CSE2315.004 Spring 2022, by Dr. Park

- HW#2
- Due by 2/16/2022
- No late turn-in is allowed
- Solve the following questions that are in exercises of the textbook (**Mathematical Structures for Computer Science**, Seventh Edition, by Judith L. Gersting, published by Freeman, 2014.) Besides your answers, clearly show your work (if any) to get full points for the corresponding questions.
  - Section 1.3
    - Ex 3, e, f, g, and h (8 p, 2 p each, clearly state the reason other than comments on answer from the textbook)
    - Ex 14, c, d, e, and f (20 p, 5 p each)
    - Ex 31, a, b and c (15 p, 5 p each)
  - Section 1.4
    - Ex 7 (2 p)
    - Ex 8 (5 p)
    - Ex 12 (10 p)
    - Ex 34 (10 p)
    - Customized (12 p)

      - Using predicate logic, prove the following argument is valid. Use the predicate symbols shown.

      There is some car that is faster than anything. Anything that is faster than anything else consumes more gasoline than anything else does. Therefore, there is a car that consumes more gasoline than anything.

      C(x); x is a car
      F(x,y); x is faster than y
      G(x,y); x consumes more gasoline than y

  - Section 2.1
    - Ex 13 (direct proof) (4p)
    - Ex 23 (proof by contraposition) (4p)
    - Ex 26 (10p)

Total 100