ECEC-355

Project 3: Simulating Complex Program

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1 Introduction

You may work on this project in a team of up to two members. This project is due on **August 8, 2020**.

2 Required Reading

Chapter 2. Instructions: Language of the Computer, Sections 2.1 – 2.10, Sections 2.12 – 2.14.
Chapter 4. The Processor, Sections 4.1 – 4.4.

3 Task

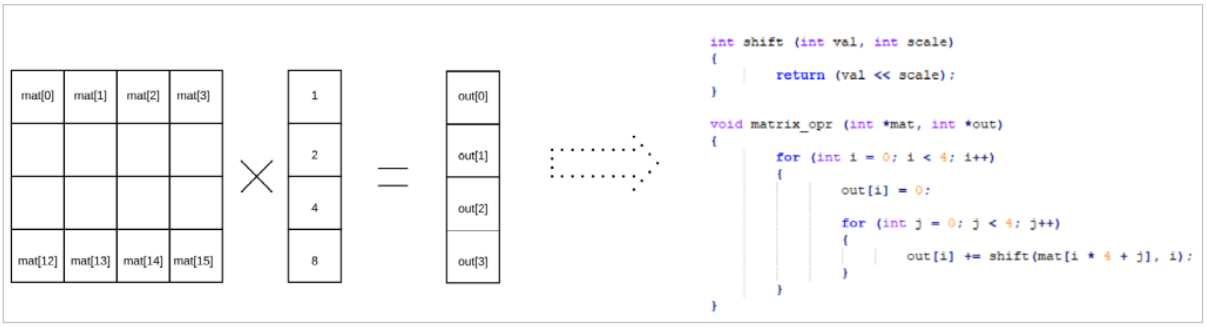

Figure 1: C to RISC-V Assembly Translation

Figure 1 shows a *special* matrix operation (not multiplication) written in C. Please translate it into RISC-V instructions (assume int64_t mat[16] = {0, 1, 2, ... 15}). Your parser doesn't need to resolve any symbols, so when you write something like *jal x1, shift* or *bne x5, x7, exit*, use the corresponding absolute address or relative address instead. Report the following activities.

1. The translated RISC-V program.
2. Changes to *Parser.{h,c}* in order to support simulation of the translated RISC-V program.
3. Changes to *Core.{h,c}* in order to support simulation of the translated RISC-V program.
4. Print and explain the layout of data memory after completion of simulation.

4 Submission

1. Summarize your experiment in 3. Compile your report in PDF format.

2. All the source codes.
3. Zip above and submit through Bblearn.