

CSED211 Homework #2, Due Oct 3, 2018

1. Investigate the following things.
 - A. What is 'Instruction Set Architecture' (ISA)?
 - B. What is 'RISC' architecture? What are the big difference compared to 'CISC'?
2. Read carefully section 3.6.6 and answer the following questions
 - A. Why is the conditional move advantageous?
 - B. As an invalid use of conditional move, it has shown an example of the following code (page 254, 3rd ed.)

```
long cread (long *xp) {  
    return ( xp ?  *xp  :  0 );  
}      // if xp is not null pointer, then return the value by dereferencing
```

// if a compiler generates an assembly code like below, it may make a problem during runtime. (Definitely, gcc compiler will not generate an assembly code like below.)

```
cread:  
    movq    (%rdi), %rax  
    testq   %rdi, %rdi  
    movl    $0, %edx  
    cmovle  %rdx, %rax  
    ret
```

Explain what is wrong in this example.

3. Exercise 3.59 on page 347
4. Exercise 3.62 on page 349
5. Exercise 3.63 on page 350