Greedy Algorithms

Objectives

Using Python to solve complex problems

- Implement complex programs using Python
- Implement recursive algorithms
- Implement search algorithms

Requirements

Consider a **knapsack problem**: we have a list of objects, each with a value (v) and a weight (w). The objective is to place objects in a knapsack of capacity W such that the total value of objects is maximum and the total weight does not exceed W.

- maximize

- subject to

Develop a greedy algorithm for the 0-1 knapsack problem. The solution should include:

- A class to model the problem – shop/repository containing the objects

- A class to model the solution – backpack (capacity, items) with the selected items