2020/04/15 Algorithm Homework

Note: When the exercise asks you to "design an algorithm for…," it always means that "designs an EFFICIENT algorithm for … and ANALYZES your algorithm and write pseudo code". You should keep this in mind when writing solutions.

1. **[CLRS 3rd] Exercise 15.5-2**

2. **[CLRS 3rd] Exercise 15.5-4**

3. **[CLRS 3rd] Exercise 16.1-3**

4. **[CLRS 3rd] Exercise 16.1-4**

5. **[CLRS 3rd] Exercise 16.1-5**
   (Hint: refer to Exercise 16.1-1)

6. **A variation from [CLRS 3rd] Exercise 16.2-2**

Given a 0-1 knapsack problem with the knapsack size K and n items, where each item has its weight in integer and its value in real.

(a) Design an algorithm to find the most valuable load of the items that fit into the knapsack.

(b) Design a pseudo-polynomial time algorithm to determine the optimal solution that the total weight **exactly equals** to K.

7. **[CLRS 3rd] Exercise 16.2-6**