CSED211 Homework #2, Due Oct 7, 2019

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, 3nd 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
       cmove   %rdx, %rax
       ret
   ```

   Explain what is wrong in this example.

3. Exercise 3.60 on page 348
4. Exercise 3.63 on page 350
5. Exercise 3.66 on page 353
6. Exercise 3.67 on page 354
7. Exercise 3.69 on page 357