C Programming Language Refresher Module for Operating Systems

August 28, 2020

Assignment 0.2 (Total points:)

Due date: Aug 31, 2020. Time: 23:59 Hrs. (Hard Deadline)

1 Combining C and Assembly Language Programs

This second exercise is aimed to serve two objectives – writing assembly language programs and secondly to help combine a C program with and assembly languge function.

You need to do the following:

1. Write a program that takes two integers as user inputs. Lets call it prog-add.c.
2. The program calls a function `add`, that is written in assembly languge (x86-64). The program takes two arguments from the stack – *viz.* the two integers that are passed from the `main()` function of `prog-add.c`.
3. The `add` function takes two integer arguments, add them and returns them. The `main` function of `prog-add.c` should print this sum (that has been computed by the `add` function.

You would require to refer to the `manpages` for `gcc` and `nasm` for the same.

What To Submit

- Program source code with Makefile to compile and pause the compilation at each phase.
- Write-up describing the following:
  - Gcc command-line options that pauses the compilation of the program at each step, along with their descriptions.
  - Description the outcomes of each step involving the description of the output file.

Grading Rubric

- Successful compilation of the C and ASM program via the Makefile – 10 points.
- Correct output for the program – 20 points.
- Description of how the program works, *viz.* how the C program calls the ASM routine and how the routine takes the arguments and prints the output – 20 points.