

Knapsack Problem

The Fractional Knapsack algorithm sorts the items by their value-to-weight ratio (value divided by weight) in descending order and then selects items greedily until the knapsack is full.

Explanation of the Fractional Knapsack algorithm:

1. Calculate the value-to-weight ratio for each item:

- Calculate the value-to-weight ratio for each item by dividing the value of each item by its weight.

2. Sort the items by the value-to-weight ratio in descending order:

- Sort the items based on their value-to-weight ratio in descending order.

3. Iteratively add items to the knapsack:

- Start with an empty knapsack. Iterate through the sorted items, and for each item:
 - If the entire item fits into the knapsack, add it to the knapsack and update the remaining capacity and total value.
 - If the item doesn't fit entirely, add a fraction of it to the knapsack so that the knapsack is filled to its capacity.