Simulator User Manual for P2

CSCI 6461 Group 1 (2019 Fall)

A. The User Interface

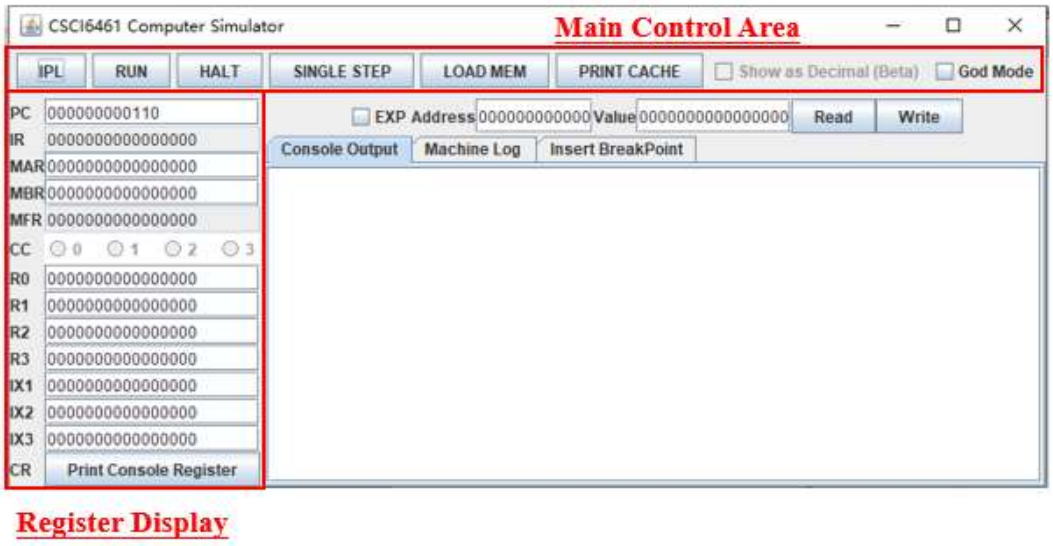

Figure 1: The User Interface of the simulator

Figure 1 shows the simulator GUI interface.

Main Control Area

- **IPL Button** will reset the entire simulator. All data inside the memory and registers will be set to initial value.
- **Run Button** will continue to execute instruction driven by PC unless it meets a HALT instruction or manually click the HALT button on the GUI.
- **HALT Button** will send a HALT.
- **SINGLE STEP Button** will execute one instruction from the PC.
- **LOAD MEM Button** will read a CSV file and load the value to the memory.
  The CSV file should have 2 fields.
  <Memory Location(Binary String)>,<Data(Binary String)>.
  Here is an example:
  000000000001,0000011100011111
  000000000010,0000011100011111
  000000000011,0000011100011111
  000000000100,0000011100011111
  The example above load data "0000011100011111" to memory location 01,10,11,100.
- **PRINT CACHE Button** will print the entire cache data to the “Machine Log” Output Space.

Register Field

- Most of the register value is editable, while some of the registers like IR, MFR, CC is not changeable.
- To change the value of the register, type the value you want to set and press <Enter>.
- **Print Console Register Button** will print all the console register data to the "Machine Log" Output Space. (Console Register is used for IN/OUT Instruction, with DEVID 3-31).

Memory Field

- EXP Click-box is the Memory Expand button. When this box is checked, the max memory is set to 4096 words, while the default is 2048 words.
- To read the memory value, just type the address you want to read, click the Read button, and the value will appear on the value field.
- To write the memory, just type the address and the value and click Write button. If your input is legit, the value will be writing to the memory location.

Console Output

- This is the place for the OUT Instruction to print something. This simulates the "Console Printer" for OUT Instruction.

Machine Log

- This is the place to display all the machine logs, which have a very specific detail to demonstrate what the simulator is doing.
  You can check whether the Cache is HIT or MISS, the value of all dumped info, etc.

Insert BreakPoint (DEBUG ONLY)

- This is the place to set a breakpoint. When clicking the RUN button, when PC meets any of the breakpoint values, the simulator will come to a stop so you can start single step for easy debugging.

B. Operate the simulator to Testing Program 2

A program that reads a set of a paragraph of 6 sentences from a file into memory. It prints the sentences on the console printer. It then asks the user for a word. It searches the paragraph to see if it contains the word. If so, it prints out the word, the sentence number, and the word number in the sentence.

To run this testing program, follow the step below:

- Open the simulator JAR file, and click the "IPL" Button.
- Click the "LOAD MEM" Button, and select the testing program 2 CSV file. (File Name: TestingProgram3(P3).csv)
- Click "RUN"
- It will require load default paragraph here we have example txt file named TestProgram2-Paragraph.txt .
- Then it will ask for a user input word to search. If it find the word, it will print out sentences number and word number of sentence. Else, print nothing but the paragraph