

Assignment 1: Lab Exercise (100 points)

Assigned: Friday, Feb 18

Due: Friday, Feb 25

Lab Exercise Description

This simple exercise is designed to help you get used to the various aspects of assembly language programming.

Enter the source code for the following two assembly language program:

- Hello World (hello.asm)
- Convert user input to upper case (toupper.asm)

Both the codes are given on the webpage. Use nasm to produce the .o files and then compile using both ld and gcc. You will have to modify the toupper.asm code to make it work with gcc (very minor change as explained in class). Read the documentation for using GDB for debugging your assembly language program. A sample run file for the toupper program is given on my webpage. Also read the documentation on how to make system calls and follow the instructions given to figure out the function prototypes for a few basic system calls. Read and understand the source code for the macros defined in mine.inc file. These macros will be very useful in future assembly projects. You might not understand all of them now. Don't worry, you will learn most of the constructs used for these macros during the next few weeks. Modify the code given to write a few assembly language programs for practice. Suggestions for practise codes:

- Add a set of numbers entered by user
- Print the ASCII values of alphabets entered
- Print the string entered in reverse order

What you need to do

Have the four executable ready before your respective lab on Friday Feb. 25. The TA's will ask you to show your output during the lab time. Also become familiar with how to make system calls and run GDB commands to debug you code. The TA's will ask you to modify some code and ask you to perform simple GDB steps (e.g. setting breakpoints, printing out register values etc.) during the lab next week.

You will be graded upon your ability to perform the above tasks during the lab.