The KNAPSACK program accepts three sets of integers (for this example, program also accepts two integers n (number of items) and m (number of knapsack)).

Two n-tuple sets P = {p1, p2, …, pn} and W = {w1, w2, …, wn} represent the profits and the weights of n items, respectively; while another m-tuple set C = {c1, c2, …, cm} contains the capacities of m knapsacks.

The outputs of KNAPSACK are one n-tuple set Y = {y1, y2, …, yn} and one positive integer TP.

yi = j (where i = 1, 2, …, n and j = 0, 1, …, m) represents that the ith item should be put into the jth knapsack.

If yi = 0, it means that the ith item will not be selected into any knapsack.

TP represents the total profit of the picked items.

The KNAPSACK program attempts to calculate the optimal solution and thus to maximize the total profit.