CS3220-X Assignment #6 (LG-ISA Simulator): Due 3/13(F)

Total 10 pints:

This is a group project. Two students form a group. Only one member of the team needs to submit this assignment in T-square. The other team member simply puts the team member's name.

LG-ISA Functional Simulator

Introduction: In this assignment you will implement a functional simulator of LG-ISA. The specification of ISA provides the details of ISA information.

Your main job is filling out missing functions in the simulator.cc. Especially, DecodeInstruction and ExecuteInstruction are the main functions to complete.

You have to also complete SetConditionCode,

Please note that this simulator does not model timing information. It only models functionality of instructions.

The initial PC starts from location 0.

How to compile and execute the simulator:

To compile the simulator, type make.

Usage: ./simulator <input> to execute simulator.

To generate machine code, we already provide LG assembler for you. To generate assembler, go to the Assembler directory and type make.

Usage: ./assembler <input> <output>

One simple test assembly code is provided for your study.

Grading Policy:

Your simulator will be graded based on correct execution of your simulator. The test benchmark will be posted.

What to turn in:

1. (1) simulator.cc
2. (2) An LG assembly code that calculates the sum 1 ~ 10. You have to write your own assembly code.
3. (3) Final simulator outcome of your assembly code in (3). The final sum should be stored at register 3 (R3). Please name your assembly code as "sum.s"

Grading scheme:

(8 points) Simulator: We will run 4 out of provided test cases with your simulator and compare them with just "diff" commands. Each test will be worth of 2 points. (2x 4=8 points) So please do not change the printf statements. If you add debugging messages or alter the printf statements, before submitting your solution, please revert them. We will just simply use "diff" command to compare your output files.

(2 points) Assembly code: Check r3 values.