United International University
Department of Computer Science and Engineering
Course Title: Data Structure and Algorithm II
Lab 5: Basics of Greedy Algorithms
Semester: Fall 2024

Lab Tasks:

Task 1: Fractional Knapsack

Given the weights and profits of N items, in the form of {profit, weight} put these items in a knapsack of capacity W to get the maximum total profit in the knapsack. In Fractional Knapsack, we can break items for maximizing the total value of the knapsack.

Input: arr[] = {{60, 10}, {100, 20}, {120, 30}}, W = 50
Output: 240
Explanation: By taking items of weight 10 and 20 kg and 2/3 fraction of 30 kg. Hence total price will be 60+100+(2/3)(120) = 240

Input: arr[] = {{500, 30}}, W = 10
Output: 166.667