Homework #1
(on-line submission due: 9:00, 16 March 2023)

TA in charge of HW#1 is Ai Ger r10943185@ntu.edu.tw.

Collaboration policy: You can discuss the problems with other students, but you must write the final answers by yourself. Please specify all of your collaborators (names and student id's) or resources (websites) for each problem. If you solve some problems by yourself, please also specify "no collaborators". Homework without collaborator specification will be penalized.

1. (10 pts) Exercise 2.2-2 (page 29).

2. (10 pts) Exercise 2.3-3 (page 39).

3. (10 pts) Problem 2-3 (page 41).

4. (10 pts) Prove or disprove $f(n) + g(n) = \Theta(\max(f(n), g(n)))$.

5. (10 pts) Problem 3-3 part a only. Please explain your answer. (page 61).

6. (10 pts) Exercise 4.1-5 (page 75). Please write your pseudo code.

7. (10 pts) Exercise 4.2-4 (page 82).

8. (10 pts) Exercise 4.3-7 (page 87)).

9. (10 pts) Exercise 4.4-9 (page 93).

10. Problem 4-3 part b, f, h, j (page 108) if you use the master theorem, please specify the case number.

DIY problem.   Please invent your own problem and provide a clear solution. This can be based on any algorithm topic that we teach in this class. Every student must submit at least one DIY problem this semester. DIY is graded by your ingenuity so do not copy problems from others. No collaborator is allowed for the DIY problem. The last deadline for DIY is the same as HW#4, 6/03 SAT 6pm.