

Student Name:

Student ID:

Tutorial Exercise in Week 10

Question 1: Given the following knapsack problem:

Item	Value	Weight
1	1	1
2	3	2
3	2	1
4	4	3

The capacity of the knapsack is 5

Use the DP algorithm to solve it.

$$OPT(i, w) =$$

Solution:

	0	1	2	3	4	5
\emptyset	0	0	0	0	0	0
{1}	0	1	1	1	1	1
{1,2}	0	1	3	4	4	4
{1,2,3}	0	2	3	5	6	6
{1,2,3,4}	0	2	3	5	6	7

Backtracking: {4, 2} or {4, 3, 1}