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In [ ]: Algorithm: Greedy-Fractional-Knapsack (w[1..n], p[1..n], W)
        for i = 1 to n
            do x[i] = 0
        weight = 0
        for i = 1 to n
            if weight + w[i] ≤ W then
                x[i] = 1
                weight = weight + w[i]
            else
                x[i] = (W - weight) / w[i]
                weight = W
                break
        return x

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In [1]: def fractional_knapsack(value, weight, capacity):
        # index = [0, 1, 2, ..., n - 1] for n items
        index = list(range(len(value)))
        # contains ratios of values to weight
        ratio = [v/w for v, w in zip(value, weight)]
        # index is sorted according to value-to-weight ratio in decreasing order
        index.sort(key=lambda i: ratio[i], reverse=True)

        max_value = 0
        fractions = [0]*len(value)
        for i in index:
            if weight[i] <= capacity:
                fractions[i] = 1
                max_value += value[i]
                capacity -= weight[i]
            else:
                fractions[i] = capacity/weight[i]
                max_value += value[i]*capacity/weight[i]
                break

        return max_value, fractions

n = int(input('Enter number of items: '))
value = input('Enter the values of the {} item(s) in order: '
              .format(n)).split()
value = [int(v) for v in value]
weight = input('Enter the positive weights of the {} item(s) in order: '
               .format(n)).split()
weight = [int(w) for w in weight]
capacity = int(input('Enter maximum weight: '))

max_value, fractions = fractional_knapsack(value, weight, capacity)
print('The maximum value of items that can be carried:', max_value)
print('The fractions in which the items should be taken:', fractions)

Enter number of items: 3
Enter the values of the 3 item(s) in order: 24 15 25
Enter the positive weights of the 3 item(s) in order: 15 10 18
Enter maximum weight: 20
The maximum value of items that can be carried: 31.5
The fractions in which the items should be taken: [1, 0.5, 0]

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