

**BRING YOUR LAPTOP to the LAB. Everybody will work individually. We will also CHECK your PRELAB WORK before the lab starts.**

## Lab 1 (Prelab): Introduction to VerySimpleCPU

### Objective

Introduce the concepts and general practices for programming VerySimpleCPU using our Instruction Set Simulator (ISS).

### Background

#### B1: VerySimpleCPU ISS

VerySimpleCPU.exe is an ISS, that is, simulation model.

- Takes a program file, coded in VerySimpleCPU assembly language, as input,
- Reads VerySimpleCPU instructions,
- Executes the instructions, and
- Writes results on to the command window as well as text files.

Provides a debugging environment for VerySimpleCPU programmers.

#### B2: VerySimpleCPU Instruction Set

Please look in "InstructionSet" folder. Make sure you go through the README file, which contains the detailed explanations of the instructions. Do not forget to look at the pictures in the same folder.

### What To Do

In Part 1 of this lab, you will run your first VerySimpleCPU assembly program that finds the maximum of the two numbers in addresses **120, 121** and writes the result into address 130. In Part 2, you modify the program so that it does something else and then you run it again.

#### Part 1

1. Create a workspace for CS240 Lab
  - a. Create a new folder and name it "CS240workspace"
  - b. Download Lab1 folder from:  
  
<https://www.dropbox.com/sh/j7qx63z0tmvdxl6/AABc0x9LLDpkkVUjhzyoZ5o4a?dl=0>
2. Open and analyze the two C files with a text editor. (I suggest you download notepad++.)
3. Open "prelab.asm" then analyze and compare it with "prelab\_low.c"
4. Open the command prompt (ctrl+shift+right\_click in the Part1 folder )
5. Type "VerySimpleCPU.exe prelab.asm r > log" then press ENTER
6. Type "exit" then press ENTER again
7. Open the log file and look at it. The ISS displays memory location before and after every instruction.
8. Look at "memoutd.txt". It displays the final memory contents. Look at location 130 and make sure it is the largest among \*120 and \*121.

Part 2

1. Rewrite the two C codes and the .asm in files prelab\_hi2.c, prelab\_low2.c, and prelab2.asm so that the program finds the minimum not the maximum.
2. Run your program and check the result through memoutd.txt.
3. If it does not work correctly, debug through the “log” file.