Activity - Arithmetic instructions

Objective

Learn to perform arithmetic instructions in Assembly Language.

Prerequisites

- Before doing the lab, please review the lecture.
- This lab will only work correctly if you run the code in an online assembler due to the lack of debugging features.
- Knowledge of how to run assembly code using nasm assembler in Linux OS.
- Knowledge of how to debug an assembly code using `gdb`.

Task

The variables on the right-hand side of the equations are initialized variables. The variable on the left-hand side is not initialized. Perform the following arithmetic instructions.

1. $result = -var1 * 10$
2. $result = var1 + var2 + var3 + var4$
3. $result = (-var1 * var2) + var3$
4. $result = (var1 * 2)/(var2 - 3)$, choose $var1$ and $var2$ in such a way that the $result$ datatype is an integer.

Debugging parameters

I recommend using the following debugging parameters to display results. See the lecture contents for the explanation.

```
layout asm
layout regs
watch (int) result
break _start
run
stepi
```

What to submit?

1. Draw a flowchart of your thought process. I found this online flowchart website very useful. However, you can use any application of your choice. (1 mark)
2. What were your challenges in performing the lab (from design to the implementation phases)? (1 mark)
3. Working and error-free code. (3 marks)

How to submit it?

- Upload the work in Canvas and clearly define your responses.
- Upload the code in **.txt** format and include comments to describe the code.
- **Do not compress or zip your work.**

Deadline

The deadlines are posted on the Syllabus as well as on Canvas.

Rubric

- All the questions are answered, and the working code is submitted. (Grade 100%)
- Questions are partially answered, and the code has errors or incorrect output. (Grade 50%)

Last updated: Mar 2023 by Dr. Danish Khan.