, which would allow instructors to view/step-in to the student environment even when not co-located.

**LAB EXERCISE/STEP 1**

Write a short program (either in assembly or using inline assembly) that uses three instructions from the Intel manual that were not used in the in-class demonstrations.

**LAB EXERCISE/STEP 2**

Optional – If you have remaining lab time, complete the assignment for the other version (assembly/inline; x64/x86) using three new instructions from the manual that were not used in the in-class demonstrations.

# What to submit

When you have completed your program(s), you should walkthrough it with your instructor, explaining the use of the architectural features and instruction flow of your program.

**Options –**

Instructors can have the students walk through their programs for the entire class.

Instructors can assign instructions for the students to use to minimize overlap.

Instructors could add extension assignments for students who have mastered this material.

Instructors could add deficiency assignments for student who demonstrate gaps or weaknesses with this prerequisite content including detailed register and flow walkthroughs.