COMP 314: Algorithms and Complexity
Lab work 4: Knapsack problem

1 Purpose

Solving Knapsack problem using different algorithm design strategies.

2 Tasks

Solve the Knapsack problem using the following strategies:

1. Brute-force method (Both fractional and 0/1 Knapsack)
2. Greedy method (Fractional Knapsack)
3. Dynamic programming (0/1 Knapsack)

You must submit pseudocodes for each of these methods along with the source code of your program (and test cases).

3 Readings

1. For Knapsack problem:
   Chapter 5 of Horowitz et al. (2013). Fundamentals of Computer Algorithms.
   Chapter 16 of Cormen et al. (2014). Introduction to Algorithms.
2. For unit testings: `https://docs.python.org/3/library/unittest.html`